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94062 (US). WADERA, Ranvir [US/US]; 1342 Bel Aire Road, San Mateo, CA 94402 (US).

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(74) Agents: KULAS, Charles, J. et al.; Townsend and Townsend and Crew LLP, Two Embarcadero Center, Eighth Floor, San Francisco, CA 94111 (US).

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(71) Applicant (for all designated States except US): CUSTOMATICS, INC. [US/US]; 2870 Zanker Road, San Jose, CA 95134 (US).

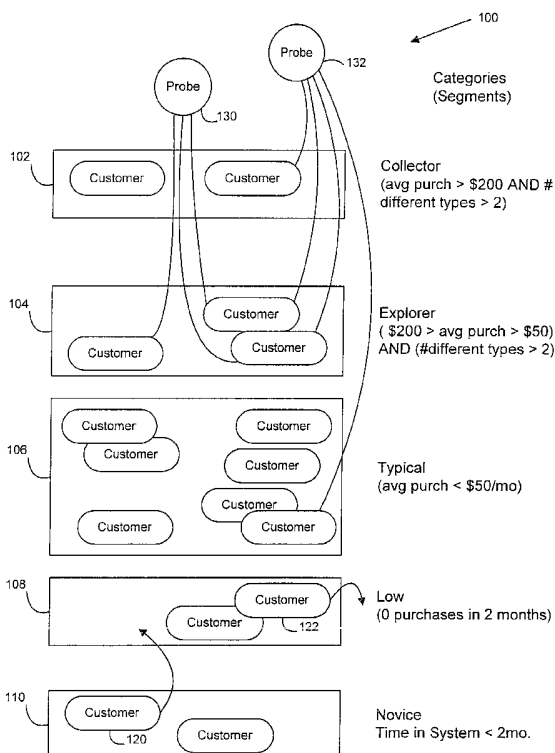
(72) Inventors; and

(75) Inventors/Applicants (for US only): NICHOLLS, Charles [US/US]; 715 Bayview Way, Emerald Hills, CA

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(54) Title: SYSTEM FOR TRACKING AND ANALYZING DATA CHANGES IN COMPUTER DATABASES



(57) Abstract: A system allowing a business users and analysts to use software to track and analyze segments, joiners, leavers, and define probes and other mechanisms to facilitate real-time analysis of data changes in a computer database. Joiners are members who have recently joined a segment. Leavers are members who have recently left a segment. Probes are re-usable expressions for deriving a value from properties of a segment member, joiner, leaver or other item. A probe can be a flag, simple or complex relational expression, or other expression. An example of a probe value is the average purchase interval for a given segment. Probe values are typically tracked over time to provide meaningful analysis data. Probe expressions can be associated with segments' member, joiners, leavers and / or associated with individual members of segments and other aspects of the system. By using probes in combination with segments or individual segment members, the need for running slow, expensive queries against large amounts of detailed data is reduced or eliminated. This allows important analytical data to be available in real-time. Alerts and actions can be triggered according to probe values or other conditions, called ChangeAgents. Such alerts and actions can result in email messages being sent; or mail, fax or other communications being sent to members of a company or to customers. A graphical user interface is provided to provide an efficient and intuitive means for an analyst or operator to implement the above features. Other aspects of the system include monitors for associating rules to segments with scheduled activation, and vectors for indicating the direction that a data item (e.g., a customer) is moving over time.

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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 734 720 A (SALGANICOFF MARCOS) 31 March 1998 (1998-03-31) column 13, line 57 -column 14, line 4 column 24, line 61 -column 25, line 31 column 30, line 30 -column 31, line 52 column 46, line 38 - line 41	1-23
X A	WO 99 12115 A (CATALINA MARKETING INT) 11 March 1999 (1999-03-11) page 4, line 1 - line 9 page 7, line 22 -page 8, line 15 claims 1,8	1, 10, 15 2-9, 11-14, 16-23

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Perez Perez, J

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Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5734720	A	31-03-1998	US 5758257 A	26-05-1998
			AT 242581 T	15-06-2003
			AU 703247 B2	25-03-1999
			AU 4410396 A	19-06-1996
			CA 2207868 A1	06-06-1996
			DE 69530995 D1	10-07-2003
			EP 0796538 A2	24-09-1997
			US 6020883 A	01-02-2000
			WO 9617467 A2	06-06-1996
			US 2003037041 A1	20-02-2003
			US 5754938 A	19-05-1998
			US 5754939 A	19-05-1998
			US 5835087 A	10-11-1998
			US 6088722 A	11-07-2000
			US 6029195 A	22-02-2000
US 6460036 B1	01-10-2002			
WO 9912115	A	11-03-1999	US 6026370 A	15-02-2000
			AU 720903 B2	15-06-2000
			AU 9111998 A	22-03-1999
			EP 1010119 A1	21-06-2000
			JP 2000510630 T	15-08-2000
			LU 90365 A1	10-08-1999
			NZ 500164 A	27-04-2001
			WO 9912115 A1	11-03-1999