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(54) **REAL ESTATE VALUE MAP COMPUTER SYSTEM**

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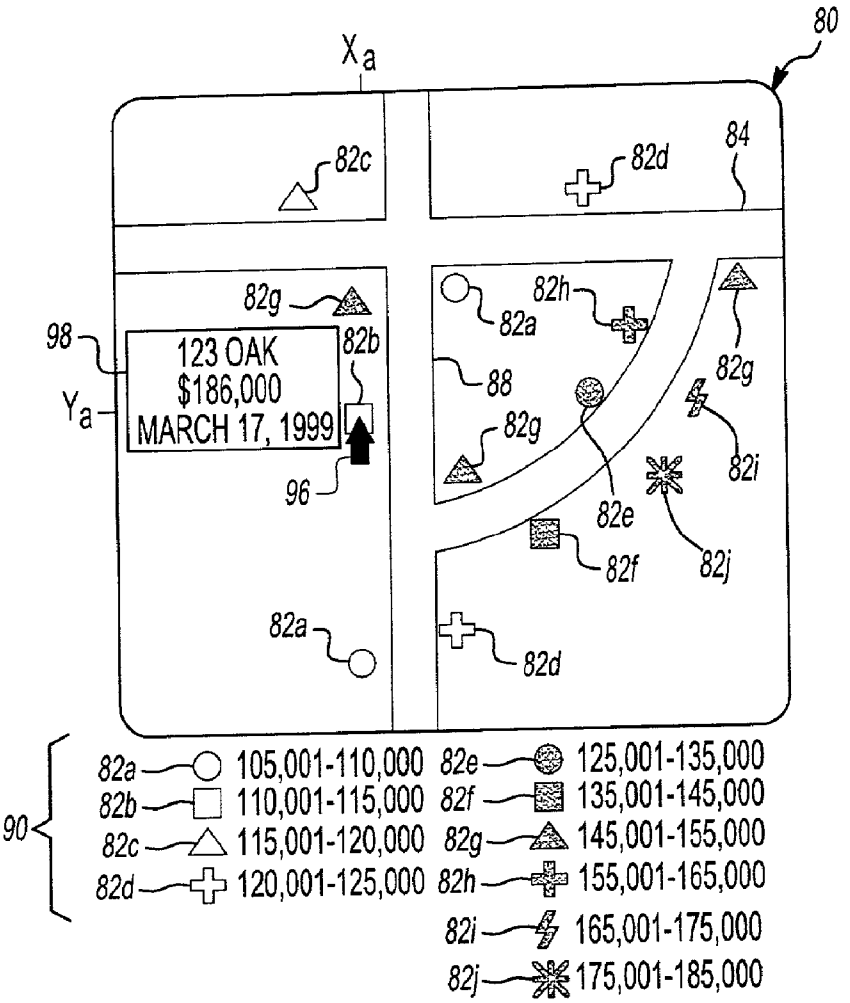
(57) **ABSTRACT**

A computer system creates and displays a map image based upon a value database associating a plurality of values each with a geographic location in a geographic area and a map program associating each location with a map image location. The computer system assigns one of a plurality of symbols to each geographic location based upon its associated value. The symbol is then displayed on the map image at the map image location associated with the geographic location.



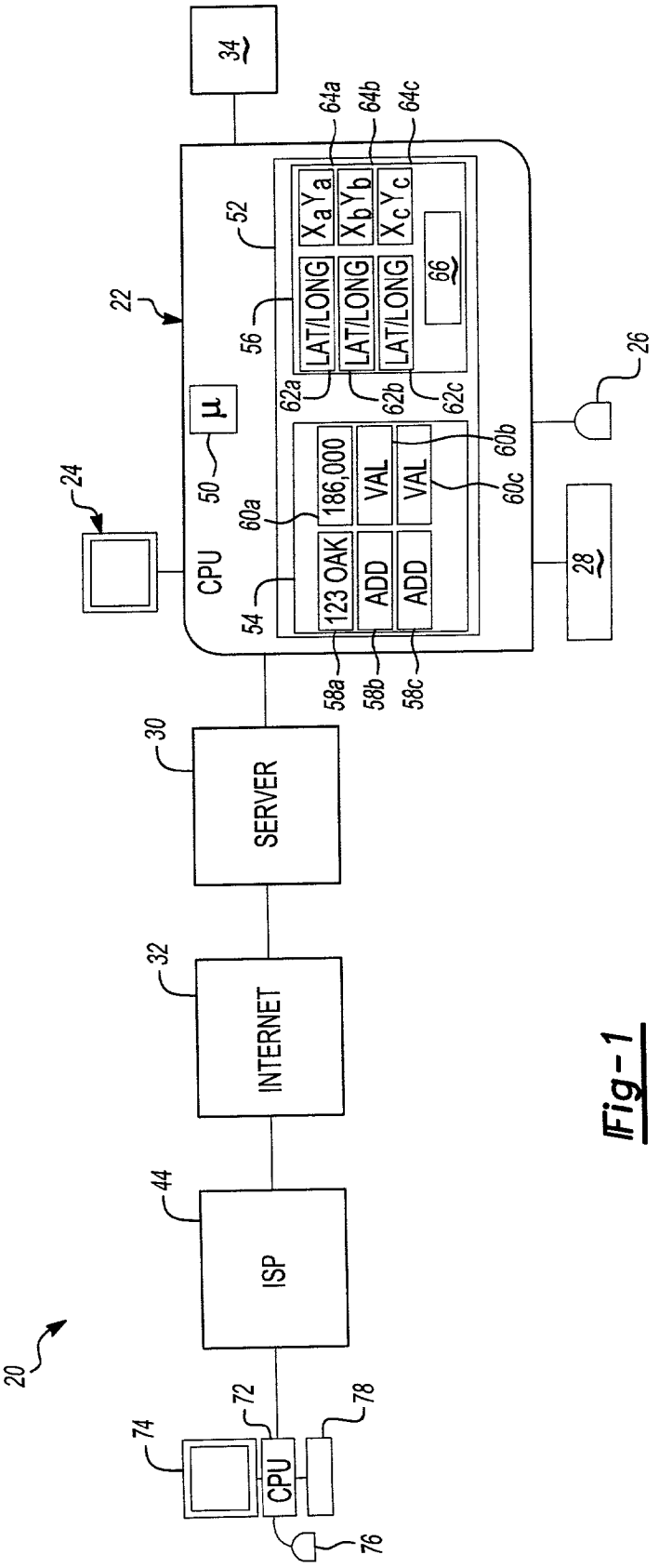

20
22
24
26
28
30
32
34
44
50
52
54
56
58a
58b
58c
60a
60b
60c
62a
62b
62c
64a
64b
64c
66
72
74
76
78
CPU
μ
LAT/LONG
LAT/LONG
LAT/LONG
XaYa
XbYb
XcYc
186,000
VAL
VAL
123 OAK
ADD
ADD
SERVER
INTERNET
ISP
CPU

Fig-1

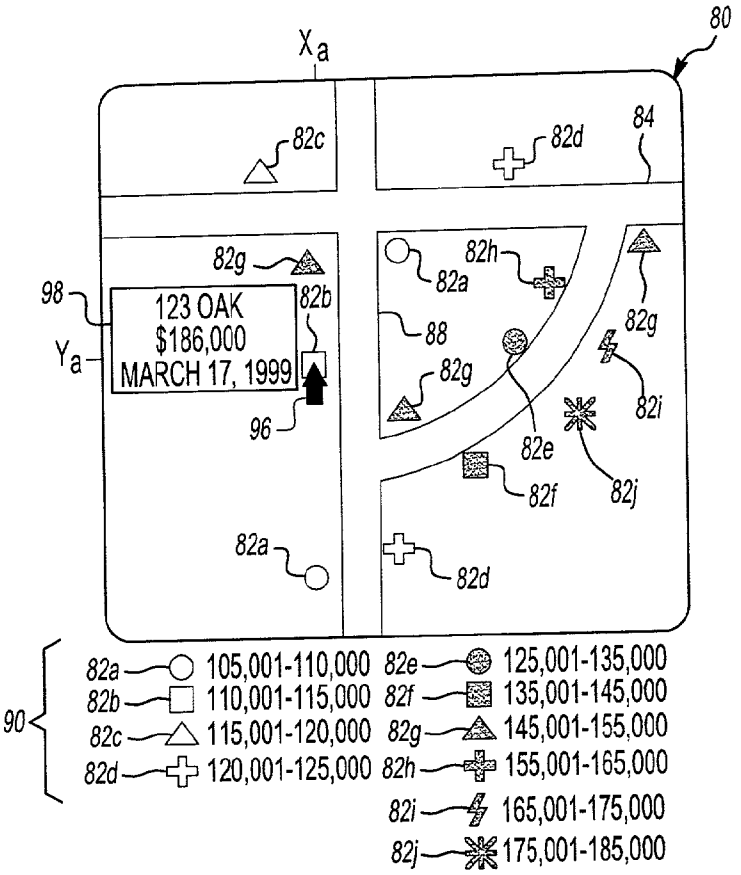

80
Xa
82c
82d
84
82g
98
123 OAK
$186,000
MARCH 17, 1999
82b
Ya
96
82h
82a
88
82g
82g
82i
82e
82f
82j
82a
82d
90
82a 105,001-110,000
82b 110,001-115,000
82c 115,001-120,000
82d 120,001-125,000
82e 125,001-135,000
82f 135,001-145,000
82g 145,001-155,000
82h 155,001-165,000
82i 165,001-175,000
82j 175,001-185,000

Fig-2

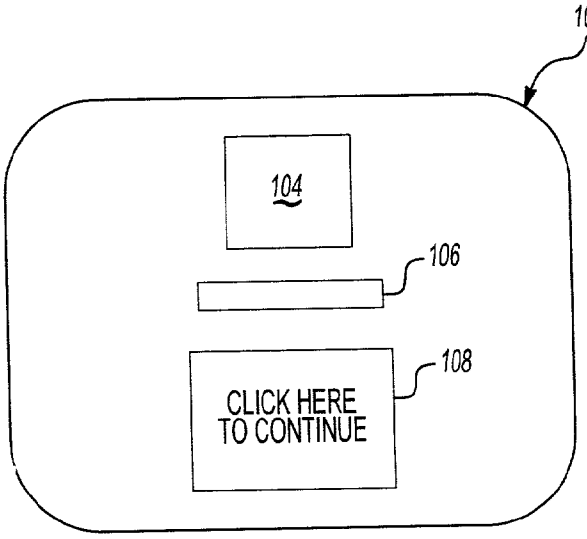

102
104
106
108
CLICK HERE
TO CONTINUE

Fig-4

HOME VALUE MAP

BY SOUTHEASTERN APPRAISAL CORP.

IN ORDER TO DOWNLOAD THE MAPS, PLEASE CLICK ON THE LEFT HAND SIDE OF THE TABLES BELOW, FOR THE AREA YOU INTERESTED IN.

YOU MUST HAVE A COLOR PRINTER.
USE BEST PRINT QUALITY SELECTIONS.

SELECT YOUR MAPS:

	OAKLAND COUNTY:	CITIES:
100a	ADDISON	ADDISON
100b	BIRMINGHAM	BIRMINGHAM
100c	BLOOMFIELD HILLS	BLOOMFIELD HILLS
	COMMERCE TOWNSHIP	COMMERCE TOWNSHIP
	FARMINGTON HILLS	FARMINGTON HILLS, FARMINGTON
	GROVELAND	GROVELAND
	HIGHLAND	HIGHLAND
	HOLLY	HOLLY
	INDEPENDANCE TOWNSHIP	INDEPENDANCE TOWNSHIP
	SOUTH LYON	SOUTH LYON
	MILFORD	MILFORD
	NOVI	NOVI
	OAKLAND	OAKLAND
	ORION	ORION
	ORTONVILLE	ORTONVILLE
	OXFORD	OXFORD
	PONTIAC	PONTIAC
	ROCHESTER HILLS	ROCHESTER HILLS
	ROSEVILLE	ROSEVILLE
	ROYAL OAK	ROYAL OAK
	SPRINGFIELD	SPRINGFIELD
	SOUTHFIELD	SOUTHFIELD
	TROY	TROY
	WEST BLOOMFIELD	WEST BLOOMFIELD
	WATERFORD	WATERFORD

Fig-3

REAL ESTATE VALUE MAP COMPUTER SYSTEM

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation application of pending U.S. patent application Ser. No. 10/044,583, filed 9 Nov. 2001 and entitled "REAL ESTATE VALUE MAP COMPUTER SYSTEM", which is a CIP of U.S. patent application Ser. No. 09/286,922, filed 6 Apr. 1999 and entitled "REAL ESTATE VALUE MAP COMPUTER SYSTEM", which matured into U.S. Pat. No. 6,323,885 on 27 Nov. 2001 under the same title, which claims the benefit of U.S. Provisional Application No. 60/100,831 filed 18 Sep. 1998. The entirety of the aforementioned application(s) and patent(s) are incorporated herein by reference.

BACKGROUND OF THE INVENTION

[0002] The present invention relates generally to computer systems and more particularly to a computer system for creating and providing a map image of real estate values.

[0003] Currently, data indicating sale prices of homes or other real estate is available from several on-line sources. This data is typically displayed in text format, wherein each entry displays the address, sales price, sales date, etc. Although these databases provide information to potential home buyers regarding sale prices in selected areas, the textual display of such information is inefficient. Further, the textual display does not provide the observer with an indication of how sale prices vary generally across geographic areas.

SUMMARY OF THE INVENTION

[0004] The present invention provides a method and computer system for creating and displaying a map image including symbols which quickly and efficiently convey information regarding real estate values in numerous geographic locations in a selected geographic area simultaneously.

[0005] Preferably, the computer system of the present invention includes a database including a sale price for each of a plurality of real estate parcels in selected geographic areas. The computer system further includes a map program which associates each of the plurality of real estate parcels to a map image location. The computer system associates each of a plurality of symbols with a range of sales prices. Preferably each symbol includes a color and a shape. Each color is associated with a different range of sales prices. Each range is further divided in to subranges, with each shape within each color associated with one of the sub-ranges. Thus, the color of a symbol indicates the range of sales prices, while the shape further defines the sub-range of sales prices.

[0006] The computer associates one of the plurality of symbols with each of the real estate parcels based upon the sales price from the value database. Each symbol is then displayed on a map image based upon the association between the real estate parcel and the map image location.

[0007] The resulting map image of the geographic area includes the plurality of symbols displayed on the map image at locations corresponding to the real estate parcels. Each symbol indicates the sale price (within the sub-range) of the real estate parcel with which it is associated.

[0008] Since each range of real estate prices is associated with a color, an observer can quickly perceive larger variations in real estate values by observing differences in color between different geographic locations. By looking further, the observer can discriminate smaller variations in real estate values indicated by the different shapes of the symbols.

[0009] Preferably, the computer system is implemented on a network, such as the Internet. The computer system provides a user with the ability to select a geographic area. Upon selection of the geographic area, the computer system displays a map image with the symbols as described above for that area. Preferably, an advertisement associated with the selected geographic area is also displayed either alongside of the map image or in a display screen prior to the map image. The advertisement would ideally be for a realtor or mortgage broker or other service or product related to the purchase and sale of homes or other real estate.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The above, as well as other advantages of the present invention, will become readily apparent to those skilled in the art from the following detailed description of a preferred embodiment when considered in the light of the accompanying drawing in which:

[0011] FIG. **1** is a schematic of the computer system of the present invention;

[0012] FIG. **2** illustrates a first display screen of the display of FIG. **1**;

[0013] FIG. **3** illustrates a second display screen of the display of FIG. **1**; and

[0014] FIG. **4** illustrates a third display screen of the display of FIG. **1**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0015] The present invention provides a computer system **20** for creating and providing a map image according to a method of the present invention. The computer system **20** includes first CPU **22** for creating the map image in a manner which will be discussed below. The first CPU **22** includes a display **24** and input devices, such as a mouse **26** and/or keyboard **28**. The first CPU **22** may be connected to a server **30** capable of operating a web site on a network, such as the Internet **32**. The first CPU **22** is also connected to a color printer **34**. Alternatively, the first CPU **22** may comprise the server **30**.

[0016] The first CPU **22** includes a microprocessor **50** accessing computer memory **52**, such as a hard drive, RAM, CD ROM, ROM, etc. The computer memory **52** stores a value database **54** and a map program **56**. The value database **54** associates each of a plurality of geographic locations **58***a-c* with each of a plurality of values **60***a-c*, respectively. The geographic locations **58** preferably comprise street addresses, real estate parcel identification numbers, tax identification numbers, latitude/longitude or other unique identifiers for the geographic locations. Each value **60** preferably comprises a number representing a sale price of the associated geographic location **58**. Alternatively, each value **60** could represent an appraised price, rental value or other value associated with the geographic location **58**.

[0017] The value database **54** is available from real estate listings, such as the Multiple Listing Services, local municipalities, TransAmerica or other sources. Generally, the map program **56** associates the geographic locations **58** with coordinates **64***a-c* on a digital street map image **66**. There are many ways to implement the map program **56**; however,

suitable map programs **56** are available from Arcview with suitable databases and street map images **66** from ETAK or Geographic Data Technology. If the geographic location **58** is in the form of a street address, the map program **56** may first convert it to latitude/longitude information **62***a-c* in order to associate it with the street map image **66**. Other known programs can directly associate street address information to coordinates on the street map image **66**.

[0018] Information stored on the server **30** is available to users via the Internet **32** utilizing a CPU **72** including a display **74** and input devices, such as a mouse **76** and/or a keyboard **78**. The microprocessor **50** of the first CPU **22** is programmed with suitable software to perform the functions described herein, as are the server **30**, CPU **72** and ISP **44**.

[0019] The first CPU **22** is programmed to create a map image **80** shown in FIG. **2**. The map image **80** includes a plurality of symbols **82***a-h* displayed around a plurality of streets **84**, **86** and **88** from the digital street map image **66** (FIG. **1**). Each of the symbols **82** is associated with a sub-range of values. The location of the symbol **82** on the map image **80** corresponds to a geographic location. The symbol **82** displayed indicates the value of the geographic location at which the symbol **82** is displayed. A legend **90** is preferably displayed adjacent the map image **80**. As can be seen in FIG. **2**, the symbols **82** include a plurality of shapes, each displayed in one of a plurality of colors. Although only four shapes and two colors are shown in FIG. **2**, preferably at least eight shapes and at least five colors are utilized. Colors and shapes could be constant across all geographic areas or alternatively, colors and shapes could be assigned to ranges and subranges based upon the range of values in the geographic area. The size of each range and subrange could also vary based upon the values in the geographic area displayed. One of reasonable skill in the art and familiar with computers could select appropriate colors.

[0020] Each color is associated with a range of values. For example, in FIG. **2**, the white symbols **82***a-d* are associated with values between $170,001 to $210,000 and the black symbols **82***e-h* are associated with the values of $210,001 and above. Within each color, the ranges of value are broken into sub-ranges, each associated with a shape. For example, the white circle symbol **82***a* is associated with values between $170,001 to $180,000, the white square symbol **82***b* is associated with values from $180,001 to $190,000 and so on as shown in the legend **90** of FIG. **2**.

[0021] Thus, an observer of the map image **80** of FIG. **2** quickly and efficiently ascertains general trends in values based upon colors in certain areas on the map image **80**, which includes a certain geographic area. After discerning general trends (if any) between geographic location and values, a user can discern values more specifically, i.e., into the sub-ranges, by observing the specific shapes of the symbols **82** within each color.

[0022] It should be noted that the map image **80** (and legend **90**) could be displayed on a computer display, such as the computer displays **24**, **74** of FIG. **1** or printed on paper, such as by the printer **34** of FIG. **1**. If the map image **80** is displayed on a computer display, a user could select additional information about any of the geographic locations associated with a symbol **82**. For example, by moving a cursor **96** over the symbol **82***b*, a pop-up display **98** appears adjacent the symbol **82***b*, indicating additional information regarding the geographic location associated with symbol **82***b*, such as street address, exact value and/or date of the sale. Although a very small geographic area is shown in map image **80** of FIG. **2**, preferably, the user can selectively change the scale of the map image **80** and select different geographic areas in a manner similar to known computer map display programs.

[0023] The map image **80** of FIG. **2** is created by the first CPU **22** of

[0024] FIG. **1**. The method of creating the map image **80** of the present invention will be described with respect to FIGS. **1** and **2**. The first CPU **22** associates each of the plurality of symbols **82***a-h* with a sub-range of values, associating each color with a range and each shape within each color with a sub-range, generally as shown in the legend **90** of FIG. **2**.

[0025] Although each of the sub-ranges could be equal, the sub-ranges of the symbols at the higher value colors are preferably larger. As shown in FIG. **2**, the symbols **82***a-d* for a first color each cover a $5,000 sub-range, while the symbols **82***e-j* for a second color each cover a $10,000 sub-range. Additionally, or alternatively, there could be a greater number of symbols for the higher value colors than the lower value colors. As shown in FIG. **2**, the second color (range) includes more symbols **82***e*-**82***j* than the first color (range). Again, the number of symbols or the size of the sub-ranges can each be varied, or both.

[0026] The CPU **22** then reads the value database **54** and associates one of the plurality of symbols **82** with each street address **58** in the value database **54**. Each symbol **82** may be used for more than one coordinate **64**, as more than one real estate parcel falls within the associated sub-range. The map program **56** and the CPU **22** then convert or correlate the street addresses **58** to latitude/longitude information **62**. The latitude/longitude information **62** is then converted or correlated to coordinates **64** on the computer street image **66**. Alternatively, the CPU **22** and map program **56** may directly convert or correlate the street addresses **58** to the coordinates **64**. Alternatively, the geographic locations **58** may be latitude/longitude information **62**.

[0027] Thus, street address **58***a* is associated with value **60***a*, latitude/longitude information **62***a* and coordinate **64***a*. Likewise, street address **58***b*, value **60***b*, latitude/longitude information **62***b* and coordinates **64***b* are also associated, and so on. The CPU **22** then generates the map image **80**, displaying the street image **66** with the symbols **82** displayed at their associated coordinates **64** on the street image **66**, as shown in FIG. **2**.

[0028] For example, street address **58***a* ("123 Oak") is associated with a value **60***a* of $186,000. Thus, CPU **22** associates symbol **82***b* ($180,001-190,000) with street address **58***a*. CPU **22** also determines that symbol **82***b* should be displayed at coordinates x_a,y_b. This is demonstrated in FIGS. **1** and **2**. Coordinates x_a,y_b on street image **66** correspond to the proper geographic location on the map image **80** relative to the streets **84**, **86**, **88**.

[0029] When a user accesses the server **30** of Internet **32**, the user of CPU **72** is first presented with one or more geographic area selection screens, such as shown in FIG. **3**, on display **74**. The geographic area selection screen displays a plurality of geographic areas **100***a-c*, each associated with a map image, including map image **80** of FIG. **2**. Upon selection of a geographic area **100** from the display in FIG. **3**, an advertisement screen **102**, such as that shown in FIG. **4**, is preferably displayed on the user's display **74**. The advertisement screen **102** includes an ad **104** and/or Internet link **106**. Preferably, the ad **104** and/or link **106** is for a product and/or service related to the associated geographic area **100** (FIG. **3**).

Most preferably, the ad **104** and/or link **106** is also related to the purchase, sale or ownership of real estate, such as realtors, mortgage brokers, etc. The ad screen also includes a link **108** to the map image screen shown in FIG. **2**. Alternatively, the user could enter a starting address on the user's CPU **22** to select a geographic area in a manner similar to known computer map and driving instruction programs.

[0030] In accordance with the provisions of the patent statutes and jurisprudence, exemplary configurations described above are considered to represent a preferred embodiment of the invention. However, it should be noted that the invention can be practiced otherwise than as specifically illustrated and described without departing from its spirit or scope.

1. A method, comprising:

accessing a value within a value data store, the value associated with a geographic location, in response to receiving a data input, the data input including a request for information associated with a first geographic area that includes the geographic location;

associating a symbol with the geographic location based on the value; and

generating, on a mobile device, output data for the first geographic area, the output data based on the symbol, the geographic location, and the value.

2. The method of claim **1**, further comprising generating, on a mobile device, mapping data of the first geographic area wherein the symbol is displayed at the geographic location.

3. The method of claim **1**, wherein the accessing of the value includes accessing at least one of a rental value, a sales value, a lease value, a tax value, an appraisal value, a projected value, a historical value, an average value, a weighted value, a ratio value, or a profit value.

4. The method of claim **1**, wherein the accessing of the value includes accessing at least one of a floor or elevation value, an employment income value, a population density value, a crime statistic value, a proximity to sex offender indicator value, a proximity to drug related activity indicator value, an educational level achieved indicator value, a human age value, a non-human age value, a steep slope indicator value, an environmentally sensitive area indicator value, a lender owned property indicator value, a short-sale indicator value, a vehicular or pedestrian traffic related value, a leadership in energy and environmental design value, an environmental certification indicator value, a transit access time value, or a commute time value.

5. The method of claim **1**, wherein the associating the symbol includes associating a first visually identifying characteristic and a second visually identifying characteristic of the symbol with the geographic location based on the value.

6. The method of claim **5**, wherein the associating the symbol includes associating a grey-scale level indicating a predetermined range or subrange of the value associated with the geographic location.

7. The method of claim **5**, wherein the associating the symbol includes associating a size of a shape indicating a predetermined range or subrange of the value associated with the geographic location.

8. A mobile computing device, comprising:

a processor configured to:

access a value within a value data store, the value associated with a geographic location, in response to a data input, wherein the data input includes a request for information associated with a first geographic area that includes the geographic location; and

associate a symbol with the geographic location based on the value associated with the geographic location; and

a display configured to display data for the first geographic area based on the symbol, the geographic location, and the value associated with the geographic location.

9. The mobile computing device of claim **8**, wherein the value is at least one of a rental value, a sales value, a lease value, a tax value, an appraisal value, a projected value, a historical value, an average value, a weighted value, a ratio value, or a profit value.

10. The mobile computing device of claim **8**, wherein the value is at least one of a floor or elevation value, an employment income value, a population density value, a crime statistic value, proximity to sex offender indicator value, a proximity to drug related activity indicator value, an educational level achieved indicator value, a human age value, a non-human age value, a steep slope indicator value, an environmentally sensitive area indicator value, a lender owned property indicator value, a short-sale indicator value, a vehicular or pedestrian traffic related value, a leadership in energy and environmental design value, an environmental certification indicator value, a transit access time value, or a commute time value.

11. The mobile computing device of claim **8**, wherein the symbol includes a first visually identifiable characteristic and a second visually identifiable characteristic.

12. The mobile computing device of claim **11**, wherein the first or the second visually identifying characteristic is a grey-scale level associated with a predetermined range or subrange of the value associated with the geographic location.

13. The mobile computing device of claim **11**, wherein the first or the second visually identifying characteristic is a size of a shape associated with a predetermined range or subrange of the value associated with the geographic location.

14. A computer readable storage device comprising computer-executable instructions that, in response to execution, cause a computing system to perform operations, comprising:

accessing one or more values within a value data store, the one or more values associated with a geographic location, in response to receiving a data input, the data input including a request for information associated with a geographic area that includes the geographic location;

associating a symbol with the geographic location, the symbol having a first visually identifying characteristic and a second visually identifying characteristic, wherein the associating is based on the one or more values associated with the geographic location; and

generating output data for the geographic area as a function of the symbol, the geographic location, and the one or more values associated with the geographic location.

15. The computer readable storage device of claim **14**, wherein the associating the symbol includes associating the symbol having a grey-scale level indicating a predetermined range or subrange of the one or more values associated with the geographic location.

16. The computer readable storage device of claim **14**, wherein the associating the symbol includes associating the symbol having a size of a shape, the size of the shape indicating a predetermined range or subrange of the one or more values associated with the geographic location.

17. The computer readable storage device of claim **14**, wherein the associating the symbol includes associating the symbol having at least one additional visually identifying

characteristic that indicates a predetermined range or subrange of the one or more values associated with the geographic location.

18. The computer readable storage device of claim **14**, wherein the accessing the one or more values includes accessing at least one of a rental price value, a sales price value, a lease price value, a taxation value, an appraisal price value, a projected price value, a historical price value, an average price value, a weighted price value, a ratio value, a profit value, a floor or elevation value, an employment income value, a population density value, a crime statistic value, a proximity to sex offender indicator value, a proximity to drug related activity indicator value, an educational level achieved indicator value, a human age value, a non-human age value, a steep slope indicator value, an environmentally sensitive area indicator value, a lender owned property indicator value, a short-sale indicator value, vehicular or pedestrian traffic related value, a leadership in energy and environmental design value, an environmental certification indicator value, a transit access time value, or a commute time value.

19. The computer readable storage device of claim **14**, wherein the generating the output data includes generating output data for at least one of a printer or a display.

20. The computer readable storage device of claim **14**, wherein the generating the output data includes generating a selectable link or a computer reference that enables access to the output data.

21. The computer readable storage device of claim **14**, wherein the receiving the data input includes receiving the request for information associated with the geographic area, the geographic area comprising one or more geographic regions that are respectively circumscribed by a boundary that is ovular, circular, annular, rectangular, square, trigonal, or polygonal.

22. A computer system, comprising:

a processor configured to:

access one or more values within a value data store, the one or more values associated with a geographic location, in response to a data input, wherein the data input includes a request for information associated with a geographic area that includes the geographic location; and

associate a symbol with the geographic location based on the one or more values associated with the geographic location, the symbol having a first identifying characteristic and a second identifying characteristic; and

a display component configured to display data for the geographic area as a function of the symbol, the geographic location, and the one or more values associated with the geographic location.

23. The computer system of claim **22**, wherein the first identifying characteristic is a grey-scale level associated with a predetermined range or subrange of the one or more values associated with the geographic location.

24. The computer system of claim **22**, wherein the second identifying characteristic is a size of a shape associated with a predetermined range or subrange of the one or more values associated with the geographic location.

25. The computer system of claim **22**, wherein the symbol includes at least one additional identifying characteristic associated with a predetermined range or subrange of the one or more values associated with the geographic location.

26. The computer system of claim **22**, wherein the one or more values is at least one of a rental price value, a sales price value, a lease price value, a taxation value, an appraisal price value, a projected price value, a historical price value, an average price value, a weighted price value, ratio value, a profit value, a floor or elevation value, an employment income value, population density value, a crime statistic value, a proximity to sex offender indicator value, a proximity to drug related activity indicator value, an educational level achieved indicator value, a human age value, a non-human age value, a steep slope indicator value, an environmentally sensitive area indicator value, a lender owned property indicator value, a short-sale indicator value, a vehicular or pedestrian traffic related value, a leadership in energy and environmental design value, an environmental certification indicator value, a transit access time value, or a commute time value.

27. The computer system of claim **22**, wherein the display component is a printer or a computer display.

28. The computer system of claim **22**, wherein the geographic area comprises one or more geographic regions that are respectively circumscribed by a boundary that is ovular, circular, annular, rectangular, square, trigonal, or polygonal.

29. A system, comprising:

means for accessing a value associated with a geographic location stored in a value data store in response to receiving a data input including a request for information associated with a first geographic area that includes the geographic location;

means for associating a symbol with the geographic location based on the value; and

means for generating, on a mobile device, output data for the first geographic area, the output data based on the symbol, the geographic location, and the value.

* * * * *