IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

EHARMONY, INC.,
888 East Walnut Street, 2nd Floor, Pasadena,
California 91101,

Plaintiff,

v.

ERECRUITMENT.COM.,
Regina House, 124 Finchley Road,
London NW3 5JS, United Kingdom,

ERECRUITMENT SOLUTIONS LTD.,
207 Old Street,
London EC1V 9NR, United Kingdom, and

GLENN COURTNEY SMITH,
33 Tiverton Drive, New Eltham,
London SE9 2BX, United Kingdom,

Defendants.

CIVIL ACTION NO. _____

COMPLAINT FOR DECLARATORY JUDGMENT OF NON-INFRINGEMENT AND INVALIDITY OF U.S. PATENT NO. 6,701,313

Plaintiff eHarmony, Inc. ("eHarmony") brings this action against Defendants eRecruitment.com, eRecruitment Solutions Ltd. and Glenn Courtney Smith ("Smith") for a declaration of non-infringement by eHarmony's Compatibility Matching System and related services and a declaration of invalidity, each with regard to United States Patent No. 6,701,313 issued to Smith.

THE PARTIES

1. eHarmony is a Delaware corporation, with its principal place of business at 888 East Walnut Street, 2nd Floor, Pasadena, California 91101.

2. eHarmony operates eHarmony.com, which provides Internet-based matching services for singles seeking partners for long-term personal relationships.

3. Upon information and belief, defendant eRecruitment.com is a United Kingdom company having its principal place of business at Regina House, 124 Finchley Road, London NW3 5JS, United Kingdom.

4. Upon information and belief, defendant eRecruitment Solutions, Ltd. is a United Kingdom company having its principal place of business at 207 Old Street, London EC1V 9NR, United Kingdom. Upon information and belief, eRecruitment Solutions, Ltd. owns or possesses a controlling interest in eRecruitment.com.

5. Upon information and belief, eRecruitment.com and eRecruitment Solutions, Ltd. operate a web-site named erecruitment.com that allegedly matches job applicants with employers with job openings.

6. Upon information and belief, defendant Smith is the Chief Executive Officer of eRecruitment.com, and presently resides at 33 Tiverton Drive, New Eltham, London SE9 2BX, United Kingdom.

THE PATENT IN SUIT

7. Smith is the named inventor of United States Patent No. 6,701,313 (the "'313 Patent") entitled "Method, Apparatus and Computer Readable Storage Medium for Data Object Matching Using a Classification Index," issued March 2, 2004, a copy of which is attached hereto as Exhibit A. According to the assignment record at the United States Patent and Trademark Office ("USPTO") Smith had previously assigned the '313 Patent to eRecruitment.com but apparently is now the current assignee of the '313 Patent.

8. Defendants have held themselves out as owners of the '313 patent and possessed of all rights relating to the enforcement of the patent. On information and belief, one or more Defendants are owners and possessed of all rights relating to enforcement of the '313 patent.

9. According to the marking notice on the erecruitment.com web-site , and to information provided by Defendants' counsel, the eRecruitment.com web-site allegedly utilizes the alleged inventions of the '313 Patent to match employers with prospective employees.

10. Defendants have specifically accused eHarmony of infringing the '313 patent. In a letter dated July 14, 2009, Defendants accused eHarmony of infringing at least claims 1 through 10 of the '313 Patent by eHarmony's use of eHarmony's Compatibility Matching System to match, through eHarmony's web-site, single people seeking partners for long-term relationships. Defendants provided specific analysis explaining Defendants' allegation that eHarmony infringes the '313 Patent, requested that eHarmony cease and desist from further alleged infringement or else take a license to practice the '313 Patent, and threatened eHarmony with litigation under 35 U.S.C. § 281, *et seq.*, if eHarmony did not contact Defendants' counsel within 30 days of the July 14, 2009 letter or "if [eHarmony's] product is not withdrawn from the marketplace immediately." eHarmony views Defendants' threats as significant as Defendants seek to shut down eHarmony's core business and/or extract undue monetary payments, most likely through costly litigation. A copy of that letter is attached hereto as Exhibit B.

11. Defendants also allege that an eHarmony's patent concerning its matching process does not protect eHarmony's conduct, as eHarmony's patent is not prior art to the '313 Patent and thus Defendants allege that the claims of the '313 Patent are valid. See Exhibit B.

12. eHarmony does not believe that it needs a license to the '313 Patent because eHarmony's Compatibility Matching System used on its eHarmony.com web-site clearly and

objectively does not infringe any valid claim of the '313 Patent. Moreover, eHarmony believes the claims of the '313 Patent clearly and objectively lack validity.

JURISDICTION AND VENUE

13. This is an action for declaratory judgment pursuant to the Declaratory Judgment Act and the patent laws of the United States. See 28 U.S.C. §§ 2201 and 2202; 35 U.S.C. §§ 100 *et seq.*

14. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

15. This Court has personal jurisdiction over Defendants pursuant to 35 U.S.C. § 293.

16. Venue is proper in this district court under at least 28 U.S.C. §§ 1391(c) and (d) and 35 U.S.C. § 293.

17. An actual and justiciable controversy exists between eHarmony, on the one hand, and Defendants on the other, as to Defendants' assertions that eHarmony allegedly is infringing valid claims of the '313 Patent, such that Defendants demand that eHarmony stop using its eHarmony.com web-site, and eHarmony's belief that it has not infringed and does not infringe, either directly or indirectly, any valid enforceable claim of the '313 Patent, either literally or under the doctrine of equivalents, such that it has the right to conduct its Internet-based matching business without need of a license to the '313 Patent.

COUNT 1

DECLARATORY JUDGMENT OF NO INFRINGEMENT OF THE '313 PATENT

18. eHarmony repeats and realleges the allegations of paragraphs 1–16 as if set forth herein.

19. eHarmony has not infringed and is not now infringing either literally or by application of the doctrine of equivalents any claim of the '313 Patent.

20. eHarmony has not and is not now inducing or contributing to the infringement of any claim of the '313 Patent by others either directly or indirectly, or literally or by application of the doctrine of equivalents.

21. An actual and justiciable controversy exists between Defendants' and eHarmony regarding the alleged infringement of the '313 patent based on Defendants' allegations that eHarmony allegedly infringed and continues to infringe valid claims of the '313 Patent.

22. This is an exceptional case pursuant to 35 U.S.C. §285 entitling eHarmony to an award of its attorneys' fees.

COUNT 2

DECLARATORY JUDGMENT FOR INVALIDITY OF THE '313 PATENT

23. eHarmony repeats and realleges the allegations of paragraphs 1–16 as if set forth herein.

24. Each claim of the '313 Patent is invalid because the patent and the alleged invention therein fails to comply with the requirements of 35 U.S.C. §§ 101 *et seq.*, including but not limited to, 35 U.S.C. §§ 101, 102, 103 and/or 112.

25. An actual and justiciable controversy exists between Defendants and eHarmony regarding the alleged validity of the '313 patent based on Defendants' allegations that eHarmony allegedly infringed and continues to infringe valid claims of the '313 Patent and that eHarmony's own patent on its matching process does protect eHarmony from Defendants' infringement allegations as eHarmony's patent allegedly can not be used as prior art to invalidate the claims of the '313 Patent.

26. This is an exceptional case pursuant to 35 U.S.C. §285 entitling eHarmony to an award of its attorneys' fees.

DEMAND FOR JUDGMENT

WHEREFORE eHarmony respectfully requests that this Court enter the following relief:

1. A declaratory judgment that eHarmony is not liable for past or current infringement of the '313 Patent;

2. A declaratory judgment that the claims of the '313 Patent are invalid;

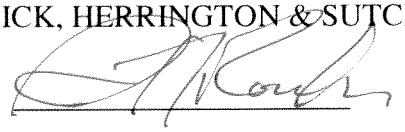
3. A declaration that this case is exceptional under 35 U.S.C. § 285;

4. A judgment in favor of eHarmony for its attorneys' fees, costs and expenses in this action; and

5. A judgment in favor of eHarmony for such further, necessary and proper relief as this Court may deem just and proper.

Dated:
July 31, 2009

ORRICK, HERRINGTON & SUTCLIFFE LLP

By: 

Steven J. Routh (#376068)
T. Vann Pearce (#978216)
Columbia Center
1152 15th Street, N.W.
Washington, D.C. 20005-1706
Tel: (202) 339-8400
Fax: (202) 339-8500
srouth@orrick.com
vpearce@orrick.com

Of counsel:

Matthew J. Hult
Brian H. VanderZanden
1000 Marsh Road
Menlo Park, CA 94025
Tel: (650) 614-7400
Fax: (650) 614-7401
matthult@orrick.com
bvanderzanden@orrick.com

Attorneys for Plaintiff
EHARMONY, INC.

EXHIBIT A

US006701313B1

(12) **United States Patent**
Smith

(10) **Patent No.: US 6,701,313 B1**
(45) **Date of Patent: Mar. 2, 2004**

(54) **METHOD, APPARATUS AND COMPUTER READABLE STORAGE MEDIUM FOR DATA OBJECT MATCHING USING A CLASSIFICATION INDEX**

(76) Inventor: **Glenn Courtney Smith**, 33 Tiverton Dr., New Eltham, London SE9 2BX (GB)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 470 days.

(21) Appl. No.: **09/583,718**

(22) Filed: **May 30, 2000**

(30) **Foreign Application Priority Data**

Apr. 19, 2000 (GB) 0009750

(51) **Int. Cl.**[7] **G06F 17/30**
(52) **U.S. Cl.** **707/6**; 707/100
(58) **Field of Search** 707/3, 6, 10, 100

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,666,442 A * 9/1997 Wheeler 382/209
5,737,594 A * 4/1998 Williams 707/6
5,768,580 A * 6/1998 Wical 707/102
5,806,061 A * 9/1998 Chaudhuri et al. 707/3
5,946,681 A * 8/1999 Shorter 707/3
6,108,645 A * 8/2000 Eichstaedt et al. 707/1
6,311,178 B1 * 10/2001 Bi et al. 707/3

* cited by examiner

Primary Examiner—Greta Robinson
(74) *Attorney, Agent, or Firm*—Dykema Gossett PLLC

(57) **ABSTRACT**

A method of data object generation and matching and an apparatus to perform data object generation and matching uses a predetermined classification index relating to a specific subject to allow two or more users of different types to specify their requirements relating to the subject, and a data object containing the specified requirements in accordance with the classification index is created and stored. When it is desired to match two users of different types the stored data objects are compared, and matching can be undertaken on the basis of corresponding or matching requirements in the respective data objects. The method is particularly suitable for use over the Internet, allowing users to generate and store data objects remotely, for matching in a back-end web server system. Any matching data objects found to match to a particular user's generated data object can be communicated to the particular user over the Internet. The method and apparatus are particularly suitable for use in matching one type of user in the form of a potential employer to another type of user in the form of a potential employee.

47 Claims, 10 Drawing Sheets

POINTER NO. (#)	FIELD.NAME	CATEGORY (EXAMPLE)	ATTRIBUTE.LABEL (EXAMPLE)
1	Category_1.attribute_1	"grade"	"junior"
2	Category_1.attribute_2	"grade"	"intermediate"
3	Category_1.attribute_3	"grade"	"senior"
4	Category_2.attribute_1	"job type"	"permanent"
5	Category_2.attribute_2	"job type"	"contract"
6	Category_2.attribute_3	"job type"	"contract-to-permanent"
. . .	. . .	. . .	. . .
. . .	. . .	. . .	. . .
n	Category_n.attribute_n	Category name	attribute

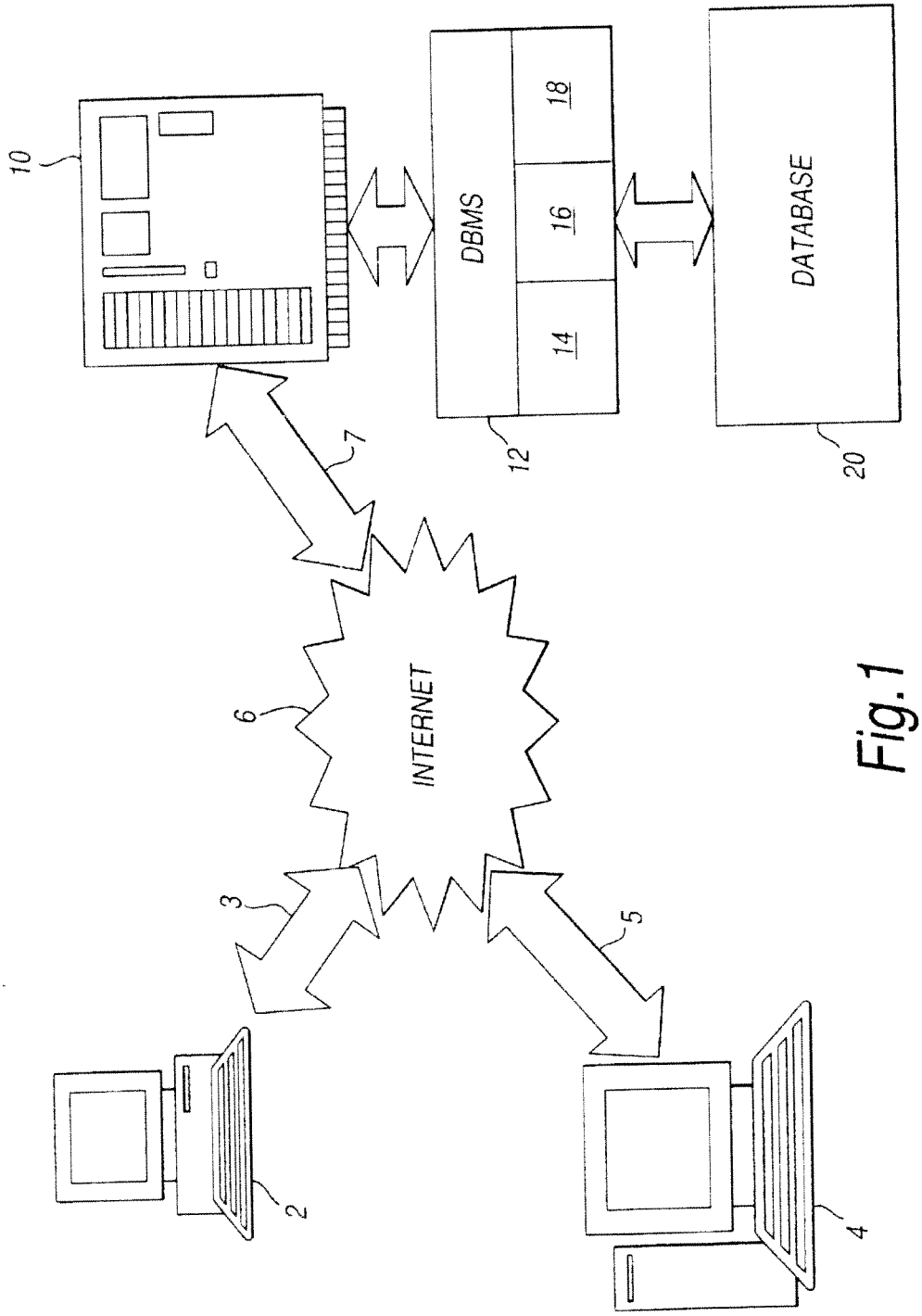


Fig. 1

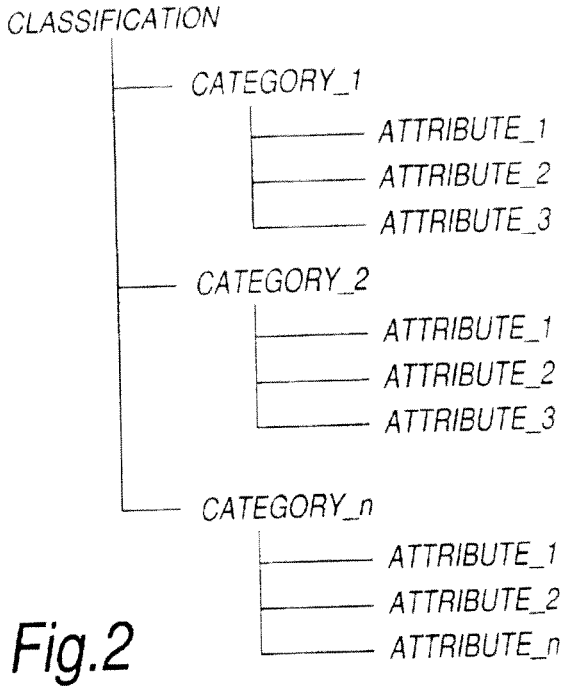


Fig.2

POINTER NO. (#)	FIELD.NAME	CATEGORY (EXAMPLE)	ATTRIBUTE.LABEL (EXAMPLE)
1	Category_1.attribute_1	"grade"	"junior"
2	Category_1.attribute_2	"grade"	"intermediate"
3	Category_1.attribute_3	"grade"	"senior"
4	Category_2.attribute_1	"job type"	"permanent"
5	Category_2.attribute_2	"job type"	"contract"
6	Category_2.attribute_3	"job type"	"contract-to-permanent"
. . .	. . .	. . .	. . .
. . .	. . .	. . .	. . .
n	Category_n.attribute_n	Category name	attribute

Fig.3

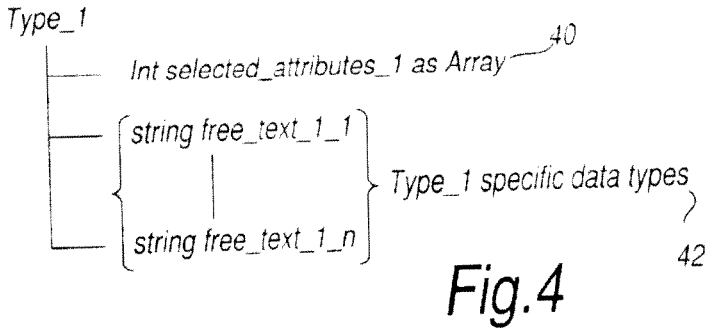


Fig.4

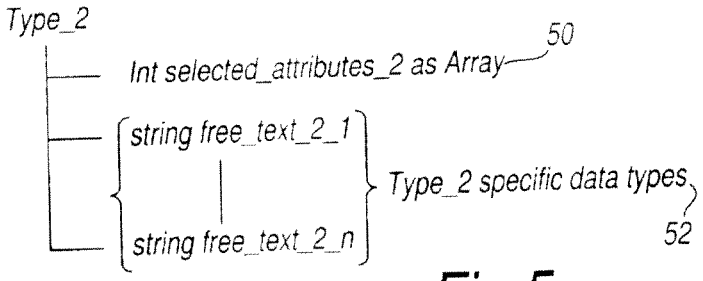


Fig.5

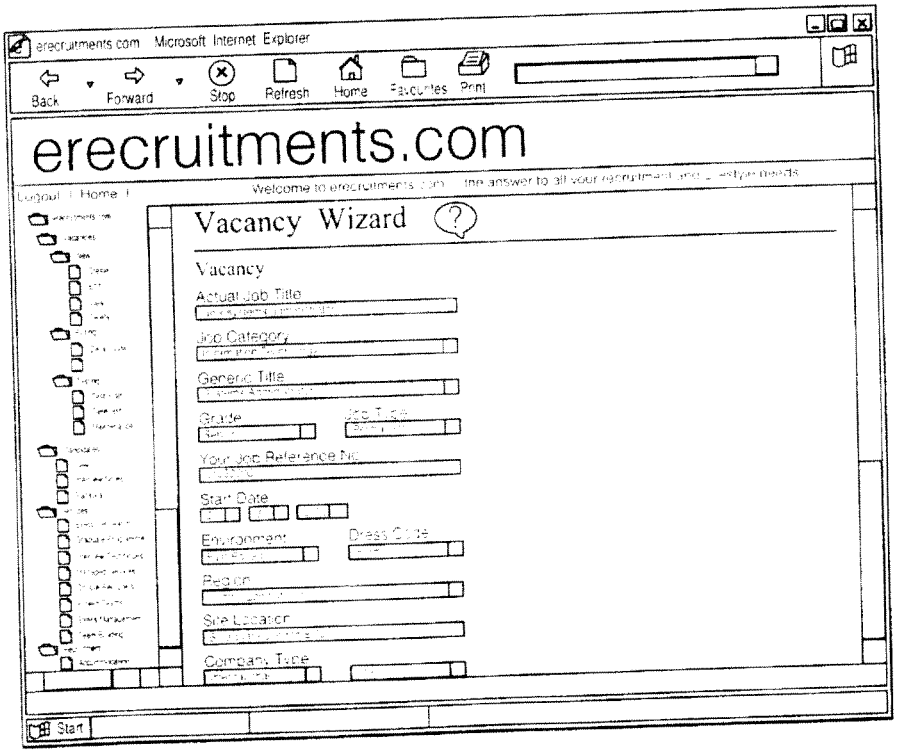


Fig.6

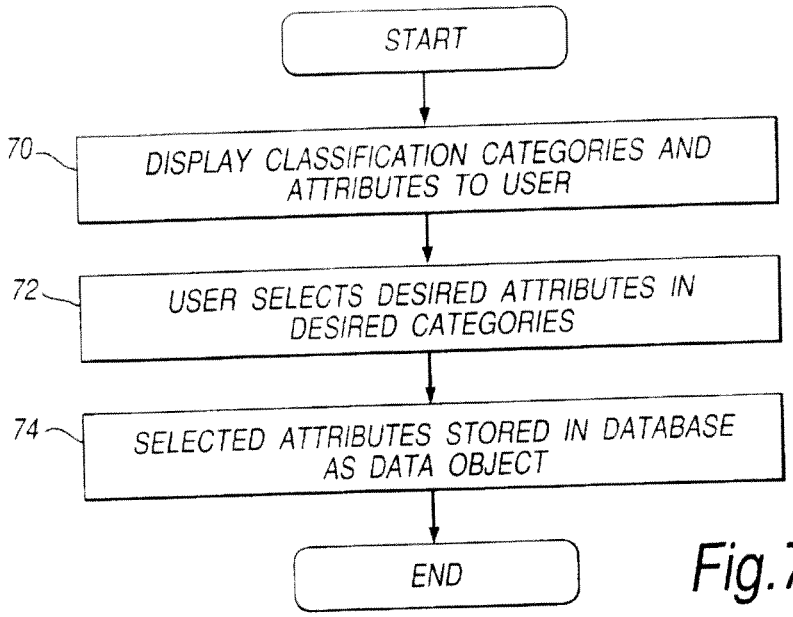

START
70
DISPLAY CLASSIFICATION CATEGORIES AND ATTRIBUTES TO USER
72
USER SELECTS DESIRED ATTRIBUTES IN DESIRED CATEGORIES
74
SELECTED ATTRIBUTES STORED IN DATABASE AS DATA OBJECT
END

Fig.7

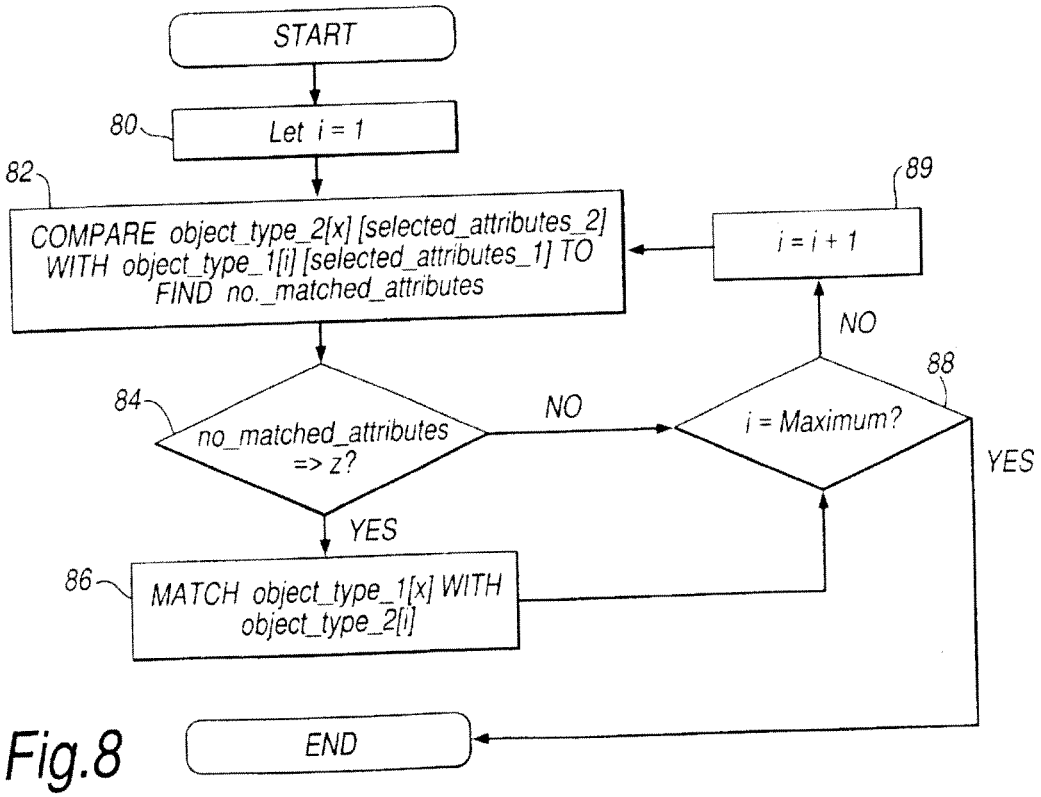

START
80
Let i = 1
82
COMPARE object_type_2[x] [selected_attributes_2] WITH object_type_1[i] [selected_attributes_1] TO FIND no._matched_attributes
84
no_matched_attributes => z?
NO
YES
86
MATCH object_type_1[x] WITH object_type_2[i]
88
i = Maximum?
NO
YES
89
i = i + 1
END

Fig.8

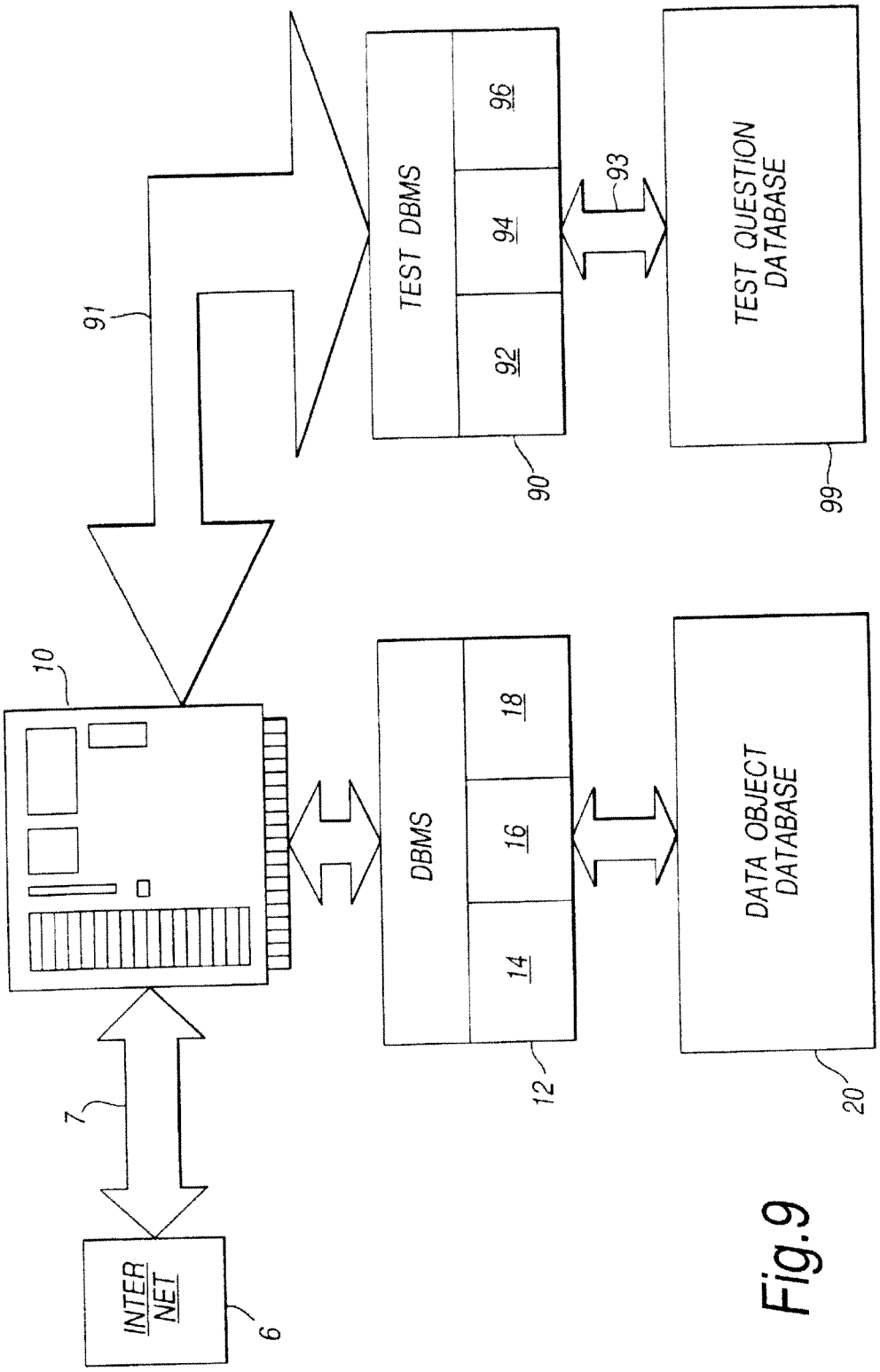

TEST DBMS
96
94
92
90
93
TEST QUESTION DATABASE
99
91
10
DBMS
18
16
14
12
DATA OBJECT DATABASE
20
7
INTER NET
6

Fig.9

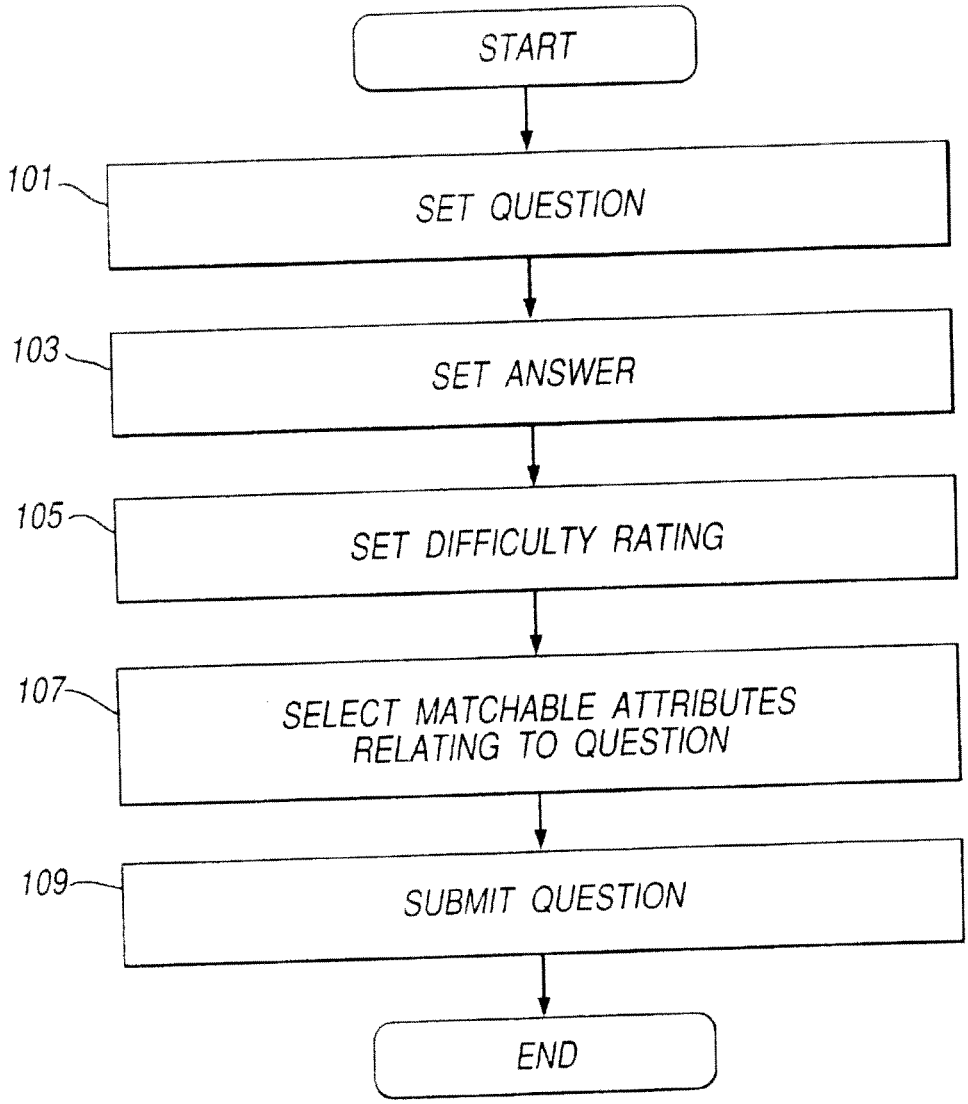

START
101
SET QUESTION
103
SET ANSWER
105
SET DIFFICULTY RATING
107
SELECT MATCHABLE ATTRIBUTES RELATING TO QUESTION
109
SUBMIT QUESTION
END

Fig.10

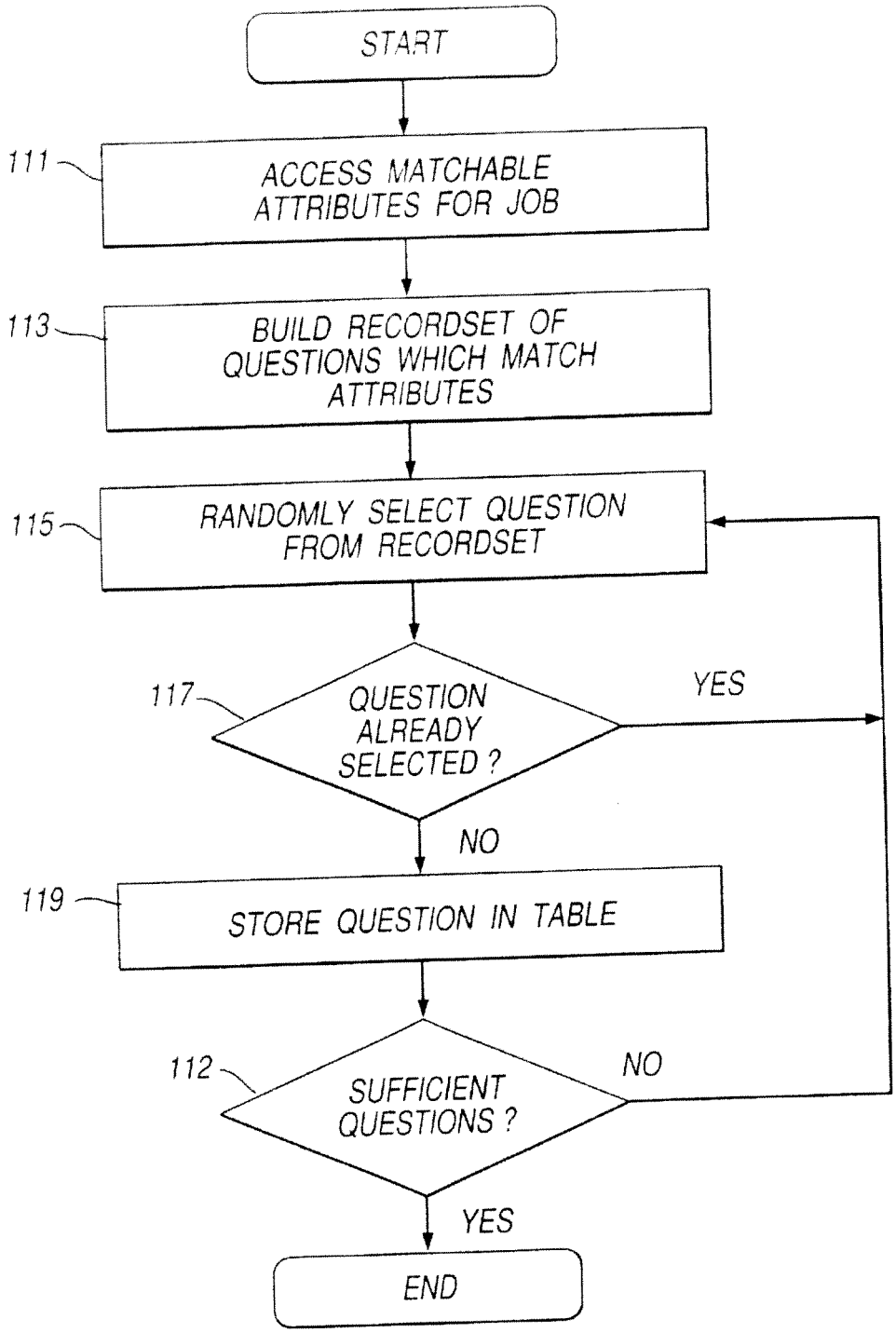

START
111
ACCESS MATCHABLE ATTRIBUTES FOR JOB
113
BUILD RECORDSET OF QUESTIONS WHICH MATCH ATTRIBUTES
115
RANDOMLY SELECT QUESTION FROM RECORDSET
117
QUESTION ALREADY SELECTED ?
YES
NO
119
STORE QUESTION IN TABLE
112
SUFFICIENT QUESTIONS ?
NO
YES
END

Fig.11

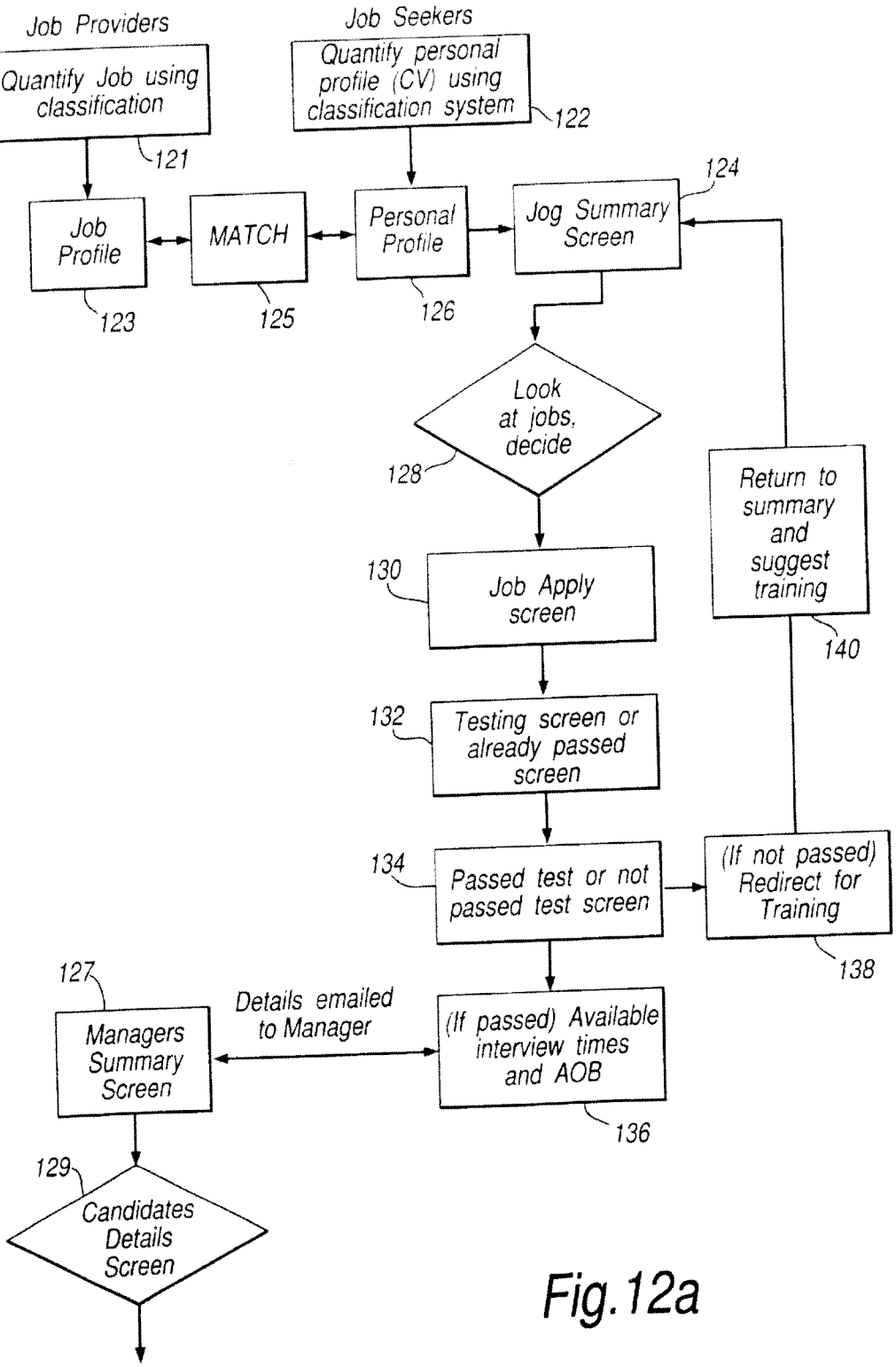

Job Providers
Quantify Job using classification
121
Job Seekers
Quantify personal profile (CV) using classification system
122
Job Profile
123
MATCH
125
Personal Profile
126
Jog Summary Screen
124
Look at jobs, decide
128
Job Apply screen
130
Testing screen or already passed screen
132
Passed test or not passed test screen
134
(If not passed) Redirect for Training
138
Return to summary and suggest training
140
Details emailed to Manager
(If passed) Available interview times and AOB
136
127
Managers Summary Screen
129
Candidates Details Screen

Fig.12a

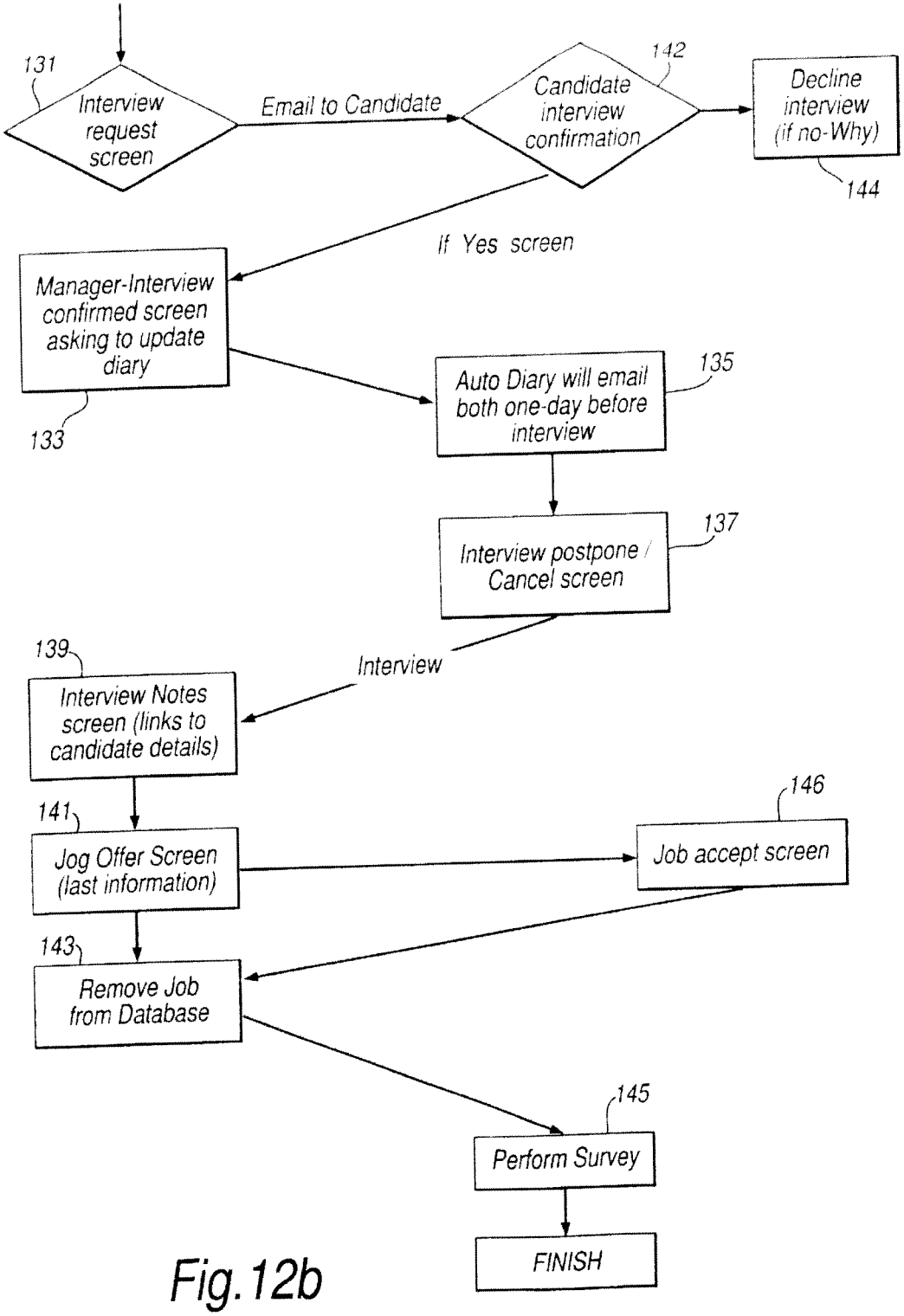

131
Interview request screen
Email to Candidate
142
Candidate interview confirmation
Decline interview (if no-Why)
144
If Yes screen
Manager-Interview confirmed screen asking to update diary
133
Auto Diary will email both one-day before interview
135
Interview postpone / Cancel screen
137
Interview
139
Interview Notes screen (links to candidate details)
141
Jog Offer Screen (last information)
146
Job accept screen
143
Remove Job from Database
145
Perform Survey
FINISH

Fig.12b

First Sub-Class (must be 100% matched)
1 Minimum education level
2 References
3 Region
4 Job category
5 Type of professional membership
6 Generic title
7 Job grade
8 Job type
9 Environment
10 Dress code
11 Company type
12 Daily hours
13 Salary range (permanent)
14 Salary range (contract) Hourly/Daily

Second Sub-Class (must be 80% matched)
1 Skills desired-unqualified (selective matchable)
2 Skills required-qualified (selective matchable)(unspecified)
3 Skills experience 0-6 months to 3+ years

Third Sub-Class (variable % matching - threshold set by Job Provider)
1 Holidays
2 Shifts
3 Disabled access
4 Bonus
5 Credit card expenses
6 Car park
7 Pension
8 Subsidies
9 Mobile phone
10 Shares options
11 Health cover
12 Company car
13 Commission
14 Paid overtime

Fourth Sub Class (optional matching-threshold set by Job Provider)
1 Qualifications (actual) specified
2 Start date
3 Medical required
4 Professional membership

Fig.13

METHOD, APPARATUS AND COMPUTER READABLE STORAGE MEDIUM FOR DATA OBJECT MATCHING USING A CLASSIFICATION INDEX

TECHNICAL FIELD

The present invention relates to a method and apparatus for data object generation and matching, a computer readable storage medium for storing a program for performing the method of data object generation and matching, and a business method which makes use of the method and apparatus.

More particularly, the present invention relates to a method and apparatus for data object generation and matching wherein users of different types employ a common classification system to categorize an activity or entity to create a data object corresponding to the respective activity or entity, it then is possible to automatically match compatible activities or entities on the basis of the created data objects corresponding thereto.

BACKGROUND TO THE INVENTION

In a modern free market economy goods and services are traded on a daily basis in accordance with the rules of supply and demand. However, the successful operation of such an economy ultimately relies upon either the vendor of the goods or services, whatever these may be, being able to locate a vendee whose requirements substantially match those provided by the goods and services on offer from the vendor, or vice versa. As will be apparent, this is an age old business problem inherent to any economy based upon free trade.

A particularly complicated free-market sector is that of the provision of labour services, and the efficient matching of the labour services of any particular individual to any particular job or employment position. Indeed, the specific problems posed by the most appropriate matching of the right personnel to the right job are so extensive that in recent years there has been extensive growth in the Human Resources (HR) industry, both within traditional employers expanding their HR departments, and within the third-party agency sector. The numerous disadvantages and cost for both employers and employees of using third-party agency services, however, mean that it is preferable for most positions to be filled by direct contact between the employer and the potential employee. This route, however, suffers from the general problem referred to above of how to bring together the right person and the right job.

The traditional method of finding the most appropriate person for a job usually involves the employer advertising the job in a publication such as a newspaper or trade journal. Potential employees then contact the employer to arrange an interview, at which the potential employee's suitability for the job is assessed by the employer and a decision is made as to whether or not to offer the potential employee the advertised job. In such circumstances, the employer acts as a job provider, and the potential employee as a job seeker, and these terms will be used hereafter to refer to such parties. In this traditional method, the publication such as the newspaper or trade journal acts as the medium by which the job provider and job seeker are initially brought together and contact is first made.

Advances in communications technology in recent years have led to the rise of new media by which job providers and job seekers may make a first initial contact. In particular, the growth of the Internet, and in particular the World Wide Web has led to a new communication media providing access to millions of people worldwide, and it is therefore unsurprising that this new medium has already been adapted to address the issue of recruitment. Various Internet based recruitment systems already exist.

The first generation of on-line systems specifically aimed at the recruitment problem merely mirrored the format of traditional newspaper or trade journal jobs pages, providing lists of job adverts from job providers in the form of electronic bulletin boards or web pages.

In order to find a suitable job on such a first generation system, a job seeker would have to potentially review many hundreds of adverts, and interpret each advert regarding the specific job advertised. Such systems place a large burden on the job seeker when in use to both search through and analyse each advert to find any that may match their requirements.

Following the first generation system, second generation on-line recruitment services are also known which provide rudimentary search facilities akin to those provided by Internet search engines. These facilities allow a job seeker to search through job adverts posted on a particular site on the basis of keywords entered by the job seeker to determine the existence of those keywords in any of the posted adverts. Such searching techniques are standard Internet search tools, and will be well known to both the man skilled in the art and the lay reader familiar with Internet use.

Second generation systems improve upon the first generation systems by allowing the job seeker to narrow down the number of adverts for review. However, there is still a need for an on-line system which allows for a more refined search to be performed in order to further reduce the burden on the job seeker and/or job provider.

Although the above background has been presented in relation to the problems of the recruitment and labour market, it will be appreciated that similar problems exist in general throughout every sector of a free market economy, in that a vendor of goods and services must be able to locate a suitable vendee (or vice versa) with coincidental needs which substantially match the attributes of the goods or services provided by the vendor. It will be further appreciated that similar problems to those described above exist for both the vendor and vendee.

SUMMARY OF THE INVENTION

The present invention addresses the problem of matching coincidental needs relating to an activity or entity by the provision of a classification system specific to the particular activity or entity to be traded or exchanged which allows parties to the trade to define their requirements in a standardised format. Once the parties requirements have been placed in the standardised format, it then becomes possible to automatically match the coincidental requirements by machine, thereby bringing together the parties to the trade or exchange in a time efficient and cost effective manner.

From a first aspect, the present invention provides a method of data object generation and matching using a database having data fields for storing a plurality of predefined classification categories, each of said categories containing one or more predefined user-selectable attributes, said method comprising the steps of

pre-storing one or more data objects of a first type in the database, each of said data objects storing one or more pre-selected attributes of one or more of said plurality of classification categories;

displaying said plurality of classification categories to a user for selection of one or more attributes from at least one of said classification categories;

storing the selected attributes in a database in the form of a data object of a second type;

comparing the stored attributes of the data object of the second type with the stored pre-selected attributes of a data object of the first type; and

matching said data objects of the respective types which have at least a predetermined number of common stored attributes.

Preferably, the pre-stored data objects of the first type are created by displaying the plurality of classification categories to a user of a first type for selection of one or more attributes from at least one of the classification categories, and then storing the selected attributes in the database in the form of a data object of a first type. In such a case, the attributes selected and stored as a data object of the second type are selected by a user of the second type.

The classification categories may be divided into two or more sub-classes, and the correlation between the attributes of the sub-class compared when matching data objects. Each sub-class may be assigned a different acceptability threshold, with the data objects being matched only when the number of common attributes in each sub-class exceeds the threshold set for that class. As a result, classification categories can be group generally according to their importance, with a first sub-class requiring the highest level commonality, say 100%, with second and further sub-classes allowing for a lower level of correlation.

In a preferred embodiment, the classification categories and attributes are displayed to the users of either the first or second type by transmitting the plurality of classification categories in the form of web pages over the Internet for display using a web browser, which users of the first or second types then use to select the required attributes in each required classification category, the web browser then sending the user's attribute selection over the Internet in the form of data generated by the web browser to be stored as data objects of the first or second type as appropriate in the database.

In another preferred embodiment, the user-selected attributes are stored in the database in the form of pointers to a look up table containing the attribute name and/or description, and the comparison of the stored attributes of the stored data objects is performed on the basis of numerical comparison of the pointers. This has the advantage that database memory is maximized and the comparison is performed in a computationally efficient manner.

From another aspect, the present invention also provides an apparatus arranged to perform data object generation and matching, comprising:

database means for storing a database having data fields corresponding to a plurality of predefined classification categories, each of said categories containing one or more predefined user selectable attributes, said database pre-storing one or more data objects of a first type, each of said data objects storing one or more pre-selected attributes of one or more of said plurality of classification categories;

means for displaying said plurality of classification categories to a user for selection of one or more attributes from at least one of said classification categories;

database management means, said database management means further comprising:

database writing means for writing the user selected attributes in a database in the form of a data object of a second type;

attribute comparison means for comparing the stored attributes of the data object of the second type with the stored pre-selected attributes of the data objects of the first type; and

data object matching means for matching data objects of respective types which have at least a predetermined number of common stored attributes.

Preferably, the data objects of the first type are generated and stored by users of a first type, and the data objects of the second type are generated and stored by users of a second type.

The classification categories may be divided into two or more sub-classes, and the data object matching means may match each sub-class individually. Each sub-class may be assigned a different acceptability threshold, with the data object matching means matching data objects when the number of common attributes in each sub-class exceeds the threshold set for that class, and preventing a match if the correlation between any one of the sub-class is below that sub-class threshold. As a result, classification categories can be group generally according to their importance, with a first sub-class requiring 100% commonality, with second and further sub-classes allowing for a lower level of correlation.

In a particularly preferred embodiment, said means for displaying the plurality of classification categories to a user preferably comprise means for transmitting said plurality of classification categories to users of the first or second types in the form of web pages over the Internet for display using a web browser, and means for receiving the user's attribute selections over the Internet in the form of data generated by the web browser. In such an embodiment, the users of the first or second types use the web browser to select the required attributes in each classification category.

Preferably, the database means stores the data objects in the database in the form of pointers into a look up table containing the attribute name and/or description, the attribute comparison means then comparing the attributes of each stored data object on the basis of the pointers stored in the data base as a numerical comparison.

From a yet further aspect, the present invention also provides a computer-readable storage medium for storing a data object generation and matching program for use with a database having data fields corresponding to a plurality of predefined classification categories, each of said categories containing one or more predefined user-selectable attributes, the program being further arranged to control the steps of:

pre-storing one or more data objects of a first type in the database, each of said data objects storing one or more pre-selected attributes of one or more of said plurality of classification categories;

displaying said plurality of classification categories to a user for selection of one or more attributes from at least one of said classification categories;

storing the selected attributes in the database in the form of a data object of a second type;

comparing the stored attributes of the data object of the second type with the stored pre-selected attributes of the data objects of the first type; and

matching data objects of respective types which have at least a predetermined number of common stored attributes.

It is a feature of the present invention that the generated data objects represent an abstraction of the activity or entity to which they relate in accordance with the selected attributes of the various predefined classification categories. The predefined classification categories and predefined user

selectable attributes are therefore preferably application specific, that is the chosen categories and attributes contained therein are specific to the particular activity or entity which is to be classified using the classification categories. Using the same classification categories to abstract the respective requirements of users allows objective matching of the users requirements by machine.

In a particularly preferred embodiment relating to the recruitment market, the classification system comprises a plurality of pre-defined classification categories relating to job activities and features, the attributes then being descriptive of qualitative values which may attach to the categories. For example, classification categories relating to the recruitment market may be such categories as, for example, "job category", "grade", "dress code", etc, etc, whereas attributes relating to, for example, the "grade" category may be, for example, "junior", "intermediate", "senior" etc et al.

Furthermore, in the particularly preferred embodiment referred to above, the user of the first type is preferably a job-provider and the data object of the first type is preferably a profile of a job on offer in terms of appropriate selected attributes from the classification categories which qualitatively and/or quantitatively relate to the activities involved in the job. Moreover, in the embodiment the user of the second type is preferably a job seeker, and the data object of the second type is preferably a profile of the job seeker in terms of appropriate selected attributes from the classification which qualitatively and/or quantitatively relate to the skills, background, and/or further requirements of the job seeker.

The present invention has the primary advantage that it enables simple machine matching using a database of coincidental requirements of two users each of a different type.

The present invention has a further advantage, that by the use of the same classification system by users of both types to abstract their respective requirements then the users of one type are provided with a clear and consistent description of the goods or services on offer from the user of the opposite type.

According to a further aspect of the present invention, there is provided a method of objectively comparing the requirements of a first user and a second user, the method comprising the steps of:

(a) providing a classification system having a plurality of classification categories, each category having one or more pre-defined attributes;

(b) displaying each of the categories to a plurality of users;

(c) obtaining information regarding each user's preferred attributes;

(d) storing that information;

(e) comparing the stored information and matching two users if the correlation between the selected attributes exceeds a predetermined threshold.

In a preferred embodiment, the users are of a first or primary type, such a job providers, or a second or subsidiary type, such as job seekers. The classification system may be presented in the form of an Internet page or the like and contain a template which can be readily adapted by the job provider to suit their specific requirements. The method may also include the step of testing the user of, say, the second type, and only matching users of respective types if the attribute correlation is above the predetermined threshold and the user of the second type performs satisfactorily in the testing procedure. As with the classification template, the or each test may be provided in a form that is readily adaptable by the user of the first type to suit their specific requirements.

BRIEF DESCRIPTION OF THE DRAWINGS

Further features and advantages of the present invention will become apparent from the following description of a number of embodiments thereof, presented by way of example only, and with reference to the accompanying drawings, in which:

FIG. **1** is a block schematic of a first embodiment of the present invention;

FIG. **2** illustrates the hierarchical structure of the classification categories and attributes used in the present invention;

FIG. **3** illustrates an example look-up table relating to the classification categories and attributes used in the present invention;

FIG. **4** shows an example data structure of a data object of a first type used in the present invention;

FIG. **5** shows an example data structure of a data object of a second type used in the present invention;

FIG. **6** illustrates a screen shot of the step of displaying the classification categories and attributes to a user in the present invention;

FIG. **7** is a flow diagram showing the steps to be performed to generate a data object in the present invention;

FIG. **8** is a flow diagram illustrating the matching process to match data objects of different types in the present invention;

FIG. **9** shows a block schematic of a system according to a second embodiment of the present invention provided with a test question database;

FIG. **10** is a flow diagram showing the process required for population of the test question database of the second embodiment of the present invention;

FIG. **11** is a flow diagram illustrating the steps involved in the automatic generation of tests used in the second embodiment of the present invention;

FIG. **12***a* and **12***b* are a flow diagram illustrating the application of the method and apparatus of the present invention to a novel business method used in the field of human resource management; and

FIG. **13** is a table showing classification categories for method or apparatus according to the invention adapted for use in the field of human resource management and broken down into a number of sub-classes.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

A first embodiment of the present invention will now be described with reference to FIGS. **1** through to **8**.

With reference to FIG. **1**, a user of a first type provided with a computer **4** equipped with appropriate client software such as a web browser communicates via network means **5** over the Internet **6** with a web server **10** provided with network means **7** for linking with the Internet. Similarly, a user of a second type is further provided with a computer **2** equipped with appropriate client software such as a web browser and network means **3** for accessing the Internet **6** also communicates with the web server **10** via the Internet **6** and the network means **7** provided at the web server. The web server **10** is further provided with a computer readable storage medium such as, for example, a hard disk or memory for storing a program controlling the actions of the web server. In addition, the web server is further provided with a structured storing means constituting a database **20**, which is controlled by virtue of a database management system **12**

which comprises at least a database writing means **16** for controlling data entry to and from the database, an attribute comparison means **14** for comparing the stored attributes of data objects stored in the database for determining the similarity therebetween, and a data object matching means **18** arranged to match those data objects which the attribute comparison means **14** has determined have at least a predetermined number of common stored attributes.

In addition to those elements shown, the web server **10** further comprises a means for storing a classification index specific to a particular activity or entity, and means for displaying the classification index to users of either the first or second type over the Internet **6** by virtue of the provision of web pages displaying the classification index and allowing the users to select appropriate attributes from each classification category in the index as required using a web browser. The structure of the classification index is shown in FIG. **2**.

With reference to FIG. **2**, the classification index used in the present invention is a hierarchical classification index comprising a plurality of categories (category_**1**, category_**2**, . . . category_n), each category having one or more attributes (attribute_**1**, attribute_**2**, . . . attribute_n) which may be selected by a user. Within the present invention, each classification index is devised such that it is particular to the activity or entity to be matched using the present invention, and each classification index must be devised in advance by analysis of the various categories and sub-attributes which may be used to describe the activity or entity. For example, when the present invention is applied to matching job seekers with job providers, suitable examples of categories may be "job category", "generic title", "grade", "job type", etc., etc., each category then having sub-attributes associated therewith descriptive of quantitative or qualitative values which may attach to the category. For example, with respect to the "job category" category, attributes which may attach to this category may be, for example, "information technology", "telecommunications", "legal", "sales", "other", etc., etc., and attributes which may attach to, for example, the "grade" category may be such as, for example, "junior", "intermediate" and "senior". As will be appreciated, it is possible to have many different categories each with many attributes depending upon the activity or entity which any particular classification index is attempting to classify.

With reference to FIG. **13**, the categories are divided into a number of sub-classes. Each category is assigned a different acceptability threshold, and categories with the same threshold are grouped together. Categories that are regarded as essential to the selection of a job seeker are classed in a primary class having a 100% matching threshold; a match of data objects will only be possible if the selected attributes of all the categories in the primary class are the same. Other sub-classes may have a lower matching threshold depending on the importance of the categories in question.

Whilst the classification index described above has been described in relation to general activities performed by an employee in employment, it will be understood that it is also possible for classification indexes to be devised in relation to almost any activity or entity such as, for example, tradable goods such as cars, computers, houses, etc., or activities such as hobbies, introductions, personal services, etc.

As mentioned previously in the preamble, the purpose of the present invention is to provide a method and apparatus which allow users of the first and second type to quantify their respective requirements with respect to coincident activities or entities using the same classification index relating to the particular activity or entity in question, and to store a respective data object corresponding to the selected attributes from the classification index relating to the specific activity or entity in a database. Once stored in the database, as the data objects were created using the same classification index by each user of the respective type, it is possible to machine-match the respective attributes of each data object in order to match appropriately the data objects, and hence the respective users, of each type. In order to allow matching of data objects, it is necessary first to populate the database with data objects, and the steps required for this will be described in relation to FIGS. **6** and **7**.

With reference to FIG. **7**, in order to create a data object relating to a specific activity or entity using the classification index, a user of either type first accesses the web server **10** via the Internet **6** and performs required registration procedures in order to register with the web site provided by the web server **10**. Following the registration procedures, in order to create a data object using the classification index, the web server **10** displays the classification categories and attributes to the user in the form of web pages transmitted to the user over the Internet and to be displayed on the user's computer using web browser software. An example web page displaying relevant classification index categories specific to the field of human resources management is shown in FIG. **6**.

With reference to FIG. **6**, within the particularly preferred embodiment the categories in the classification index relating to jobs are displayed on the web page as text labels and list boxes are provided beneath each text label to list the attributes in the classification index associated with each category. The user selects the desired attributes from each desired category by accessing the list box and making the appropriate selections of the attributes. It will be appreciated that the user selects the appropriate attributes in each appropriate category on a basis of an objective analysis performed by the user of the requirements of, for example, the job being provided in the case of a job provider, or, in the case of a job seeker, on the basis of the job seeker's qualifications and experience, and the type of job that they are seeking. Therefore, though there is an element of subjective element in the users selections, the provision of the common classification index provides an effective standard for users of both types to effectively describe their requirements.

It will be understood that although the users of the respective types use the same common classification index to define their respective requirements, the classification index need not be presented to the two types of users in the same way, and different graphical user interfaces (GUIs) may be employed for each type of user. By way of example in relation to the recruitment example mentioned previously, the classification index may be presented to a job provider in the form of the text labels and drop down lists as described above, but may be presented to a job-seeker as a Curriculum Vitae (CV) creation module, the relevant information relating to the classification index then being automatically extracted from the created CV. Such automatic extraction is particularly suitable where automated routines are used to help the job-seeker to create and format the CV.

Once the user has made the appropriate selections on the web page, the web browser software on the user's computer transmits data corresponding to the selections over the Internet **6** to the web server **10** wherein the selected attributes are stored in the database as a data object of the appropriate type, depending on the type of the user. In

general, if a user of the first type has selected the selected attributes, then the selected attributes will be stored as a data object of type_1, whereas if a user of a second type has selected the selected attributes, then the selected attributes will be stored in the database as a data object of type_2. The two types of data object will be discussed further below.

FIGS. **4** and **5** show example data structures that may be used as the data objects of the first and second type of the present invention. More particularly, with reference to FIG. **4**, a data object of type_1 for storing the selected attributes of the classification index selected by a user of the first type may comprise an array **40** of integers, the integers corresponding to the selected attributes. In addition, a data object of type_1 may also comprise type-specific data types **42** shown in the drawing as strings of free text, although other data types may be included in the data object and in particular integer values, boolean value, arrays and other data types apparent to the man skilled in the art. Similarly to the above, FIG. **5** shows a data object of type_2, used to save the selected attributes relating to the classification index attributes selected by user of the second type, a data object of type_2 comprising an array of integer values corresponding to the selected attributes, together with type-specific data types which are shown as strings, that may also be, for instance, Booleans, integers, and other data types that will be apparent to the man skilled in the art.

Where the data types type_1 and type_2 store the selected attributes as an array of integers, a separate integer is used to represent a particular attribute of a particular category in the classification index, and a look-up table of integers is provided which index each integer against each attribute in the classification index. An example look-up table of this form is shown in FIG. **3** whence it can be seen that, for example, cateyory1.attribute1 has been allocated integer pointer No **1**, category2.attribute2 has been allocated integer pointer No **5**, etc. In addition to indexing the integer pointers used to store the selected attributes in the integer arrays in the data objects, the look-up table may also store the category labels and attribute labels as shown. For example, with reference to FIG. **3**, category **1**.attribute **3**, for example, relates to the "senior" attribute of the "grade" category. Thus, by storing the selected attributes in the form of an array pf integers provided in each data object of the respective first and second types, and using the integers as pointers into a look-up table storing category and attribute labels, database storage can be maximised and computational efficiency increased, especially in sorting and matching the selected attributes, as will be discussed later.

As an example of the operation of the look up table, with reference to FIGS. **2** and **3**, say, for example, a user of the first type has selected attribute **2** of category **1** and attribute **1** of category **2** as being relevant to the activity or entity to which the classification index relates, a data object of type_1 would be created containing an array of integers obtained from the look-up table corresponding to the particular attributes selected. Thus, in the example given above, the integer pointers **2** and **4** will be stored in the array selected_attributes_1 in the data object of type_1.

With respect to the data object type-specific data types illustrated as strings in the figures, these may instead be data variables such as strings, Booleans, integers etc used to store data object type-specific information. For example, where a data object of type_1 is used to store selected attributes relating to a job description, the data object type_1-specific data types may be data strings used to store, for example, a free text job description, a description of the organisation providing the job, direction details to the location of the job, or any other relevant information. Similarly, the data object of type_2 may store the selected attributes of a job seeker's profile selected from the classification index and stored in the integer array **50**. In addition, a data object of type **2** may also comprise further type-specific data variables such as integers and Booleans, with strings being used to store information such as, for instance, the job seekers' interests, hobbies, aspirations, etc etc. Furthermore, it is also envisaged that the data objects of the first and second types should not be limited to being constructed of data variable types commonly found in computer programming languages, but may also contain multi-media data types or files such as, for example picture files such as TIFFs, and JPEGs, moving picture files such as MPEGs and AVIs, as well as audio files such as WAV files.

Moreover, it should be understood from the above that the data objects are effectively split into two types of data variables, being the selected attributes from the classification index stored as an array of integers, each integer being a pointer into a look up table and which are used for matching data objects of each respective type together, and data object type-specific data variables which merely provide further information concerning the activity or entity and which are not used for matching.

Having described the various elements and data objects of the present invention, the matching operation of the present invention will now be described with reference to FIG. **8**.

First of all, assume a user **4** of the first type has populated the database **20** via the web server **20** and Internet **6** with a number of data objects of the first type corresponding to, for example, job descriptions of jobs being offered by the user of the first type, in which case the user of the first type is a job provider. The user of the second type, being in the described example a job seeker, accesses the web server **10** via the Internet **6** and registers as a user with the web server **10**. The user **2** of the second type is then presented with the classification index in the form of a web page for selection of those attributes in each category which best describe their skills, qualifications, experience, etc. The user of the second type selects the desired attributes in the desired categories and the selection is communicated via the Internet back to the web server **10** for storage in the database **20** as a data object of the second type. The database management system **12** of the web server **10** then matches the data object of the second type with the pre-stored data objects of the first type in the following manner.

With reference to FIG. **8**, at step **80** a counter i is initialised to **1**, and at step **82** the integer array selected_attributes_2 of object_type_2[x], being the data object generated by the job seeker and containing the job seekers selected attributes from the classification index, is compared with the selected_attributes_1 integer array of object_type_1[i], being the i-th data object of the first type pre-stored in the database, to find the number of matched attributes between the data object of the second type created by the user of the second type and the i-th data object of the first type stored in the database and pre-created by a user of the first type, being the job provider. The matching may be performed as a simple comparison of each element of the integer array of the data object of the second type with each element of the integer array of the i-th data object of the first type, and a count number_matched_attributes is kept of those array elements found to match. The comparison is performed in the attribute comparison means **14** of the database management system **12**.

Following the comparison, the value number_matched_attribute is compared at step **84** with a predetermined

number z to determine whether the count of matched attributes is greater than or equal to the predetermined number z, and if so then the data object of the second type [x] is matched with the data object of the first type [i] ata step **86**. An evaluation is then undertaken at step **88** to check that i is not a maximum ie that all of the data objects of the first type have not been compared with the data object of the second type and if not, then the counter i is incremented at step **89** and the comparison of the data object of the second type [x] is compared with the data object of the first type [i] once again. If it is determined that the value number_matched_attributes is less than the predetermined value z, then the evaluation of step **88** is undertaken to check that i is not a maximum, and processing continues as described above. If the counter i has reached a maximum, in that the data object of the second type [x] has been compared with every data object of the first type stored in the database, the matching procedure ends.

With respect to the predetermined value z against which the count number_match_attributes is compared, this may be any value and may be specified by the user. As will be apparent from the description of the operation of the matching process as described above, the higher the value of z the greater the number of common selected attributes between the data objects of the two types there must be in order for there to be a match, and by varying the predetermined number z it becomes possible to alter the number of matching objects found which correspond to a particular data object. The value z may be predetermined in advance, or may be set by a user of either the first type or the second type. In a preferred embodiment, the value z is set to ten.

Once the matching process has been completed, in a preferred embodiment of the present invention those data objects of the first type which had been found to match with the data object of the second type generated by the user **2** are displayed to the user **2** by the web server **10** over the Internet **6** in the form of web pages. The user **2** may then browse through the matched data objects to determine any of interest, and may then contact those users of the first type which had generated the data objects of the first type of interest and stored them in the database.

Although the matching process has been described with a single predetermined threshold for matching, it will be understood that it can be readily adapted to provided a number of different thresholds when the classification categories are divided into a number of sub-classes.

While the above description has concentrated on a job seeker using the method and apparatus of the present invention to search the database which has been pre-stored with profiles of jobs in the form of data objects using the classification index by a job provider, it will be appreciated that the reverse operation is also possible, ie it may be possible for multiple job seekers to generate their profiles in the form of data objects of the second type and store the generated data objects in the database **20**, and for a job provider to search through the profiles of job seekers by creating a job profile using the classification index to generate a data object of the first type.

Furthermore, it will be further appreciated that the present invention is particularly suitable for multiple users of either type, in which case registration and user identification procedures are provided by the web server as required in order for identification of each user, and with respect to which data object or objects each user has stored within the database. In this case, each data object of the first or second type may further comprise a data variable field to indicate the particular user who created the object.

In addition to the above described method and apparatus for generating data objects and writing the generated objects into the database, the present invention also provides means for allowing a user of either type to remove a data object from the database which he, she or they have created previously. This facility is required in order to maintain the database up to date, and to prevent matching between data objects corresponding to activities or entities that have already been traded, exchanged or fulfilled.

While the above description has been presented in relation to the problem of human resources management and recruitment, it will be understood that the present invention has application in any field of commerce, and in particular it may be used to match any goods or services provided a classification index may be devised which may be used by users of each type to quantify and qualify their respective requirements in to a machine-matchable format.

A second preferred embodiment of the present invention will now be described with respect to FIGS. **9**, **10** and **11**, which has particular application to the problem of human resources management and recruitment.

With reference to FIG. **9**, FIG. **9** illustrates a box diagram of a second preferred embodiment of the present invention, wherein common elements between the second preferred embodiment and the first preferred embodiment are illustrated with like reference numerals, and the description of those elements will not be repeated. Therefore, in addition to those elements described previously, the second preferred embodiment further comprises a test question database **99** arranged to store test questions and answers together with classifications of each question stored in the database with reference to the classification index, and a test database management system **90**, comprising database writing means **94** arranged to write test questions to the database **99** and read the questions therefrom, an automatic test generator **96**, and an automatic pass mark generator **92**. The test database management system **90** communicates with the web server **10** via a bi-directional data bus **91**, and similarly the test database management system **90** communicates with the test question database **99** via a bi-directional bus **93**.

The second preferred embodiment of the present invention is aimed specifically at the application of the present invention to the human resources management and recruitment field, and provides additional functionality over and above that provided by the first embodiment of the present invention in the form of the ability of job providers to set tests which must be answered by a job seeker in order to allow the job seeker to apply for the job advertised by the job provider in the form of a data object generated and stored in the database **20**.

Two modes of operation are possible, a first mode wherein a test presented to a job seeker comprises questions and answers set in advance by the job provider and stored in the test question database in advance for presentation to the job seeker when the data object corresponding to the job seeker's profile matches the data object corresponding to the job to which the test relates have been found to match. In this case, should the job seeker wish to contact the job provider, the job provider may first require that the job seeker answer the test entered into the test question database in advance by the job provider before proceeding with the application process. In such a case, the test is retrieved from the test question database by the test database management system **90**, and is passed to the web server **10** for the formation of web pages containing the test questions, which are then transmitted over the Internet **6** to the user **2**. The tests are

preferably in the form of multiple choice questions, and the user **2**'s answers are communicated back to the web server **10** over the Internet **6**, a comparison being made at the web server **10** with the pre-stored answers and a count being kept of the number of correctly answered questions. This count is then compared with the pre-determined passmark, and if the candidate is adjudged to have passed the test then details of the job seeker are passed to the job provider.

The procedure by which a job seeker may set a test is shown in FIG. **10**. With reference to FIG. **10**, at step **101** the job provider must first set the question by entering a question into a text box provided on a web page generated by the web server and displayed on the job provider's web browser. Next, at step **103**, the job provider sets the answer again using a web page generated by the web server **10**, and at step **105** sets a difficulty rating for the question. The difficulty rating is preferably one of three ratings being easy, medium and hard, and is used to assess the required pass mark for the test. In one embodiment it is possible to save the question, answer and difficulty rating set at this stage into the test question database, and this is especially preferable where a job seeker is to be asked the same questions each time in respect of the same data object relating to a particular job.

However, in a second mode of operation to be described next, it is desirable for the job provider to further access the classification index to select matchable attributes relating to the set question at step **107**, and these matchable attributes are then stored in the test question database together with the question, answer and difficulty rating by submitting the question to the web server **10** whereupon it is passed by the data-bus **91** to the test database management system **90**, whereupon the test question database writing means **94** writes the question together with the matchable attributes into the test question database **99**. The second mode of operation is discussed further later.

Therefore, in the first mode of operation, where a job provider requires a job seeker to take a test having matched with a data object corresponding to the attributes of a particular job, the questions in the test may be fixed in advance by the job provider, together with the pass mark required to pass the test.

However, it will be apparent that the above first mode of operation has the disadvantage that it may be possible for a job seeker to fail a test, but then having seen the questions return and take the test again and pass the test. In order to prevent this, in a preferred variation of the second embodiment of the present invention, tests are automatically generated by randomly selecting questions from the test question database on the basis of the matchable attributes which were previously selected by the job provider in relation to the particular question when the question was set. The method by which tests may be automatically generated by the random selection of questions from the database will be described in relation to FIG. **11**.

Within FIG. **11**, assume that a job seeker having generated a data object corresponding to her profile and having matched the generated data object with a data object in the data object database **20** which corresponds to a matching job, now wishes to contact the job provider via the web server **10**. However, prior to proceeding, if the job provider wishes job seekers who wish to apply for the job to which the data object which has been matched relates to take a test, and no set test has been specified, then a test must be dynamically generated from questions in the test question database, according to the following method.

In order to dynamically generate a test, the web server **10** controls the database management system **12** to access the data object database **20** to access the matchable attributes for the particular job from the integer arrays stored in the data object corresponding to that job. The matchable attributes from the data object are then passed from the web server to the test generation means **96** in the test database management system **90**, and the test database management system **90** then accesses the test question database **99** to build a recordset of questions which match the stored attributes from the data object corresponding to the job profile, on the basis of those selected attributes of the classification index previously stored in respect of each test question entered into the test question database **99**. That is, the automatic test generator **96** searches the test question database for questions which have one or more common selected attributes with the data object relating to the particular job, with respect to the common classification index. Each question found to satisfy this criteria is entered into the recordset and is allocated an index number. Alternatively, only a pointer to the question may be entered into the recordset.

Having built the recordset of questions which match the attributes at step **113**, at step **115** a random number generator is initiated to generate a random number to randomly select a question from the built recordset on the basis of the question index number. The index number of the randomly selected question is then compared to the index numbers of questions already selected, and if not already selected, the question is stored in a question table **119**. If the index number of the question of the recordset has already been selected and is already stored in the question table, the process flow returns to step **115** and another question is randomly selected from the recordset.

An evaluation is performed at step **112** to determine if there are sufficient questions in the question table, and if it is determined that there are more questions required then the process loops back to step **115** for random selection of another question from the recordset. Once it is determined that sufficient questions have been stored in the question table, the automatic test generation process ends and the table of questions are passed to the web server **10** over the bus **91** to be communicated to the user in the form of web pages over the Internet.

In addition to dynamically generating tests by selecting questions randomly from the test question database on the basis of selecting those questions which have matching classification index attributes, it is also required that the pass mark for the test be automatically generated, and this is achieved as follows.

The question table containing the questions in the test is accessed, and the difficulty ratings set for each question assessed. As mentioned previously, in the preferred embodiment the difficulty rating may take one of three values, being "easy", "medium", and "hard". As an example, in order to calculate the pass mark for a test, each question of a particular difficulty rating is scored on a different number of points than questions of a different difficulty rating, ie "easy" questions may score 1 point, "medium" questions may score 1½ points, and "hard" questions may score 2 points. In order to calculate the pass mark, then, a total score value is obtained by summing the points awarded for each question for every question selected to be in the test, and this is multiplied by the desired pass percentage for the test to give the pass mark, ie:

$$\text{pass mark} = \text{total score} \times \text{desired pass percentage}$$

The user may set the desired pass percentage in advance. As will be apparent, using such a system to calculate the test

pass mark, it will be possible for a job seeker to pass the test by answering half as many questions of the "hard" difficulty rating correctly than questions of the "easy" difficulty rating, with variations in between.

The dynamic generation of tests in the manner described above allows for a different test to be presented to a job seeker every time a job seeker attempts to match with a particular job. This overcomes the problem of a job seeker being presented with a test comprising fixed questions that may then be viewed, and then returning to re-sit the test having found out the answers.

It will be understood from the above description of the dynamic test generation method that many variations are available, such as for example, only selecting questions for the recordset from questions which are randomly selected or which have a particular difficulty rating, or relate to a particular subject. In this way, as well as testing job seekers, the automatic test generation method used in the present invention may also be used to generate tests which can be given to present employees or individuals in order to maintain records of their skills. Furthermore, in a particularly preferred embodiment the answers given by a job seeker to a particular test are preferably stored and a record of whether a test has been passed or failed by a particular user may also be kept on the users account on the web server **10**.

According to the second embodiment of the present invention, therefore, there is provided a test generation method and apparatus which allows for automatic selection of questions from a database to build tests relevant to a particular activity as classified by a data object of a first type storing selected attributes from a classification index, the selection being on the basis of pre-storing those selected attributes from the classification index relevant to a particular question, and selecting those questions from the database which have at least one common stored selected attribute with the stored selected attributes of the data object. Use of the same classification index to classify the questions stored in the test question database **99** and the data objects stored in the database **20** therefore provides for automatic and dynamic test generation on demand.

Having described the method and apparatus of the present invention, a novel business method which employs the method and apparatus of the present invention will now be discussed with reference to FIG. **12**. As with the previously described embodiments, the business method to be described relates to the field of human resource management and recruitment, and will be described in relation to those actions required by job providers and job seekers when using the method and apparatus of the present invention.

FIG. **12** shows the actions which must be undertaken by both job providers and job seekers, those actions undertaken by job providers being shown on the left and those by job seekers on the right.

The first steps which must be undertaken by the job provider are to populate the database by generating a job profile **123** in the form of the data objects discussed previously by quantifying the job using the classification system at step **121**. The quantification process has been discussed previously in relation to the present invention and is generally illustrated in FIGS. **6** and **7**. Similarly, on behalf of a job seeker, the job seeker must create a personal profile **126** being a data object generated by quantifying the job seeker's personal profile using the classification index as discussed previously. Having created respective job profiles and personal profiles, the present invention acts to attempt to match the profiles in the manner as discussed previously, and using the matching process shown in FIG. **8**. Assuming that the job profile **123** and personal profile **126** match, the next stage in the business method is to display to the job seeker a job summary screen **124** which illustrates additional information stored in the data object corresponding to the job as the type-specific fields such as the strings of free text, Boolean values, integers, pictures etc etc. As previously, this additional information stored in the data object is displayed to the job seeker in the form of web pages provided by the web server **10** over the Internet **6** and displayed using a web browser provided on the job seeker's computer **2**. This information constitutes the job summary.

Having displayed the job summary information, the job seeker must browse this information at step **128** and if he decides to apply for the job clicks on a link which is communicated back to the web server **10** which then displays the job apply screen to the job seeker at step **130**. The job seeker then completes the details required on the job apply screen and this information is submitted back to the web server **10** over the Internet and if required a testing screen is displayed to the job seeker in order for the job seeker to take a test. As discussed previously this test may be set in advance, or may be automatically and dynamically generated. The job seeker fills in the multiple choice answers on the test and the answers are passed back to the web server **10** for an evaluation as to whether the job seeker has passed or failed at step **134**. If it is determined that the job seeker has not passed the test at step **138**, the web server redisplays the job summary screen **124** and suggests that the job seeker undertakes training. If it is determined at step **134** that the job seeker has passed the test a screen is displayed to the job seeker to allow the job seeker to enter available interview times and these details are sent back to the web server **10** whence they are subsequently e-mailed to the job provider at step **127**. Having received the e-mail, the job provider **127** then accesses the web server **10** and having completed the registration procedures can access the job seeker's details as a web page at step **129** and if these details are acceptable progresses to the interview request screen at step **131**. The job provider fills in the details required on the interview request screen and these are transmitted back to the web server **10** over the Internet **6** and an e-mail is generated by the web server **10** to the job seeker at step **142** who then indicates her acceptance or declination of the interview. If the job seeker indicates acceptance of the interview, this confirmation is communicated to the job provider at step **133**, and the web server **10** makes an entry in a diary system to e-mail both the job provider and the job seeker one date before the interview at step **135**. When the web server **10** automatically e-mails the job provider and job seeker, upon subsequent log on and registration procedures of the job provider and job seeker to the web site an interview postpone or cancel screen is displayed at step **137**.

Provided that the interview is not postponed and the interview goes ahead, during the interview an interview notes screen is displayed to the job provider at step **139** upon which notes can be made and links are provided to the job seeker's personal details saved as the relevant data object in the database. Providing that the job seeker is suitable for the job, a job offer screen is then displayed to the job provider for the job provider to fill the appropriate details in, which are then transmitted back to the web server **10** over the Internet **6**, the web server **10** then generating an acceptance screen as step **146** to be displayed to the job seeker for the job seeker to indicate acceptance of the job. If the job seeker indicates acceptance of the job and transmits this over the Internet back to the web server **10**, the data object corresponding to the job is removed from the database at step **143**,

and web pages constituting a survey are transmitted to the job provider and job seeker at **145**. This concludes the steps of the preferred embodiment of the business method of the present invention.

It will be understood that the above described business method may be varied in several ways. For example, while the above has been presented with the job provider first populating the database and an individual job seeker then searching the database for matching jobs, it may also be possible for reverse operation in the form of a job provider searching the database in order to match pre-stored data objects previously stored by one or more job seekers with a newly created data object corresponding to a job profile.

Furthermore, the present invention may also allow users of either type to search through data objects of the same type if required. In such an operation, however, it is envisaged that those data object type-specific data fields in the data object which may contain confidential information such as personal details, salary details, etc. will be restricted access to users of the same type.

What is claimed:

1. A method of matching data objects using a classification index comprising a plurality of predefined classification categories, each of said categories containing one or more predefined user-selectable attributes, said method comprising the step of:

a) pre-storing one or more data objects of a first type in a database, each of said data objects storing one or more attributes of one or more of said plurality of classification categories;

b) displaying said plurality of classification categories to a user for selection of one or more attributes from at least one of said classification categories;

c) storing the selected attributes in the database in the form of a data object of a second type;

d) comparing the stored attributes of the data object of the second type with the stored attributes of the data objects of the first type; and

e) matching said data objects of the respective types which have at least a predetermined threshold number of common stored attributes.

2. A method according to claim **1** wherein said prestoring step comprises the steps of:

a) displaying said plurality of classification categories to at least one user of a first type for selection of one or more attributes from at least one of said classification categories; and

b) storing the selected attributes in the database in the form of a data object of the first type.

3. A method according to claim **2**, wherein said displaying step (a) further comprises the steps of:

a) transmitting said plurality of classification categories to the user of the first type in the form of web pages over the Internet; and

b) receiving data over the Internet from the user of a first type corresponding to the user's attribute selections.

4. A method according to claim **1**, wherein said displaying step (b) further comprises the steps of:

a) transmitting said plurality of classification categories to the user in the form of web pages over the Internet; and

b) receiving data over the Internet from the user corresponding to the user's attribute selections.

5. A method according to claim **1**, further comprising the step of displaying those matching data objects of the first type found to match at the matching step of the user.

6. A method according to claim **5**, wherein said displaying step comprises transmitting said matching data objects of the first type to the user in the form of web pages over the Internet.

7. A method according to claim **1**, wherein said plurality of classification categories are grouped into two or more classes, each class having a different predetermined threshold number, and wherein said matching step (e) further comprises matching data objects of the respective types which have a number of common stored attributes in each class of classification categories greater than or equal to the respective predetermined threshold number for the respective class.

8. A method according to claim **1**, wherein the data objects of the first or second types each comprise one or more pointer values into a look-up table, each user-selectable attribute in each classification category having an entry in the look-up table.

9. A method according to claim **8**, wherein said comparison step further compares the stored pointer values of the respective data types.

10. A method according to claim **8**, wherein said data objects of the first or second type each further comprise type-specific data variables.

11. A method according to claim **1**, further comprising the steps of:

a) pre-storing a plurality of questions and associated answers in a test-question database;

b) displaying a sub-set of the plurality of questions to the user, the sub-set of questions being associated with a matching data object of the first type found to match the data object of the second type generated by the user;

c) receiving the user's answers to the displayed questions; and

d) evaluating the received answers with the pre-stored answers to determine a test mark.

12. A method according to claim **11**, wherein said pre-storing step (a) further comprises the step of:

categorizing each of said plurality of questions in accordance with the plurality of classification categories.

13. A method according to claim **12**, wherein said displaying a sub-set of the plurality of questions further comprises the steps of:

a) dynamically generating the sub-set of questions in accordance with the classification categories assigned to each question and the user-selectable attributes stored in the matching data object of the first type; and

b) displaying the sub-set of questions to the user of the second type;

wherein a particular question is added to the sub-set if at least one of the classification categories assigned to the particular question corresponds to at least one of the classification categories corresponding to the user-selectable attributes stored in the matching data object of the first type.

14. A method according to claim **13**, wherein said generating step (a) further comprises the step of:

creating a recordset of questions with at least one corresponding classification category to the stored attributes of the matching data object;

randomly selecting a question from the recordset;

checking the sub-set of questions to determine if the question has already been selected; and

adding the question to the sub-set of questions if it is determined that the question has not already been selected.

15. A method according to claim 11, wherein the sub-set of questions is determined in advance for a particular data object of the first type.

16. A method according to claim 11, further comprising the step of storing the user's answers and test mark.

17. An apparatus for matching data objects comprising:

database means for storing a database using a classification index comprising a plurality of predefined classification categories, each of said predefined classification categories containing one or more pre-defined user-selectable attributes arranged to pre-store one or more data objects of a first type, each of said data objects storing one or more of said pre-selected attributes of one or more of said plurality of classification categories;

displaying means for displaying said plurality of classification categories to a user for selection of one or more attributes from at least one of said classification categories; and

database management means, said database management means further comprising:

database writing means for writing the user-selected attributes in the database in the form of a data object of a second type;

attribute comparison means for comparing the stored attributes of the data object of the second type with the stored pre-selected attributes of the data objects of the first type; and

data object matching means for matching data objects of respective types which have at least a predetermined threshold number of common stored attributes.

18. An apparatus according to claim 17, wherein said displaying means further comprises:

web-page generation means for generating web-pages;

transmission means for transmitting generated web-pages over the Internet; and

receiving means for receiving data over the Internet from the user.

19. An apparatus according to claim 18, wherein said web-page generation means generates web-pages displaying the plurality of classification categories; said transmission means transmits the generated web-pages over the Internet to at least one user of a first type for selection of one or more attributes from at least one of said classification categories; and said receiving means receives data over the Internet from the user of the first type corresponding to the user's attribute selection; wherein the database writing means is further arranged to write the received data into the database in the form of one or more data objects of the first type.

20. An apparatus according to claim 18, wherein said web-page generation means generates web-pages displaying the plurality of classification categories; said transmission means transmits the generated web-pages over the Internet to the user for selection of one or more attributes from at least one of said classification categories; and said receiving means receives data over the Internet corresponding to the user's attribute selections; wherein the database writing means is further arranged to write the received data into the database in the form of a data object of the second type.

21. An apparatus according to claim 18, wherein said web-page generation means generates web-pages displaying those matching data objects of the first type found to match by the data object matching means; and said transmission means transmits the generated web-pages to the user.

22. An apparatus according to claim 17, wherein said plurality of classification categories are grouped into two or more classes, each class having a different predetermined threshold number; and said data object matching means is further arranged to match data objects of the respective types which have a number of common stored attributes in each class of classification categories greater than or equal to the respective predetermined threshold number for the respective class.

23. An apparatus according to claim 17, and further comprising means for storing a look-up table of pointer values corresponding to the user-selectable attributes; wherein the data objects of the first or second types each comprise one or more of said pointer values, each user-selectable attribute in each classification category having a entry in the look-up table.

24. An apparatus according to claim 23, wherein said attribute comparison means is further arranged to compare the stored pointer values of the respective data types.

25. An apparatus according to claim 23, wherein said data objects of the first or second type each further comprise type-specific data variables.

26. An apparatus according to claim 17, and further comprising:

a test-question database arranged to store a plurality of questions and associated answers; and

test generation means arranged to generate a test comprising a sub-set of the plurality of questions, the sub-set of questions being associated with a matching data object of the first type found to match the data object of the second type generated by the user.

27. An apparatus according to claim 26, wherein each of said plurality of questions is categorized in accordance with the plurality of classification categories.

28. An apparatus according to claim 27, wherein the test-generation means is further arranged to dynamically generate the sub-set of questions in accordance with the classification categories assigned to each question and the user-selectable attributes stored in the matching data object of the first type; wherein a particular question is added to the sub-set if at least one of the classification categories corresponding to the user-selectable attributes stored in the matching data object of the first type.

29. An apparatus according to claim 28, wherein the test-generation means further comprises:

recordset creation means arranged to create a recordset of questions with at least one corresponding classification category to the stored attributes of the matching data object;

question selection means arranged to randomly select a question from the recordset; and

test-checking means arranged to check the sub-set of questions to determine if the selected question has already been selected;

wherein the selected question is added to the sub-set of questions if the test-checking means determines that the question has not already been selected.

30. An apparatus according to claim 26, wherein the sub-set of questions is determined in advance for a particular data object of the first type.

31. An apparatus according to claim 26, and further comprising storage means for storing the user's answers to the sub-set of questions and associated test mark.

32. A computer readable storage medium for storing data objects and matching the data objects using a classification index comprising a plurality of classification categories, each of said categories containing one or more user-selectable attributes the program being arranged to control the steps of:

a) pre-storing one or more data objects of a first type in a database, each of said data objects storing one or more of said attributes of one or more of said plurality of classification categories;

b) displaying said plurality of classification categories to a user for selection of one more more attributes from at least one of said classification categories;

c) storing the selected attributes in the database in the form of a data object of a second type;

d) comparing the stored attributes of the data object of the second type with the stored pre-selected attributes of the data objects of the first type; and

e) matching said data objects of the respective types which have at least a predetermined threshold number of common stored attributes.

33. A computer-readable storage medium according to claim **32** wherein said pre-storing step comprises the steps of:

a) displaying said plurality of classification categories to at least one user of a first type for selection of one or more attributes from at least one of said classification categories; and

b) storing the selected attributes in the database in the form of a data object of the first type.

34. A computer-readable storage medium according to claim **33**, wherein said displaying step (a) further comprises the steps of:

a) transmitting said plurality of classification categories to the user of the first type in the form of web pages over the Internet; and

b) receiving data over the Internet from the user of a first type corresponding to the user's attribute selections.

35. A computer-readable storage medium according to claim **32**, wherein said displaying step (b) further comprises the steps of:

a) transmitting said plurality of classification categories to the user in the form of web pages over the Internet; and

b) receiving data over the Internet from the user corresponding to the user's attribute selections.

36. A computer-readable storage medium according to claim **32**, wherein said program is further arranged to control the step of displaying those matching data objects of the first type found to match at the matching step to the user.

37. A computer-readable storage medium according to claim **36**, wherein said displaying step comprises transmitting said matching data objects of the first type to the user in the form of web pages over the Internet.

38. A computer-readable storage medium according to claim **32**, wherein said plurality of classification categories are grouped into two or more classes, each class having a different predetermined threshold number; and wherein said matching step (e) further comprises matching data objects of the respective types which have a number of common stored attributes in each class of classification categories greater than or equal to the respective predetermined threshold number for the respective class.

39. A computer-readable storage medium according to claim **32**, wherein the data objects of the first or second types each comprise one or more pointer values into a look-up table, each user-selectable attribute in each classification category having an entry in the look-up table.

40. A computer-readable storage medium according to claim **39**, wherein said comparison step further compares the stored pointer values of the respective data types.

41. A computer-readable storage medium according to claim **39**, wherein said data objects of the first or second type each further comprise type-specific data variables.

42. A computer-readable storage medium according to claim **32** wherein the program is further arranged to control the steps of:

a) pre-storing a plurality of questions and associated answers in a test-question database;

b) displaying a sub-set of the plurality of questions to the user, the sub-set of questions being associated with a matching data object of the first type found to match the data object of the second type generated by the user;

c) receiving the user's answers to the displayed questions; and

d) evaluating the received answers with the pre-stored answers to determine a test mark.

43. A computer-readable storage medium according to claim **42**, wherein said pre-storing step (a) further comprises the step of:

categorizing each of said plurality of questions in acceptance with the plurality of classification categories.

44. A computer readable storage medium according to claim **43**, wherein displaying a subset of the plurality of question further comprises the steps of:

a) dynamically generating the sub-set of questions in accordance with the classification categories assigned to each question and the user-selectable attributes stored in the matching data object of the first type; and

b) displaying the sub-set of questions to the user of the second type; wherein a particular question is added to the sub-set if at least one of the classification categories assigned to the particular question corresponds to at least one of the classification categories corresponding to the usr-selectable attributes stored in the matching data object of the first type.

45. A computer-readable storage medium according to claim **42**, wherein said generating step (a) further comprises the step of:

creating a recordset of questions with at least one corresponding classification category to the stored attributes of the matching data object;

selecting at random a question from the recordset;

checking on the sub-set of questions to determine if the question has already been selected; and

adding the question to the sub-set of question if it is determined that the question has not already been selected.

46. A computer-readable storage medium according to claim **43**, wherein the sub-set of questions is determined in advance for a particular data object of the first type.

47. A computer-readable storage medium according to claim **42**, wherein the program is further arranged to control the step of storing the user's answers and test mark.

* * * * *

EXHIBIT B

TODD & WELD LLP
ATTORNEYS AT LAW
28 STATE STREET
BOSTON, MASSACHUSETTS 02109

IAN CRAWFORD
Email: icrawford@toddweld.com

TELEPHONE: (617) 720-2626
FACSIMILE: (617) 227-5777
www.toddweld.com

July 14, 2009

President
eHarmony.com
300 North Lake Avenue
Pasadena, CA 91101

Re: U.S. Patent No. 6,701,313

Dear Sir:

Please accept this letter as formal notification of the infringement of U.S. Patent No. 6,701,313 (the "'313 Patent"), currently utilized at eRecruitment.com, by eHarmony with its eHarmony.com Compatibility Matching System.®

It has recently come to our attention that the eHarmony product infringes at least Claims 1 through 10 of the '313 Patent by means of its initial registration system as well as throughout other sections of the eHarmony.com website. By way of example, the eHarmony.com product infringes Claim 1 by including the ability to create a compiled matching profile from pre-defined sets of choices selectable by users in various categories, and which can grouped in classes, i.e: leisure interests, and be given a threshold value, the degree of which is selected by the user to determine attributable levels of personal importance attached to the user's requirements for each of the predefined selections or groups of selections. Such a process is described in and forms part of Claim 1 of the '313 Patent.

The eHarmony matching profile selections are then compiled to a data object type and matched via computer software to similarly selected data objects of other users who are then shown to each other as "matches." The product further stores, for future use, these matching profiles and continues to compare profiles of users for the purposes of matching as and when new users join the service, as is described and claimed in at least Claims 1 through 10 of the '313 Patent. These users, whether for the purposes of dating or employment, are determining each

others' suitability for a relationship based on predetermined data in selectable categories, classes and with additional variable attributes as defined in the '313 Patent and as used on the eHarmony.com website.

eHarmony.com also infringes methods and media claimed throughout the balance of the '313 Patent. Attached to this letter are graphical references taken directly from the eHarmony website showing infringement of claims from the '313 Patent.

While we are aware of U.S. Patent No. 6,735,568 (the "'568 Patent"), we note that both the filing and issuance dates for the '313 Patent predate the '568 Patent. As a result, the '568 Patent does not protect the eHarmony Matching System® as your website claims.

Although our intention here is primarily to draw your attention to the actual eHarmony.com product infringement which we consider indisputable, and not to the '568 Patent, by way of a single example, we draw attention to terminology contained within the eHarmony patent Claim 16 which also reads directly on the '313 Patent in Claim 32. The '568 Patent also has frequent readings on the '313 Patent, including the frequent use of the term "a particular candidate," a term more commonly used in recruitment. I also attach an exemplar of this comparison of similar claim language.

Demand is hereby made that eHarmony cease and desist offering the eHarmony Matching System® product for sale since it infringes the '313 Patent. In the alternative, if eHarmony is interested in licensing or acquiring rights under the '313 Patent which would allow it to continue to sell eHarmony.com to consumers, please contact us. If we do not hear from you within 30 days or if the product is not withdrawn from the marketplace immediately, continued sale of the eHarmony.com product and infringement of the '313 Patent will be considered willful, and we will take all necessary steps to enforce our client's rights under 35 U.S.C. §281, et. seq.

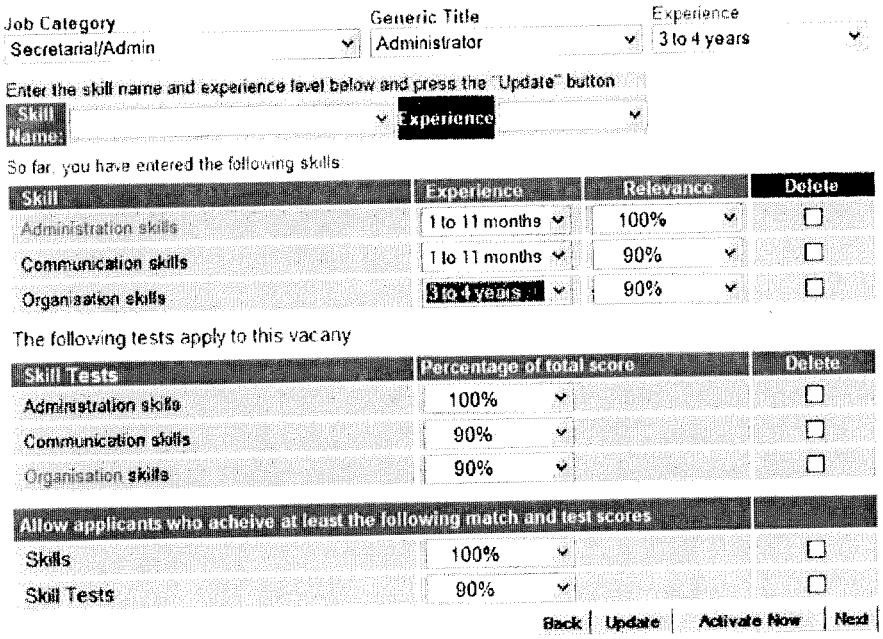
We look forward to hearing from you or your counsel in the near future.

Very truly yours,

Ian Crawford

IC:klp

This image is a graphical representation of the '313 patent as used on erecruitment.com



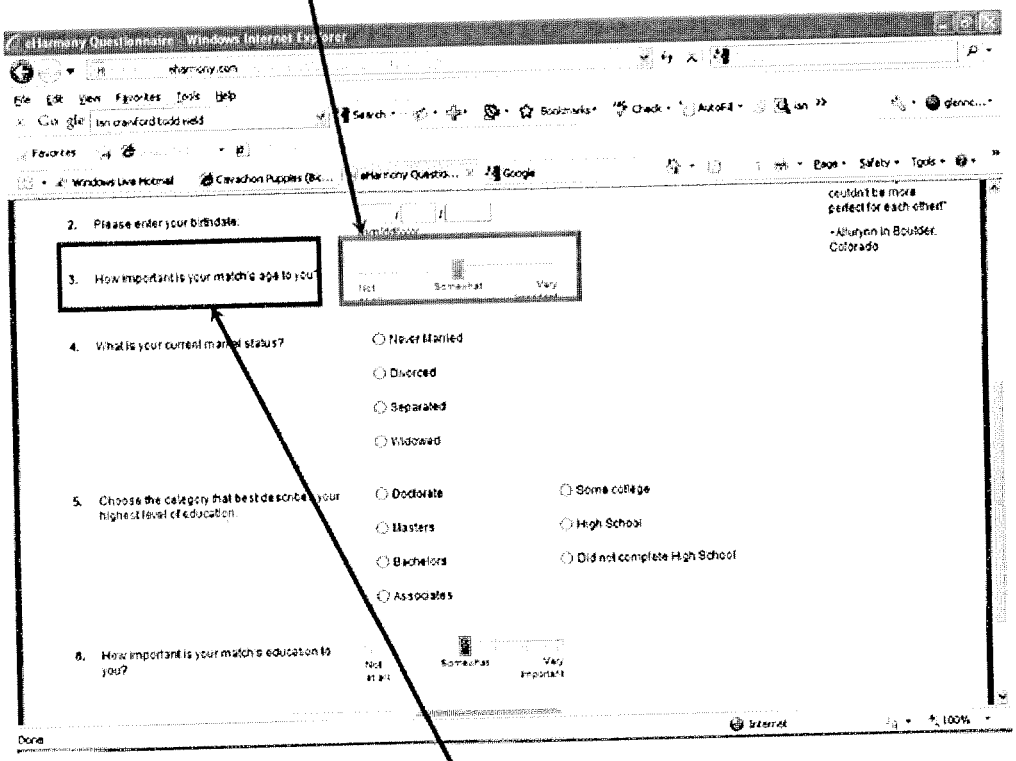
In this example of the '313 Patent, a combination of previous user pre-defined classification categories (Job Category and Generic Title) and present user pre-defined classication categories (Individual Skills) is used. The attributes in this example are periods of experience defined in months and years and the thresholds defined as percentages of relevance and overall relevance of each of the categories and attributes required for matching.

The tests can be pre-created and dynamically presented according to either the chosen classification index, attributes or threshold: i.e: job category, skill, experience or precentage of skill or overall relevance for matching

Other classification categories could be location by state, country or province, salary, benefits, other attributes could be postal/zip code, distance or salary range and other thresholds could be benefit's calculators, ranges out of 10 or other eliminators.

The claims and infringement indications shown here refer to the elements of the '313 patent that are specific to the input of data. As can be seen when reading the '313 patent as a whole, the other elements of the claims primarily refer to the storing of the users selections in a database and subsequent comparison of the data by the matching engine, which is a backend software process and can only be displayed with technical material and not from graphical screenshots.

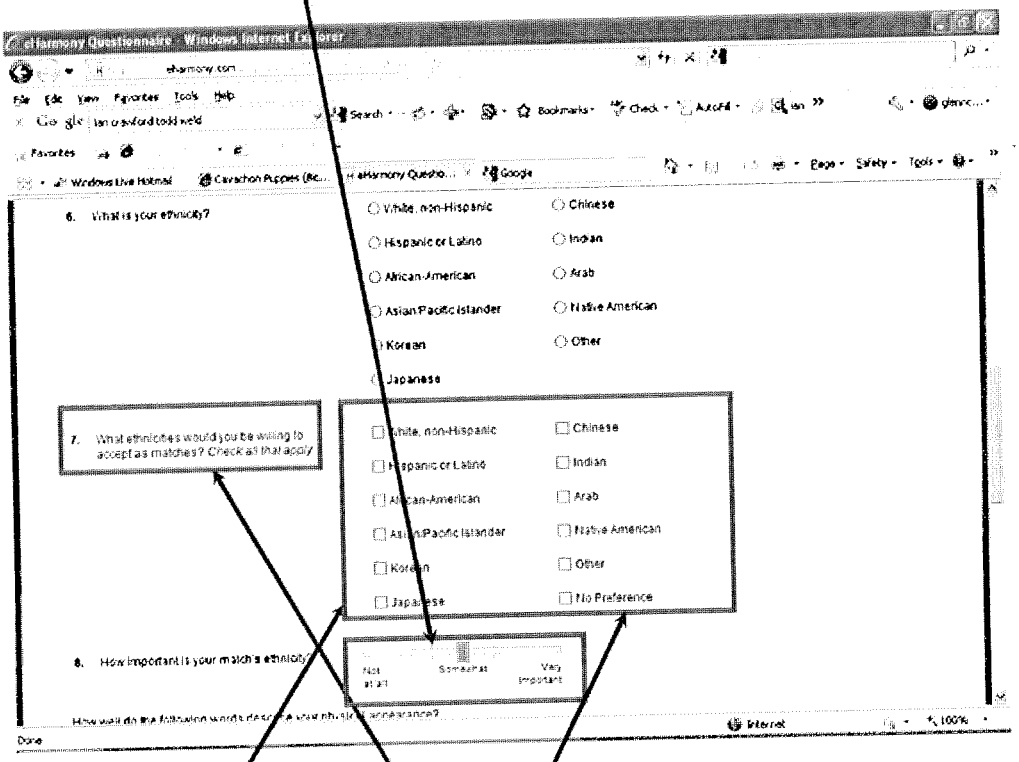
8. A method according to claim 1, wherein the data objects of the first or second types each comprise one or more pointer values into a look-up table, each user-selectable attribute in each classification category having an entry in the look-up table.
9. A method according to claim 8, wherein said comparison step further compares the stored pointer values of the respective data types.



Claim 1 of the '313 patent

1. A method of matching data objects using a classification index comprising a plurality of predefined classification categories, each of said categories containing one or more predefined user-selectable attributes, said method comprising the step of: a) pre-storing one or more data objects of a first type in a database, each of said data objects storing one or more attributes of one or more of said plurality of classification categories; b) displaying said plurality of classification categories to a user for selection of one or more attributes from at least one of said classification categories; c) storing the selected attributes in the database in the form of a data object of a second type; d) comparing the stored attributes of the data object of the second type with the stored attributes of the data objects of the first type; and e) matching said data objects of the respective types which have at least a predetermined threshold number of common stored attributes.

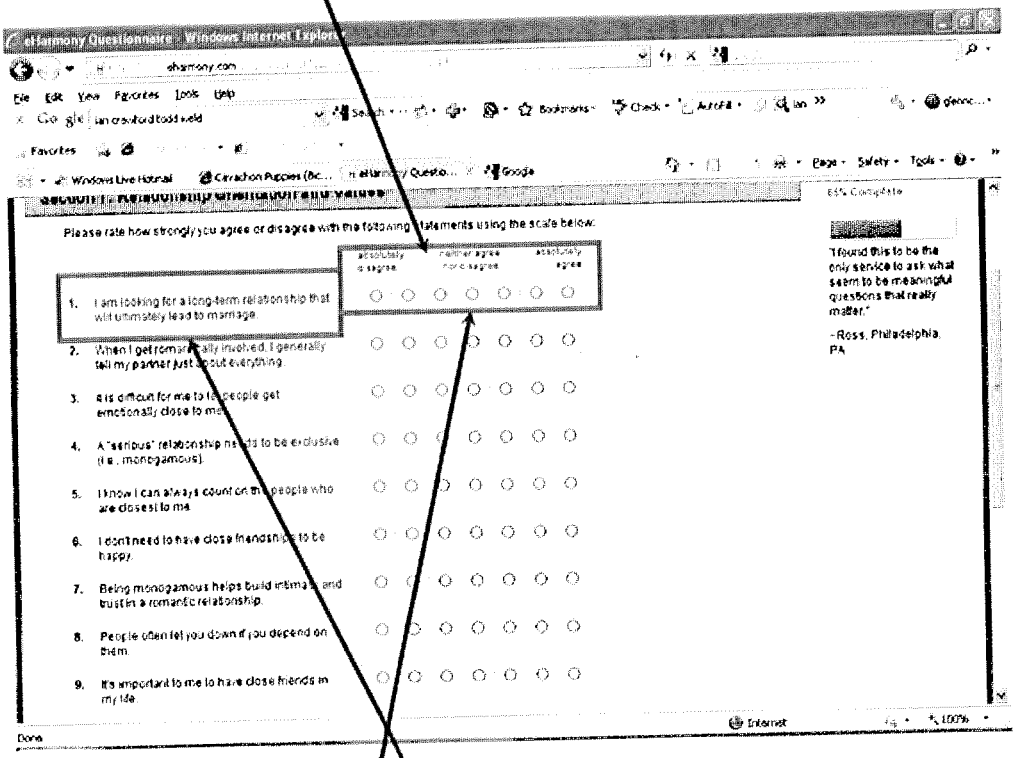
8. A method according to claim 1, wherein the data objects of the first or second types each comprise one or more pointer values into a look-up table, each user-selectable attribute in each classification category having an entry in the look-up table.
9. A method according to claim 8, wherein said comparison step further compares the stored pointer values of the respective data types



Claim 1 of the '313 patent

1. A method of matching data objects using a classification index comprising a plurality of predefined classification categories, each of said categories containing one or more predefined user-selectable attributes, said method comprising the step of: a) pre-storing one or more data objects of a first type in a database, each of said data objects storing one or more attributes of one or more of said plurality of classification categories; b) displaying said plurality of classification categories to a user for selection of one or more attributes from at least one of said classification categories; c) storing the selected attributes in the database in the form of a data object of a second type; d) comparing the stored attributes of the data object of the second type with the stored attributes of the data objects of the first type; and e) matching said data objects of the respective types which have at least a predetermined threshold number of common stored attributes.

8. A method according to claim 1, wherein the data objects of the first or second types each comprise one or more pointer values into a look-up table, each user-selectable attribute in each classification category having an entry in the look-up table.
9. A method according to claim 8, wherein said comparison step further compares the stored pointer values of the respective data types

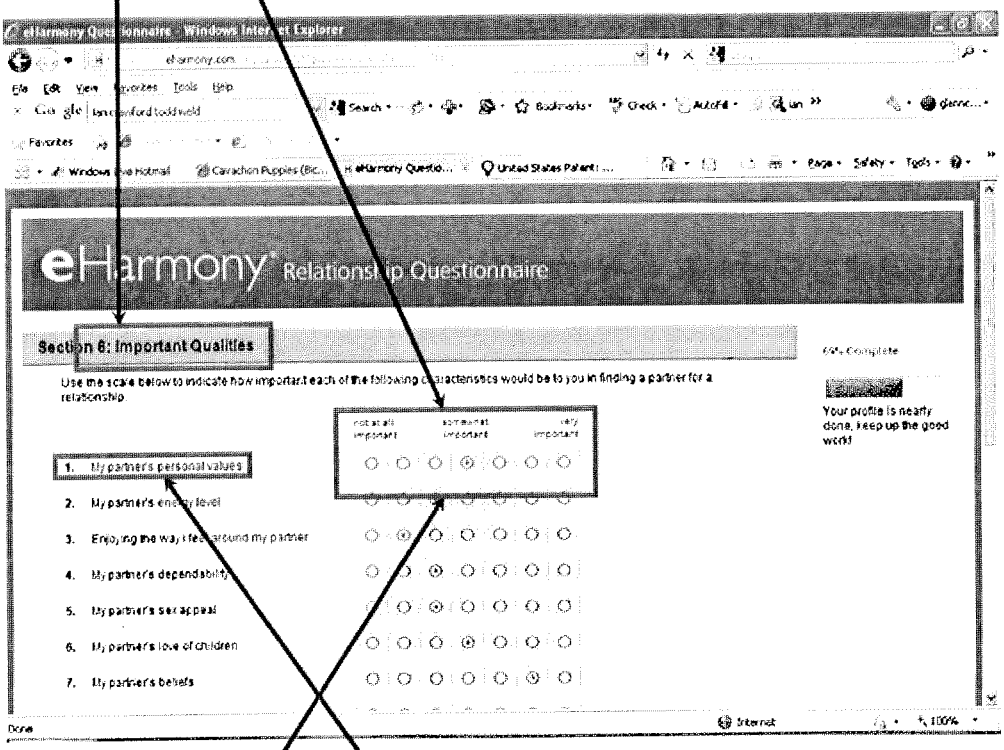


Claim 1 of the '313 patent

1. A method of matching data objects using a classification index comprising a plurality of predefined classification categories, each of said categories containing one or more predefined user-selectable attributes, said method comprising the step of: a) pre-storing one or more data objects of a first type in a database, each of said data objects storing one or more attributes of one or more of said plurality of classification categories; b) displaying said plurality of classification categories to a user for selection of one or more attributes from at least one of said classification categories; c) storing the selected attributes in the database in the form of a data object of a second type; d) comparing the stored attributes of the data object of the second type with the stored attributes of the data objects of the first type; and e) matching said data objects of the respective types which have at least a predetermined threshold number of common stored attributes.

Claim 7 of the '313 patent

7. A method according to claim 1, wherein said plurality of classification categories are grouped into two or more classes, each class having a different predetermined threshold number, and wherein said matching step (e) further comprises matching data objects of the respective types which have a number of common stored attributes in each class of classification categories greater than or equal to the respective predetermined threshold number for the respective class.



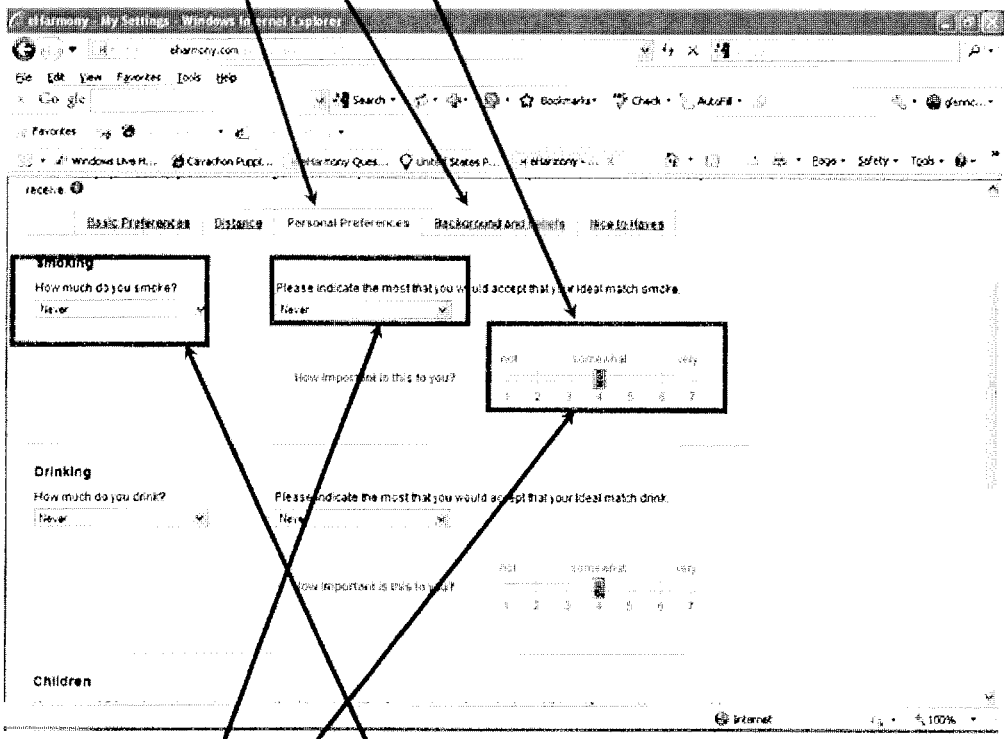
Claim 1 of the '313 patent

1. A method of matching data objects using a classification index comprising a plurality of predefined classification categories, each of said categories containing one or more predefined user-selectable attributes, said method comprising the step of: a) pre-storing one or more data objects of a first type in a database, each of said data objects storing one or more attributes of one or more of said plurality of classification categories; b) displaying said plurality of classification categories to a user for selection of one or more attributes from at least one of said classification categories; c) storing the selected attributes in the database in the form of a data object of a second type; d) comparing the stored attributes of the data object of the second type with the stored attributes of the data objects of the first type; and e) matching said data objects of the respective types which have at least a predetermined threshold number of common stored attributes.

7. A method according to claim 1, wherein said plurality of classification categories are grouped into two or more classes, each class having a different predetermined threshold number, and wherein said matching step (e) further comprises matching data objects of the respective types which have a number of common stored attributes in each class of classification categories greater than or equal to the respective predetermined threshold number for the respective class.

8. A method according to claim 1, wherein the data objects of the first or second types each comprise one or more pointer values into a look-up table, each user-selectable attribute in each classification category having an entry in the look-up table.

9. A method according to claim 8, wherein said comparison step further compares the stored pointer values of the respective data types



Claim 1 of the '373 patent

1. A method of matching data objects using a classification index comprising a plurality of predefined classification categories, each of said categories containing one or more predefined user-selectable attributes, said method comprising the step of: a) pre-storing one or more data objects of a first type in a database, each of said data objects storing one or more attributes of one or more of said plurality of classification categories; b) displaying said plurality of classification categories to a user for selection of one or more attributes from at least one of said classification categories; c) storing the selected attributes in the database in the form of a data object of a second type; d) comparing the stored attributes of the data object of the second type with the stored attributes of the data objects of the first type; and e) matching said data objects of the respective types which have at least a predetermined threshold number of common stored attributes.

Exemplar of similar claim language:

Claim 32 of the '313 Patent.

32. A computer readable storage medium for storing data objects and matching the data objects using a classification index comprising a plurality of classification categories, each of said categories containing one or more user-selectable attributes the program being arranged to control the steps of: a) pre-storing one or more data objects of a first type in a database, each of said data objects storing one or more of said attributes of one or more of said plurality of classification categories; b) displaying said plurality of classification categories to a user for selection of one more attributes from at least one of said classification categories; c) storing the selected attributes in the database in the form of a data object of a second type; d) comparing the stored attributes of the data object of the second type with the stored pre-selected attributes of the data objects of the first type; and e) matching said data objects of the respective types which have at least a predetermined threshold number of common stored attributes.

Claim 16 of the '568 Patent.

16. An automated system for operating a matching service, comprising: means for generating, from empirical data, a number of factors corresponding to a like number of functions of one or more variables relevant to relationship satisfaction; means for approximating the satisfaction that a user of the matching service has in the relationships that the user forms with others; computer means for identifying candidates for a relationship with the user by determining an association between the approximated satisfaction and one or more of the factors; and means for approximating the satisfaction that the user will have In a relationship with a particular candidate.