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(54) **Title**: METHODS AND SYSTEMS FOR SCORE CONSISTENCY

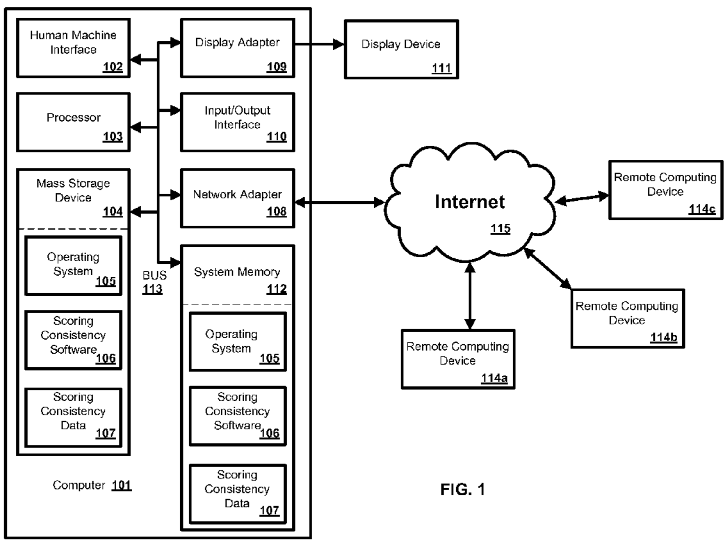

FIG. 1

(57) **Abstract**: Provided are methods and systems for determining score consistency.

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METHODS AND SYSTEMS FOR SCORE CONSISTENCY

CROSS REFERENCE TO RELATED PATENT APPLICATIONS

[0001] This application claims priority to U.S. Provisional Application No. 61/026,487 filed February 2, 2008, herein incorporated by reference in its entirety.

BACKGROUND

[0002] Typical real estate underwriting procedures require three credit scores for assessing a consumer's credit worthiness, one score from each of the three credit reporting companies (CRCs). Lenders require that these scores are not only predictive of credit risk but also are highly consistent in their absolute value. Scoring algorithms that provide inconsistent scores can increase the risk exposure that a lender takes on and offers the borrower less attractive products and pricing.

[0003] Inconsistent scores occur largely due to score algorithm differences among CRCs, timing submission and content variations in data reported by creditors. A credit score for a consumer can vary by more than 60 points between the CRCs.

[0004] Measuring score consistency is challenging for the reasons stated previously and additionally due to the fact that scores often use different ranges. Thus, for example, a consumer may score 650 using two different algorithms yet have very different risk profiles. It is possible that the former algorithm has a range of 300 to 700 where 650 indicates low risk and the latter algorithm has a range of 600 to 900 where 650 indicates high risk.

[0005] As lenders look to improve the quality of their underwriting processes, a framework is necessary for evaluating the consistency of generic risk score algorithms.

SUMMARY

[0006] In one aspect, provided are methods and systems for determining score consistency, comprising generating a first score from data obtained from a first credit reporting company for each of a plurality of entities using a first scoring algorithm, generating a second score from data obtained from a second credit reporting company for each of a plurality of entities using the first scoring algorithm, assigning each of the plurality of entities to one of a first plurality of risk groups based on the first score and one of a second plurality of risk groups based on

the second score, wherein the first and second pluralities of risk groups have corresponding risk groups, determining a first score consistency value based on the number of entities in each of the corresponding risk groups in the first and second pluralities of risk groups, and outputting the first score consistency value.

[0007] Additional advantages will be set forth in part in the description which follows or may be learned by practice. The advantages will be realized and attained by means of the elements and combinations particularly pointed out in the appended claims. It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory only and are not restrictive, as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate embodiments and together with the description, serve to explain the principles of the methods and systems:

Figure 1 is an exemplary operating environment;

Figure 2 is an exemplary method for determining score consistency;

Figure 3 is another embodiment of an exemplary method for determining score consistency; and

Figure 4 is another embodiment of an exemplary method for determining score consistency.

DETAILED DESCRIPTION

[0009] Before the present methods and systems are disclosed and described, it is to be understood that the methods and systems are not limited to specific synthetic methods, specific components, or to particular compositions, as such may, of course, vary. It is also to be understood that the terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting.

[0010] As used in the specification and the appended claims, the singular forms "a," "an" and "the" include plural referents unless the context clearly dictates otherwise. Ranges may be expressed herein as from "about" one particular value, and/or to "about" another particular value. When such a range is expressed, another embodiment includes from the one particular value and/or to the other particular value. Similarly, when values are expressed as approximations, by use of the antecedent “about,” it will be understood that the particular value forms another embodiment. It will be further understood that the endpoints of each of the ranges are significant both in relation to the other endpoint, and independently of the other endpoint.

[0011] "Optional" or "optionally" means that the subsequently described event or circumstance may or may not occur, and that the description includes instances where said event or circumstance occurs and instances where it does not.

[0012] Throughout the description and claims of this specification, the word "comprise" and variations of the word, such as "comprising" and "comprises," means "including but not limited to," and is not intended to exclude, for example, other additives, components, integers or steps. "Exemplary" means "an example of" and is not intended to convey an indication of a preferred or ideal embodiment.

[0013] Disclosed are components that can be used to perform the disclosed methods and systems. These and other components are disclosed herein, and it is understood that when combinations, subsets, interactions, groups, etc. of these components are disclosed that while specific reference of each various individual and collective combinations and permutation of these may not be explicitly disclosed, each is specifically contemplated and described herein, for all methods and systems. This applies to all aspects of this application including, but not limited to, steps in disclosed methods. Thus, if there are a variety of additional steps that can be performed it is understood that each of these additional steps can be performed with any specific embodiment or combination of embodiments of the disclosed methods.

[0014] The present methods and systems may be understood more readily by reference to the following detailed description of preferred embodiments and the Examples included therein and to the Figures and their previous and following description.

[0015] Traditional generic risk scores are subject to large variations across CRCs. These variations can be driven from three sources: 1) differences in data submission by lenders and other entities; 2) differences in data classification by CRCs; and 3) differences in the score algorithms in place at each CRC. Further, different scores use different ranges to measure risk. A consistent predictive score enables lenders to implement optimal credit decision strategy, reduces confusion for the consumers when evaluating their own credit profile and helps regulators gauge lending exposure more precisely.

[0016] In one aspect, provided herein are methods and systems for measuring the consistency of a generic risk score algorithms across multiple CRCs. In one aspect, the methods and systems provided can utilize a ranking that an entity achieves based on the entity's score and its position relative to all other entity scores in a particular portfolio. An entity can be, for example, a consumer, a company, a country, a group of consumers, a group of companies, a group of countries, and the like. For example, if a consumer receives a score that ranks the consumer in the top 10% of a scored population of consumers for two different risk scoring algorithms, then for this consumer, the algorithms are highly consistent in risk assessment. Conversely, if the consumer receives a score from a first algorithm that ranks the consumer in the top 10% of the scored population according to a score range for the first algorithm and a score from a second algorithm that ranks the consumer in the bottom 10% of the scored population according to a score range for the second algorithm, then the algorithms are highly inconsistent.

I. Systems

[0017] **FIG. 1** is a block diagram illustrating an exemplary operating environment for performing the disclosed method. This exemplary operating environment is only an example of an operating environment and is not intended to suggest any limitation as to the scope of use or functionality of operating environment architecture. Neither should the operating environment be interpreted as having any dependency or requirement relating to any one or combination of components illustrated in the exemplary operating environment. One skilled in the art will appreciate that respective functions can be performed by software, hardware, or a combination of software and hardware.

[0018] The present methods and systems can be operational with numerous other general purpose or special purpose computing system environments or configurations. Examples of well known computing systems, environments, and/or configurations that can be suitable for use with the system and method comprise, but are not limited to, personal computers, server computers, laptop devices, and multiprocessor systems. Additional examples comprise set top boxes, programmable consumer electronics, network PCs, minicomputers, mainframe computers, distributed computing environments that comprise any of the above systems or devices, and the like.

[0019] The processing of the disclosed methods and systems can be performed by software components. The disclosed system and method can be described in the general context of computer-executable instructions, such as program modules, being executed by one or more computers or other devices. Generally, program modules comprise computer code, routines, programs, objects, components, data structures, etc. that perform particular tasks or implement particular abstract data types. The disclosed method can also be practiced in grid-based and distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, program modules can be located in both local and remote computer storage media including memory storage devices.

[0020] Further, one skilled in the art will appreciate that the system and method disclosed herein can be implemented via a general-purpose computing device in the form of a computer **101**. The components of the computer **101** can comprise, but are not limited to, one or more processors or processing units **103**, a system memory **112**, and a system bus **113** that couples various system components including the processor **103** to the system memory **112**. In the case of multiple processing units **103**, the system can utilize parallel computing.

[0021] The system bus **113** represents one or more of several possible types of bus structures, including a memory bus or memory controller, a peripheral bus, an accelerated graphics port, and a processor or local bus using any of a variety of bus architectures. By way of example, such architectures can comprise an Industry Standard Architecture (ISA) bus, a Micro Channel Architecture (MCA) bus, an Enhanced ISA (EISA) bus, a Video Electronics Standards Association (VESA) local bus, an Accelerated Graphics Port (AGP) bus, a Peripheral Component Interconnects (PCI) bus, a PCI-Express bus, a Personal Computer Memory Card Industry Association (PCMCIA), Universal Serial Bus (USB) and the like. The bus **113**, and all buses specified in this description can also be implemented over a wired or wireless network connection and each of the subsystems, including the processor **103**, a mass storage device **104**, an operating system **105**, Scoring Consistency software **106**, Scoring Consistency data **107**, a network adapter **108**, system memory **112**, an Input/Output Interface **110**, a display adapter **109**, a display device **111**, and a human machine interface **102**, can be contained within one or more remote computing devices **114a,b,c** at physically separate locations, connected through buses of this form, in effect implementing a fully distributed system.

[0022] The computer **101** typically comprises a variety of computer readable media. Exemplary readable media can be any available media that is accessible by the computer **101** and comprises, for example and not meant to be limiting, both volatile and non-volatile media, removable and non-removable media. The system memory **112** comprises computer readable media in the form of volatile memory, such as random access memory (RAM), and/or non-volatile memory, such as read only memory (ROM). The system memory **112** typically contains data such as Scoring Consistency data **107** and/or program modules such as operating system **105** and Scoring Consistency software **106** that are immediately accessible to and/or are presently operated on by the processing unit **103**.

[0023] In another aspect, the computer **101** can also comprise other removable/non-removable, volatile/non-volatile computer storage media. By way of example, **FIG. 1** illustrates a mass storage device **104** which can provide non-volatile storage of computer code, computer readable instructions, data structures, program modules, and other data for the computer **101**. For example and not meant to be limiting, a mass storage device **104** can be a hard disk, a removable magnetic disk, a removable optical disk, magnetic cassettes or other magnetic storage devices, flash memory cards, CD-ROM, digital versatile disks (DVD) or other optical storage, random access memories (RAM), read only memories (ROM), electrically erasable programmable read-only memory (EEPROM), and the like.

[0024] Optionally, any number of program modules can be stored on the mass storage device **104**, including by way of example, an operating system **105** and Scoring Consistency software **106**. Each of the operating system **105** and Scoring Consistency software **106** (or some combination thereof) can comprise elements of the programming and the Scoring Consistency software **106**. Scoring Consistency data **107** can also be stored on the mass storage device **104**. Scoring Consistency data **107** can be stored in any of one or more databases known in the art. Examples of such databases comprise, DB2®, Microsoft® Access, Microsoft® SQL Server, Oracle®, mySQL, PostgreSQL, and the like. The databases can be centralized or distributed across multiple systems. Scoring Consistency data can comprise, for example, credit data for consumers, business, countries and the like. Scoring

Consistency data can also comprise, for example, scores determined using a variety of scoring algorithms using credit data.

[0025] In another aspect, the user can enter commands and information into the computer **101** via an input device (not shown). Examples of such input devices comprise, but are not limited to, a keyboard, pointing device (*e.g.*, a "mouse"), a microphone, a joystick, a scanner, tactile input devices such as gloves, and other body coverings, and the like These and other input devices can be connected to the processing unit **103** via a human machine interface **102** that is coupled to the system bus **113**, but can be connected by other interface and bus structures, such as a parallel port, game port, an IEEE 1394 Port (also known as a Firewire port), a serial port, or a universal serial bus (USB).

[0026] In yet another aspect, a display device **111** can also be connected to the system bus **113** via an interface, such as a display adapter **109**. It is contemplated that the computer **101** can have more than one display adapter **109** and the computer **101** can have more than one display device **111**. For example, a display device can be a monitor, an LCD (Liquid Crystal Display), or a projector. In addition to the display device **111**, other output peripheral devices can comprise components such as speakers (not shown) and a printer (not shown) which can be connected to the computer **101** via Input/Output Interface **110**. Any result and/or step of any of the disclosed methods can be output to an output device.

[0027] The computer **101** can operate in a networked environment using logical connections to one or more remote computing devices **114a,b,c**. By way of example, a remote computing device can be a personal computer, portable computer, a server, a router, a network computer, a peer device or other common network node, and so on. Logical connections between the computer **101** and a remote computing device **114a,b,c** can be made via a local area network (LAN) and a general wide area network (WAN). Such network connections can be through a network adapter **108**. A network adapter **108** can be implemented in both wired and wireless environments. Such networking environments are conventional and commonplace in offices, enterprise-wide computer networks, intranets, and the Internet **115**.

[0028] For purposes of illustration, application programs and other executable program components such as the operating system **105** are illustrated herein as discrete blocks, although it is recognized that such programs and components reside at various times in different storage components of the computing device **101**, and are executed by the data processor(s) of the computer. An implementation of Scoring Consistency software **106** can be stored on or transmitted across some form of computer readable media. Any of the disclosed methods can be performed by computer readable instructions embodied on computer readable media. Computer readable media can be any available media that can be accessed by a computer. By way of example and not meant to be limiting, computer readable media can comprise "computer storage media" and "communications media." "Computer storage media" comprise volatile and non-volatile, removable and non-removable media implemented in any method or technology for storage of information such as computer readable instructions, data structures, program modules, or other data. Exemplary computer storage media comprises, but is not limited to, RAM, ROM, EEPROM, flash memory or other memory technology, CD-ROM, digital versatile disks (DVD) or other optical storage, magnetic cassettes, magnetic tape, magnetic disk storage or other magnetic storage devices, or any other medium which can be used to store the desired information and which can be accessed by a computer.

[0029] The methods and systems can employ Artificial Intelligence techniques such as machine learning and iterative learning. Examples of such techniques include, but are not limited to, expert systems, case based reasoning, Bayesian networks, behavior based AI, neural networks, fuzzy systems, evolutionary computation (e.g. genetic algorithms), swarm intelligence (e.g. ant algorithms), and hybrid intelligent systems (e.g. Expert inference rules generated through a neural network or production rules from statistical learning).

II. Methods

[0030] In one aspect, illustrated in **FIG. 2**, provided is a method for determining score consistency. By way of example, the method is described in the context of three CRCs. However, it is contemplated that the methods described herein can be used with less than three CRCs and more than three CRCs. Let GR_Score be any generic risk score which is available from all three CRCs. Let GR_Score_CRC1 denote the GR_Score calculated and pulled from CRC1, GR_Score_CRC2 denote the GR_Score calculated and pulled from CRC2, and GR_Score_CRC3 denote the GR_Score calculated and pulled from CRC3.

[0031] Score a random sample of consumers with the condition that GR_Scores are available for each and every record in the sample from all three CRCs at **201**. Rank order the population from high score to low score using GR_Score_CRC1 at **202**. Assign the population into risk categories using percentage breaks using GR_Score_CRC1 at **203**. For example, assign the top scored X_1% of the population into a category labeled "Low Risk", put the next X_2% of population into category "Medium Risk", and the next X_3% of population into category "High Risk", and the rest X_4% (the lowest scored) population into category "Very High Risk", as shown in the table below.

Population Groups	Label	Population Breaks
Low Risk	L	X_1%
Medium Risk	M	X_2%
High Risk	H	X_3%
Very High Risk	V	X_4%
Total		$X_1\% + X_2\% + X_3\% + X_4\% = 100\%$

[0032] Similarly, rank order the same population using GR_Score_CRC2 at **204**, and assign them into the same risk categories using the same percentage breaks (i.e. X_1%, X_2%, X_3%, X_4%) at **205**. Rank order the same population using GR_Score_CRC3 at **206**, and assign them into the same risk categories using the same percentage breaks (i.e. X_1%, X_2%, X_3%, X_4%) at **207**.

[0033] Determine the number of consumers assigned to the same risk category across CRCs at **208**. For example, determine the number of consumers who are categorized as 'Low Risk' in CRC 1 and also categorized 'Low Risk' in CRC 2 and 'Low Risk' in CRC 3. Similarly perform the same determination for the Medium Risk, High Risk and Very High Risk groups.

[0034] Divide the number of consumers assigned to the same risk category across CRCs by the total number of consumers in the population at **209**, resulting in a score consistency value, also referred to as the score consistency index (SCI hereafter). The SCI can be determined as follows:

$$\text{SCI (Score Consistency Index)} = (N_1 + N_2 + N_3 + N_4) /N$$

wherein N is the total number of consumers in the sample; N_1 is the number of consumers who are categorized into "Low Risk" in all three CRCs; N_2 is the number of consumers who are categorized into "Medium Risk" in all three CRCs; N_3 is the number of consumers who are categorized into “High Risk” in all three CRCs; and N_4 is the number of consumers who are categorized into “Very High Risk” in all three CRCs.

[0035] In another aspect, illustrated in **FIG. 3**, provided is an exemplary determination of SCI using 20 consumers (N=20), with the population broken into four equal sized risk groups (so $X_1\%= X_2\%= X_3\%= X_4\%=25\%$). However, risk groups do not have to be of equal size. SCI will be determined for a hypothesized generic risk score, referred to herein as GR, which is available from each of the 3 CRCs, with a hypothetical score range of 1 to 1000. For each consumer, the GR score from CRC 1 is denoted by GR_CRC1, from CRC 2 denoted by GR_CRC2, and so on. All score values are arbitrary and for illustration purpose only.

Consumers	GR_CRC1	GR_CRC2	GR_CRC3
Consumer 1	739	750	638
Consumer 2	890	981	988
Consumer 3	150	345	365
Consumer 4	460	475	485
Consumer 5	890	873	880
Consumer 6	874	835	730
Consumer 7	762	761	651
Consumer 8	569	489	543
Consumer 9	68	98	123
Consumer 10	256	366	432
Consumer 11	334	379	461
Consumer 12	786	820	690
Consumer 13	589	490	569
Consumer 14	489	478	508
Consumer 15	109	308	233
Consumer 16	982	996	998
Consumer 17	590	569	591
Consumer 18	680	589	630
Consumer 19	368	442	467
Consumer 20	678	585	620

[0036] Obtain scores based on generated by a scoring algorithm from data pulled from three CRCs at **301**. Sort the population by GR_CRC1, GR_CRC2, GR_CRC3, respectively, and assign them to four risk groups at **302** (i.e. 25% of the population per risk group), the results are shown by the following table:

25% For Each Risk	**Sorted by GR_CRC1**	**Sorted by GR_CRC2**	**Sorted by GR_CRC3**

Group

Low Risk

Consumer 16	982		Consumer 5	996		Consumer 12	998
Consumer 2	890		Consumer 2	981		Consumer 5	988
Consumer 5	890		Consumer 20	873		Consumer 16	880
Consumer 6	874		Consumer 12	835		Consumer 2	730
Consumer 12	786		Consumer 16	820		Consumer 20	690

Medium Risk

Consumer 7	762		Consumer 4	761		Consumer 8	651
Consumer 1	739		Consumer 1	750		Consumer 4	638
Consumer 18	680		Consumer 18	589		Consumer 1	630
Consumer 20	678		Consumer 17	585		Consumer 17	620
Consumer 17	590		Consumer 10	569		Consumer 18	591

High Risk

Consumer 13	589		Consumer 19	490		Consumer 6	569
Consumer 8	569		Consumer 13	489		Consumer 13	543
Consumer 14	489		Consumer 14	478		Consumer 15	508
Consumer 4	460		Consumer 7	475		Consumer 7	485
Consumer 19	368		Consumer 11	442		Consumer 14	467

Very High Risk

Consumer 11	334		Consumer 6	379		Consumer 19	461
Consumer 10	256		Consumer 3	366		Consumer 10	432
Consumer 3	150		Consumer 8	345		Consumer 11	365
Consumer 15	109		Consumer 15	308		Consumer 3	233
Consumer 9	68		Consumer 9	98		Consumer 9	123

[0037] Count the number of consumers who are in the same risk group across all 3 CRCs at **303**. For Low Risk, consumers numbered 2, 5, 12, 16 are in the low risk group for all 3 CRCs, so N_1=4; for Medium Risk, consumers numbered 1, 17, 18 are in the medium risk group for all 3 CRCs, so N_2=3; for High Risk, consumers numbered 13, 14 are in the high risk group for all 3 CRCs, so N_3=2; for Very High Risk, consumers numbered 3, 9 are in the very high risk group for all 3 CRCs, so N_4=2. Then calculate the SCI by taking the ratio as percentage at **304**: $SCI = (N_1 + N_2 + N_3 + N_4) / N = (4+3+2+2)/20=11/20=55\%$. SCI Interpretation: 55% of the population are consistently ranked in the same risk tier across the three CRCs.

[0038] The methods and systems provided enable lenders to quantitatively compare consistency performance of score algorithms and to factor this information in their overall assessment of the score algorithm's accuracy. The methods and systems provided herein provide several valuable business frameworks for the lending industry. For example, product assignment consistency. Utilizing a simple '4 primary tier' framework, a score can be evaluated for its ability to consistently place a consumer in the appropriate product range given their credit risk profile. Tiers can be defined such that they reflect super prime, prime, near and sub-prime behavior. For example, the super-prime tier could be defined as the top 15% of the population, prime as the next 50%, near-prime as the next 15%, and sub-prime as the final 10%. Another valuable business framework provided by the methods and systems is pricing assignment consistency. A secondary framework can be deployed within any of the above primary tiers to further evaluate the scores' ability to consistently rank the consumer within a specific risk tier (e.g. high, medium, low risk) such that the appropriate pricing can be assigned. The secondary framework is essentially nested within the primary tier.

[0039] A framework design using four risk categories logically aligns with business lending strategy, since the majority of lenders categorize their portfolio or prospects into four risk groups and formalize business strategies around that framework. Commonly-used terminology for the four tiers is Super-Prime, Prime, Near-Prime, and Sub-Prime. The absolute definition of these risk groups (in terms of score cuts or population percentage breaks) varies for different lenders, and for different products. For example, the definition of Sub-Prime for a mortgage lender may be quite different from that of a credit card lender. Therefore, it is useful to vary the population percentage breaks for the four tiers to understand the stability of the index. The methods and systems described herein can utilize any number of risk groups and variations of percentage breaks.

[0040] In another aspect, illustrated in **FIG. 4**, provided are methods for determining score consistency, comprising generating a first score for each of a plurality of entities using a first scoring algorithm at **401**, generating a second score for each of the plurality of entities using the first scoring algorithm at **402**, assigning each of the plurality of entities to one of a first plurality of risk groups based on the first score and one of a second plurality of risk groups based on the second score wherein the first and second pluralities of risk groups have corresponding risk groups at **403**, determining a first score consistency value based on the number of entities in each of the corresponding risk groups in the first and second pluralities of risk groups at **404**, and outputting the first score consistency value at **405**. The plurality of entities can be, for example, a plurality of consumers, companies, countries, and the like. Risk groups can be, for example, super prime, prime, near and sub-prime. The super-prime group can be defined as the top 15% of the population, prime as the next 50%, near-prime as the next 15%, and sub-prime as the final 10%. In other aspects, risk groups can be preferred and non-preferred. The preferred group can be defined as the top 25% of the population and the non-preferred as the remaining 75%. The number of risk groups and the definitions of risk groups can, and will, vary depending on the application.

[0041] In an aspect, the first score and the second score can be obtained from a first credit reporting company. In another aspect, the first score can be obtained from a first credit reporting company and the second score can be obtained from a second credit reporting company. In an aspect, the methods are operative on more than two scores, more than two credit reporting companies, and/or more than two scoring algorithms.

[0042] The methods can further comprise repeating **401-405** using a second scoring algorithm to generate a second scoring consistency value. The methods can further comprise comparing the first and second scoring consistency values to determine which scoring algorithm provides more consistent scores.

[0043] Assigning each of the plurality of entities to one of a first plurality of risk groups based on the first score and one of a second plurality of risk groups based on the second score wherein the first and second pluralities of risk groups have corresponding risk groups can comprise ranking the plurality of entities by first score, resulting in a first ranked list, ranking the plurality of entities by second score, resulting in a second ranked list, dividing the first ranked list into a first portion and a second portion, wherein the first portion represents a first risk group and the second portion represents a second risk group of the first plurality of risk groups, and dividing the second ranked list into a first portion and a second portion, wherein the first portion represents the first risk group and the second portion represents the second risk group of the second plurality of risk groups.

[0044] Determining a first score consistency value based on the number of entities in each of the corresponding risk groups in the first and second pluralities of risk groups can comprise determining the total number of entities assigned to corresponding risk groups in the first and second pluralities of risk groups and dividing the total number of entities assigned to corresponding risk groups in the first and second pluralities of risk groups by the number of the plurality of entities, resulting in the first score consistency value.

[0045] Determining the total number of entities assigned to corresponding risk groups in the first and second pluralities of risk groups can comprise identifying entities located in both the first portion of the first ranked list and the first portion of the second ranked list and identifying entities located in both the second portion of the first ranked list and the second portion of the second ranked list.

[0046] Outputting the first score consistency value can comprise displaying the first score consistency value on a display device.

[0047] While the methods and systems have been described in connection with preferred embodiments and specific examples, it is not intended that the scope be limited to the particular embodiments set forth, as the embodiments herein are intended in all respects to be illustrative rather than restrictive.

[0048] Unless otherwise expressly stated, it is in no way intended that any method set forth herein be construed as requiring that its steps be performed in a specific order. Accordingly, where a method claim does not actually recite an order to be followed by its steps or it is not otherwise specifically stated in the claims or descriptions that the steps are to be limited to a specific order, it is no way intended that an order be inferred, in any respect. This holds for any possible non-express basis for interpretation, including: matters of logic with respect to arrangement of steps or operational flow; plain meaning derived from grammatical organization or punctuation; the number or type of embodiments described in the specification.

[0049] It will be apparent to those skilled in the art that various modifications and variations can be made without departing from the scope or spirit. Other embodiments will be apparent to those skilled in the art from consideration of the specification and practice disclosed herein. It is intended that the specification and examples be considered as exemplary only, with a true scope and spirit being indicated by the following claims.

CLAIMS

What is claimed is:

1. A method for determining score consistency, comprising:
   a. generating a first score for each of a plurality of entities using a first scoring algorithm;
   b. generating a second score for each of the plurality of entities using the first scoring algorithm;
   c. assigning each of the plurality of entities to one of a first plurality of risk groups based on the first score and one of a second plurality of risk groups based on the second score, wherein the first and second pluralities of risk groups have corresponding risk groups;
   d. determining a first score consistency value based on the number of entities in each of the corresponding risk groups in the first and second pluralities of risk groups; and
   e. outputting the first score consistency value.

2. The method of claim 1, wherein the plurality of entities is a plurality of consumers.

3. The method of claim 1, wherein assigning each of the plurality of entities to one of a first plurality of risk groups based on the first score and one of a second plurality of risk groups based on the second score wherein the first and second pluralities of risk groups have corresponding risk groups comprises:

   ranking the plurality of entities by first score, resulting in a first ranked list;

   ranking the plurality of entities by second score, resulting in a second ranked list;

   dividing the first ranked list into a first portion and a second portion, wherein the first portion represents a first risk group and the second portion represents a second risk group of the first plurality of risk groups; and

   dividing the second ranked list into a first portion and a second portion, wherein the first portion represents the first risk group and the second portion represents the second risk group of the second plurality of risk groups.

4. The method of claim 3, wherein determining a first score consistency value based on the number of entities in each of the corresponding risk groups in the first and second pluralities of risk groups comprises:

   determining the total number of entities assigned to corresponding risk groups in the first and second pluralities of risk groups; and

   dividing the total number of entities assigned to corresponding risk groups in the first and second pluralities of risk groups by the number of the plurality of entities, resulting in the first score consistency value.

5. The method of claim 4, wherein determining the total number of entities assigned to corresponding risk groups in the first and second pluralities of risk groups comprises:

   identifying entities located in both the first portion of the first ranked list and the first portion of the second ranked list; and

   identifying entities located in both the second portion of the first ranked list and the second portion of the second ranked list.

6. The method of claim 1, wherein outputting the first score consistency value comprises displaying the first score consistency value on a display device.

7. The method of claim 1, further comprising repeating a-e using a second scoring algorithm to generate a second scoring consistency value.

8. The method of claim 7, further comprising comparing the first and second scoring consistency values to determine which scoring algorithm provides more consistent scores.

9. The method of claim 1, wherein the first score and the second score are obtained from a first credit reporting company.

10. The method of claim 1, wherein the first score is obtained from a first credit reporting company and the second score is obtained from a second credit reporting company.

11. A method for determining score consistency, comprising:
    generating a first score for each of a plurality of entities using a first scoring algorithm;
    generating a second score for each of the plurality of entities using a second scoring algorithm;
    assigning each of the plurality of entities to one of a first plurality of risk groups based on the first score and one of a second plurality of risk groups based on the second score wherein the first and second pluralities of risk groups have corresponding risk groups;
    determining a number of entities in each of the corresponding risk groups in the first and second pluralities of risk groups;
    determining a total number of entities assigned to corresponding risk groups in the first and second pluralities of risk groups;
    dividing the total number of entities assigned to corresponding risk groups in the first and second pluralities of risk groups by the number of the plurality of entities, resulting in a score consistency value; and
    outputting the score consistency value.

12. The method of claim 11, wherein the plurality of entities is a plurality of consumers.

13. The method of claim 11, wherein assigning each of the plurality of entities to one of a first plurality of risk groups based on the first score and one of a second plurality of risk groups based on the second score wherein the first and second pluralities of risk groups have corresponding risk groups comprises:
    ranking the plurality of entities by first score, resulting in a first ranked list;
    ranking the plurality of entities by second score, resulting in a second ranked list;
    dividing the first ranked list into a first portion and a second portion, wherein the first portion represents a first risk group and the second portion represents a second risk group of the first plurality of risk groups; and
    dividing the second ranked list into a first portion and a second portion, wherein the first portion represents the first risk group and the second

portion represents the second risk group of the second plurality of risk groups.

14. The method of claim 11, wherein determining the total number of entities assigned to corresponding risk groups in the first and second pluralities of risk groups comprises:

identifying entities located in both the first portion of the first ranked list and the first portion of the second ranked list; and

identifying entities located in both the second portion of the first ranked list and the second portion of the second ranked list.

15. The method of claim 11, wherein outputting the score consistency value comprises displaying the score consistency value on a display device.

16. The method of claim 11, wherein the first score and the second score are obtained from a first credit reporting company.

17. The method of claim 11, wherein the first score is obtained from a first credit reporting company and the second score is obtained from a second credit reporting company.

18. A system for determining score consistency, comprising:

a memory configured for storing scoring consistency data; and

a processor, configured for performing steps comprising

a. generating a first score for each of a plurality of entities using a first scoring algorithm;

b. generating a second score for each of the plurality of entities using the first scoring algorithm;

c. assigning each of the plurality of entities to one of a first plurality of risk groups based on the first score and one of a second plurality of risk groups based on the second score wherein the first and second pluralities of risk groups have corresponding risk groups;

d. determining a first score consistency value based on the number of entities in each of the corresponding risk groups in the first and second pluralities of risk groups; and
e. outputting the first score consistency value.

19. The system of claim 18, further comprising repeating a-e using a second scoring algorithm to generate a second scoring consistency value.

20. A computer readable medium having computer executable instructions embodied thereon for determining score consistency, comprising:
a. generating a first score for each of a plurality of entities using a first scoring algorithm;
b. generating a second score for each of the plurality of entities using the first scoring algorithm;
c. assigning each of the plurality of entities to one of a first plurality of risk groups based on the first score and one of a second plurality of risk groups based on the second score wherein the first and second pluralities of risk groups have corresponding risk groups;
d. determining a first score consistency value based on the number of entities in each of the corresponding risk groups in the first and second pluralities of risk groups; and
e. outputting the first score consistency value.

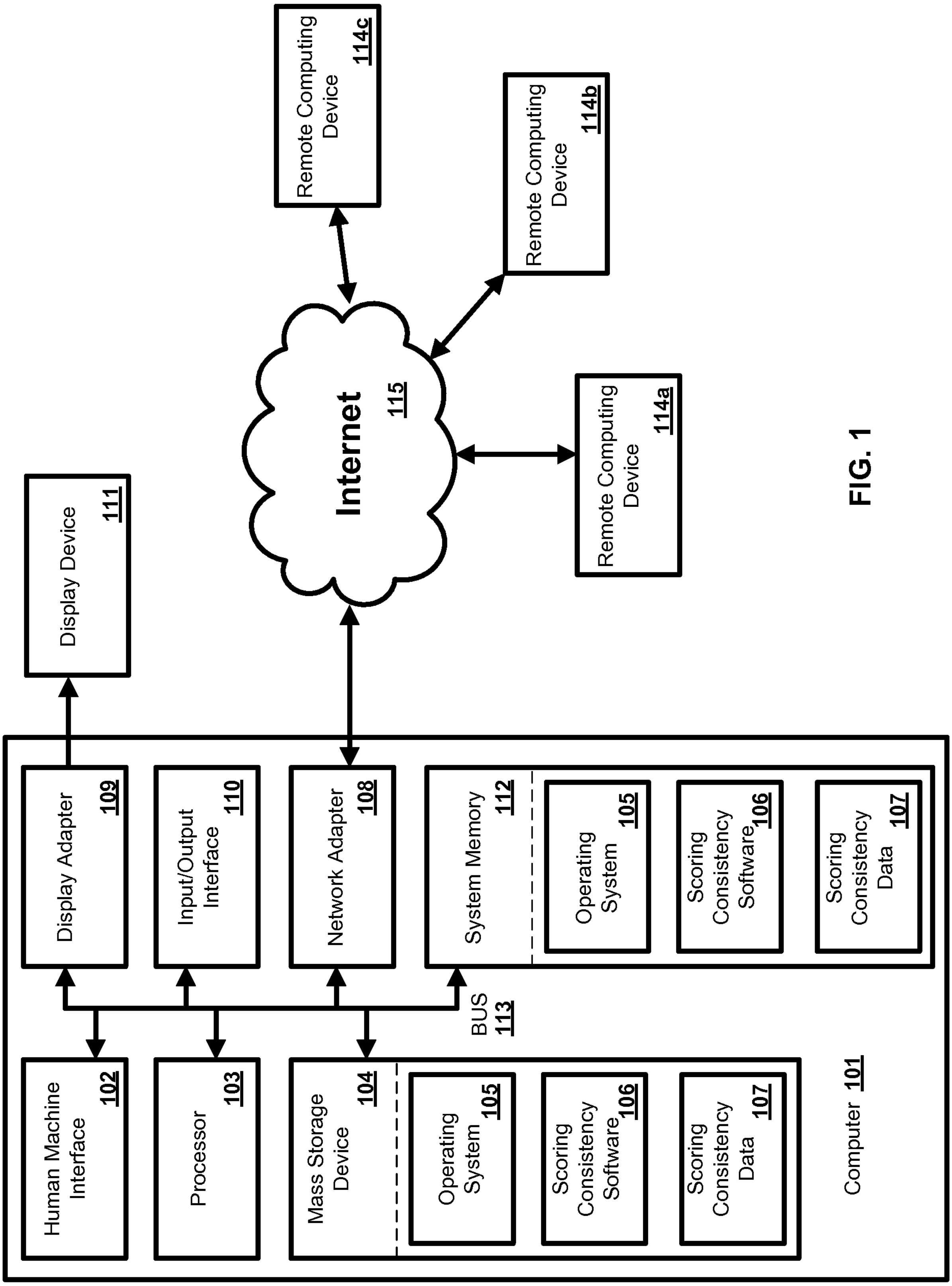
Human Machine Interface 102
Processor 103
Mass Storage Device 104
Operating System 105
Scoring Consistency Software 106
Scoring Consistency Data 107
Computer 101
BUS 113
Display Adapter 109
Input/Output Interface 110
Network Adapter 108
System Memory 112
Operating System 105
Scoring Consistency Software 106
Scoring Consistency Data 107
Display Device 111
Internet 115
Remote Computing Device 114a
Remote Computing Device 114b
Remote Computing Device 114c

FIG. 1

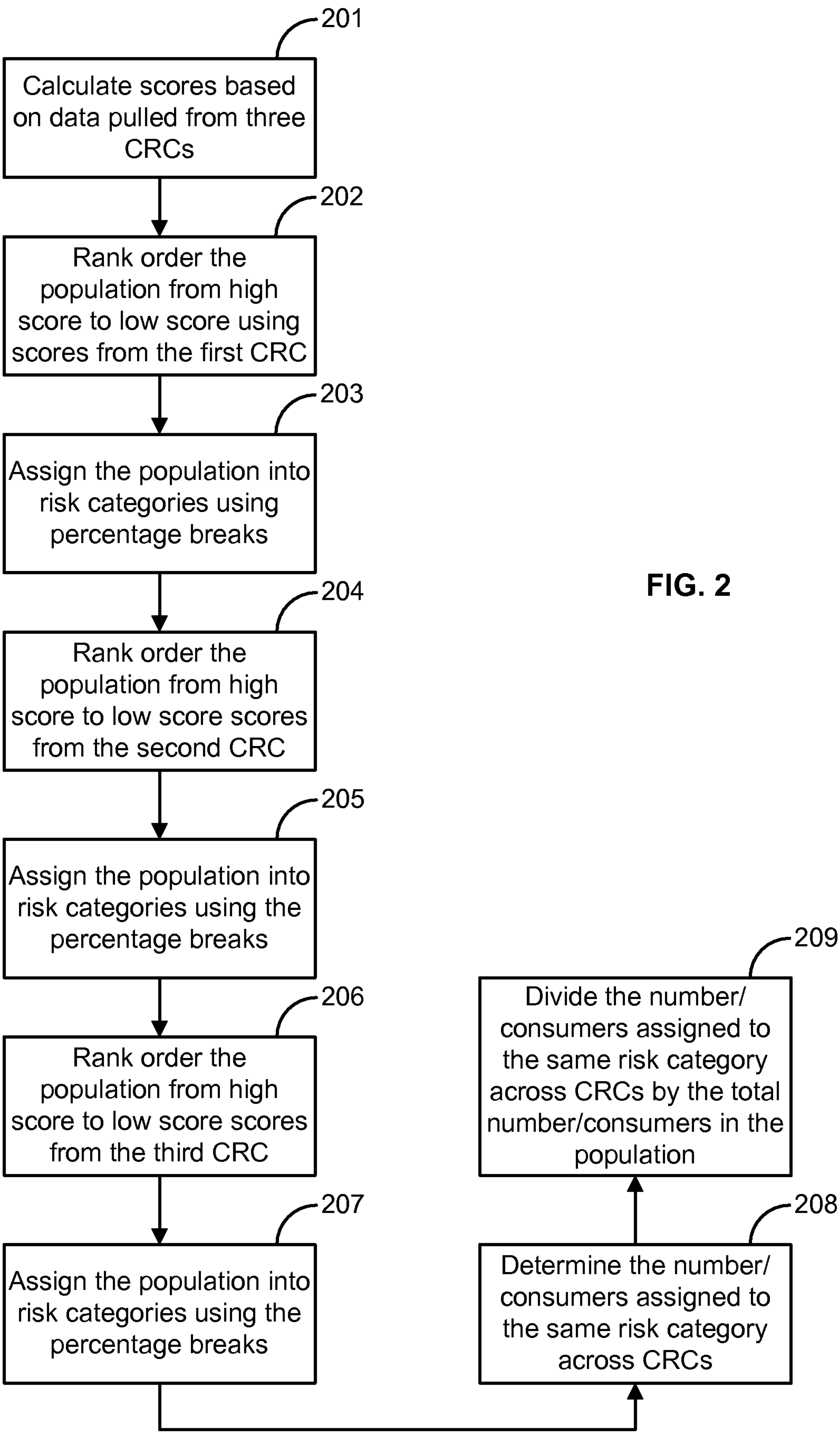
201
Calculate scores based on data pulled from three CRCs
202
Rank order the population from high score to low score using scores from the first CRC
203
Assign the population into risk categories using percentage breaks
204
Rank order the population from high score to low score scores from the second CRC
205
Assign the population into risk categories using the percentage breaks
206
Rank order the population from high score to low score scores from the third CRC
207
Assign the population into risk categories using the percentage breaks
208
Determine the number/ consumers assigned to the same risk category across CRCs
209
Divide the number/ consumers assigned to the same risk category across CRCs by the total number/consumers in the population

FIG. 2

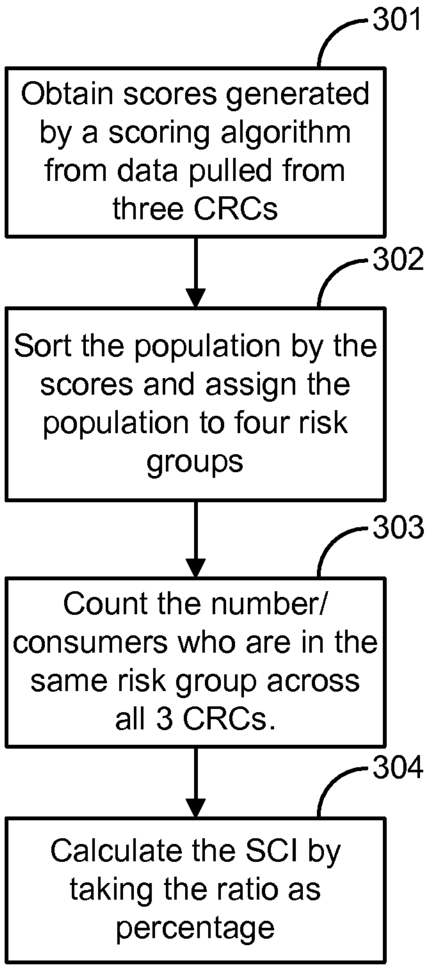
301
Obtain scores generated by a scoring algorithm from data pulled from three CRCs
302
Sort the population by the scores and assign the population to four risk groups
303
Count the number/ consumers who are in the same risk group across all 3 CRCs.
304
Calculate the SCI by taking the ratio as percentage

FIG. 3

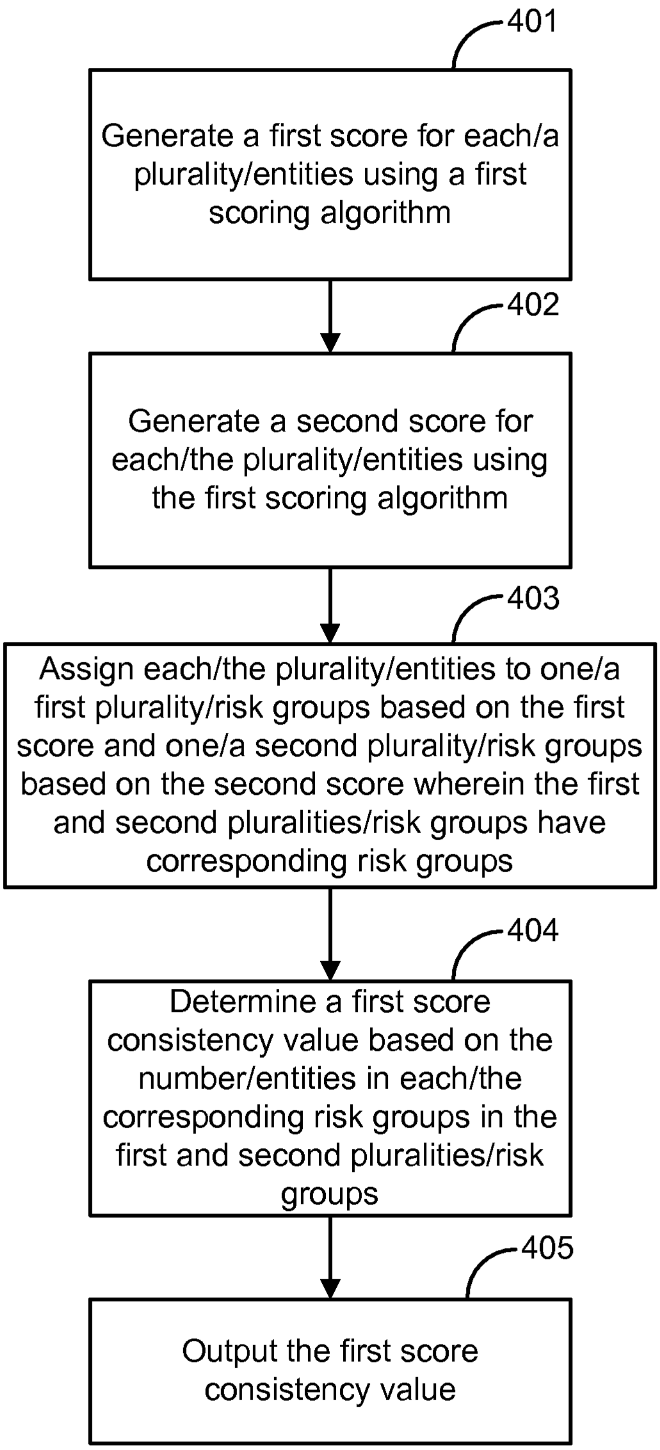
401
Generate a first score for each/a plurality/entities using a first scoring algorithm
402
Generate a second score for each/the plurality/entities using the first scoring algorithm
403
Assign each/the plurality/entities to one/a first plurality/risk groups based on the first score and one/a second plurality/risk groups based on the second score wherein the first and second pluralities/risk groups have corresponding risk groups
404
Determine a first score consistency value based on the number/entities in each/the corresponding risk groups in the first and second pluralities/risk groups
405
Output the first score consistency value

FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2008/055919

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - G06Q 40/00 (2008.04)
USPC - 705/38
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC(8) - G06Q 40/00 (2008.04)
USPC - 705/35

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 practicable, search terms used)
Patbase, Google Scholar

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2004/0243506 A1 (DAS) 02 December 2004 (02.12.2004) entire document	1-20
Y	US 2006/0059073 A1 (WALZAK) 16 March 2006 (16.03.2006) entire document	1-20

☐ Further documents are listed in the continuation of Box C. ☐

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
18 July 2008	28 JUL 2008

Name and mailing address of the ISA/US	Authorized officer:
Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774