(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(54) Title: SYSTEM AND METHOD FOR PORTAL PAGE LAYOUT
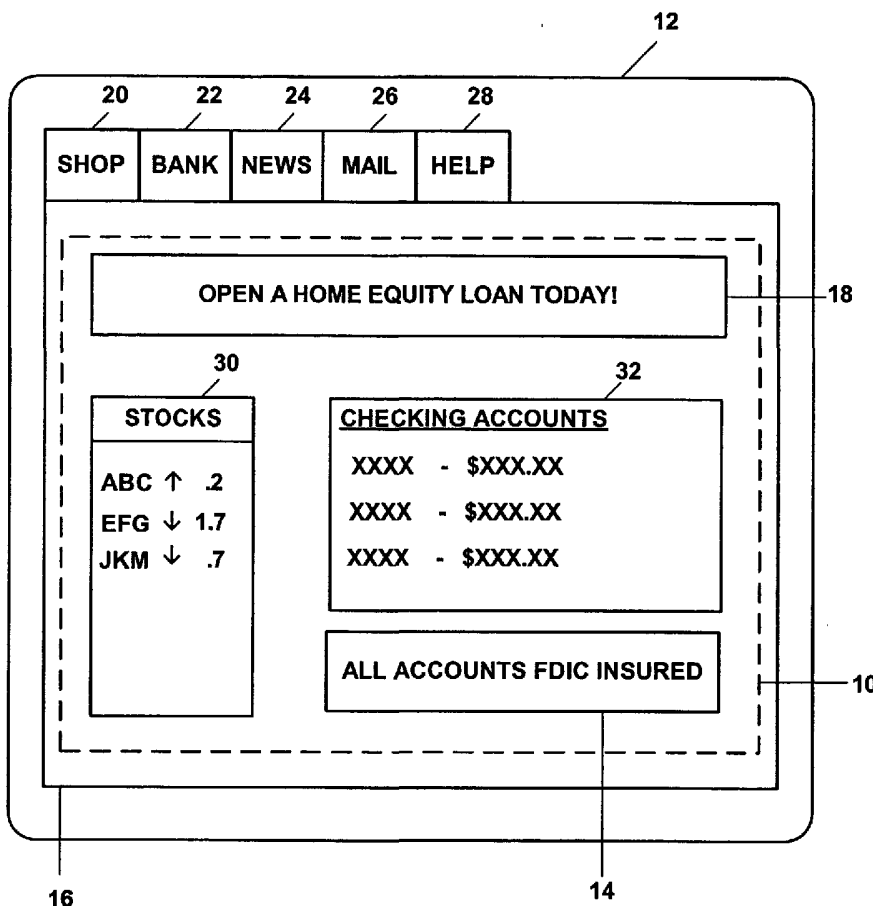
(57) Abstract: A system and method for describing a portal page (16), comprising, defining a placeholder on a template (32), associating at least one portlet (30) with the placeholder, and wherein the template can be customized for least one of a group and a user.

(84) Designated States *(regional)***:** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

SYSTEM AND METHOD FOR PORTAL PAGE LAYOUT

5

10

15

CLAIM OF PRIORITY

This application claims priority from ENHANCED PORTALS [FLAGSTAFF RELEASE], U.S. Provisional Application No. 60/386,487, Inventors: Phil Griffin, et al., filed on October 24, 2001, and which is incorporated herein by reference.

CROSS REFERENCES

This application is related to the following co-pending applications which are each hereby incorporated by reference in their entirety: SYSTEM AND METHOD FOR PORTAL RENDERING, Inventors: Phil Griffin, et al., filed on _____; SYSTEM AND METHOD FOR DELEGATED SYSTEM ADMINISTRATION, U.S. Application Serial No. _____, Inventors: Phil Griffin, et al., filed on _____; SYSTEM AND METHOD FOR RULE-BASED ENTITLEMENTS, U.S. Application Serial No. _____, Inventors: Phil Griffin, et al., filed on _____.

FIELD OF THE DISCLOSURE

The present invention disclosure relates to website portal design, and in particular, portal page layouts.

BACKGROUND

5

A portal is a point of access to data and applications that provides a unified and potentially personalized view of information and resources. Typically, a portal is implemented as one or more pages on a website. Portal pages can integrate many elements, such as live data feeds, static information and multimedia

10   presentations. For example, a portal page could combine news headlines and a stock quote ticker that change over time with inert information such as maps, images and text. When a portal page is designed, software that drives these various elements must be programmed such that the desired page is rendered. This presents a obstacle to average users who wish to design and customize such pages

15   unencumbered by implementation details. What is needed is a flexible, accessible way to create and maintain portal pages.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is an illustration of an exemplary portal page in accordance to one

20   embodiment of the invention.

Figure 2 is diagram of portal page customization in accordance to one embodiment of the invention.

Figure 3 is a diagram of a system in accordance to one embodiment of the invention.

25

DETAILED DESCRIPTION

The invention is illustrated by way of example and not by way of limitation in the figures of the accompanying drawings in which like references indicate

similar elements. It should be noted that references to "an" or "one" embodiment in this disclosure are not necessarily to the same embodiment, and such references mean at least one.

Figure 1 is an illustration of an exemplary portal page in accordance to one embodiment of the invention. In one embodiment, by way of example, portal page 16 is rendered upon display area 12, which can be a region in the display area of a device for displaying images and/or producing sounds (e.g., a computer monitor). Portal page 16 is comprised of several elements. Portal page selection tabs 20-28 can each be selected by a user to render a different page within the portal. Portal pages can be thought of as panels or panes that can be swapped into and out of a display region of the available portal real estate. By way of a non limiting example, selection of a portal element can be accomplished with an input device such as a mouse, a motion detector, voice commands, hand or eye gestures, etc. If tab 20 were selected, for example, the portal page corresponding to that tab would be rendered. Although the tabs 20-28 in **Fig. 1** are displayed horizontally, in another embodiment the tabs could be displayed vertically or using some other scheme. In yet another embodiment, the tabs 20-28 could be rendered as buttons or as other kinds of interactive controls.

Within portal page 16 is display area 10, which includes portlets and other elements. A portlet is an application that manages its own graphical user interface (GUI). Portlets can communicate with each other and with other software and hardware components (e.g., Enterprise Java Beans™, Java™ Beans, servlets, applets, etc.). The Java™ programming language, its libraries, environment, and toolkits are available from Sun Microsystems, Inc. of Santa Clara, California. The other software and hardware components may be part of the same execution environment as the portlet or may be in a different execution environment. In one embodiment, a portlet is implemented as a JavaServer Page™. Portlet GUI 30 displays real-time stock ticker information. A user could configure such a portlet

to display certain stocks, for example. In another embodiment, the user can select a given stock displayed in portlet GUI **30** and receive more detailed information, such as the price history, price to earnings ratio, etc. Portlet **30** would be responsible for handling user input and responding accordingly. Portlet GUI **32** displays up-to-date information pertaining to a user's checking accounts. Likewise, portlet GUI **32** could provide detailed information on transactions if the user were to select an account. Advertisement portlet GUI **18** displays an advertisement that could be directed specifically to the current user based on demographics or other information. For instance, if a user had an outstanding home loan in good standing, the advertisement could be for a home equity loan. Likewise, if the user had an appropriate amount in a savings account, the advertisement could be for a new car loan. Static area **14** contains text or an image with text.

In one embodiment, a display area such as **10** can be described with a template. Templates can specify the location of elements on a portal page. A template can include one or more placeholders which define regions of the template wherein a portlet can display itself, or wherein other static or dynamic content can be rendered. A given placeholder can host more than one portlet. In such a case, the template area occupied by the placeholder could be shared amongst the portlets in a number of ways, including but not limited to stacking portlets on top of one another (not shown). In another embodiment, a template can be implemented as a Hypertext Markup Language (HTML) table and created with conventional HTML editors. Each cell in a such a table can represent a placeholder. Placeholders can be assigned identifiers during design of the template that are dynamically bound to portlet GUI's during portal page rendering.

Figure 2 is diagram of portal page customization in accordance to one embodiment of the invention. In one embodiment, customization of a portal page involves the placement of portal elements on a template. In one embodiment, a template is afforded an arbitrary number of levels of customization. In another

embodiment, a template can have three levels of customization: global, group and user. An initial template created for a portal page is customized at the global level. This is the default template used for describing the portal page if there are no further customizations. Further customizations at the group level supersede customizations at the global level. Likewise, customizations at the user level take precedence over group and global level customizations.

In **Fig. 2**, global template **100** is customized to include two portlet GUI's, **P1** and **P2**. In one embodiment, a portal can be associated with more than one user group. Each group can define its own look and feel for a particular portal page. In one embodiment, a user group can be an arbitrary collection of users that is determined statically or dynamically by evaluating rules that take into account information about a user and other information. A global template can be customized to meet the needs of each particular group. For example, Group A template **102** modifies global template **100** such that portlet GUI **P2** is repositioned to the upper right-hand corner of the Group A template **102**. Group B template **112** customizes global template **100** by deleting portal GUI **P2** and adding portal GUI **P3**. A group template is used for rendering the portal page for all members of the group, unless a group member has further customized it. For example, Group A member User X has repositioned portlet GUI **P1** to the lower left-hand corner of user template **104**. User Y has customized Group A template **102** with user template **108**. User template **108** removes portlet **P2**, but leaves portlet **P1** in the same position as it was in group template **102**.

In another embodiment, template customization can be controlled by delegated system administration which both limits and delegates administrative responsibilities for groups and users. For example, customization of a template may involve removing or adding portlets. It may acceptable to endow a group administrator with this flexibility, but not an ordinary user. For this reason, a group administrator may set portlet attributes which prevent a user from adding, removing

or moving a given portlet during user customization of a group template. But it also may be desirous to allow a small subset of users to have these capabilities. In this case, a group administrator could delegate some or all of their capabilities to one or more users.

5   Figure 3 is a diagram of a system in accordance to one embodiment of the invention. Although this diagram depicts objects as functionally separate, such depiction is merely for illustrative purposes. It will be apparent to those skilled in the art that the objects portrayed in **Fig. 3** can be arbitrarily combined or divided into separate software, firmware or hardware components. Furthermore, it will also

10   be apparent to those skilled in the art that such objects, irregardless of how they are combined or divided, can execute on the same computer or can be arbitrarily distributed among different computers connected by a network. Finally, it is noted that such objects may also be contained within different execution environments (e.g., Java™ Servers, Enterprise Java Bean™ containers, etc.), however these are

15   not depicted for clarity's sake.

        A user may be considered anonymous or non-anonymous (e.g., identified specifically via a login procedure). Similarly, an anonymous user may belong to a default group (e.g., "everyone"), whereas a non-anonymous user may belong to one or more non-default groups. Rendering of a portal page begins when client **200**

20   requests a template from portal manager **202**. Such a request can contain user and group information. In one embodiment, client **200** can be a web browser. In another embodiment, client **200** can be any system capable of interacting with portal manager **202**. In one embodiment, portal manager **202** can be an Enterprise Javabean™ (EJB). The Enterprise Javabeans™ package is available from Sun

25   Microsystems, Inc. In another embodiment, portal manager **202** can be an independent process. In yet a further embodiment, portal manager **202** can part of client **200**.

        In one embodiment, if a user is non-anonymous, portal manager **202**

retrieves the user's template, if any. If there is no user template, portal manager 202 retrieves a group template corresponding to the group. Finally, if there is no group template, portal manager 202 retrieves the default global template for the requested portal page. Similarly, if a user is anonymous, portal manager 202 retrieves a group template, if any, or the default global template. In one embodiment, once a template is retrieved, portal manager 202 binds portlets to placeholders in the template. In one embodiment, this can be accomplished by replacing identifier strings in an HTML table representing the template with directives to initiate portlet execution, such as Java Sever Page™ tag library calls. In one embodiment, templates and any other information needed to represent a portal and its pages can be persisted in Extensible Markup Language (XML) format. In another embodiment, templates and portlets can be persisted in data store 206. Data store 206 can be any media or medium designed to persist data, such as a relational database, an object-oriented database, a flat file, a cache, a buffer, etc.

In another embodiment, as part of binding portlets portal manager 202 checks to see whether the given portal user is entitled to remove, view or edit the portlet in question based on one or more entitlements. An entitlement is a rule that grants or denies access to a resource. In one embodiment, determination of an entitlement consists of dynamically associating roles to a user based on rules that take into account information about the user, information about the user's communication session, or the current state of the system. For example:

    (1)   When all of these conditions apply, the user is a GoldMember:
            Checking account balance > $5,000
            Combined account balance > $50,000

In rule (1) above, a user is deemed to satisfy the GoldMember role if there is more than $5,000 in their checking account and they have more than $50,000 in

their combined accounts. Certain portlets, for example, may only be for GoldMember users. Thus, if only GoldMember users were entitled to execute the portlet in question, it would not be bound to a template for non-GoldMember users. Similarly, if the entitlement was for viewing, rather than execution, the portlet would be bound to the template but only GoldMember users could view it in client **200**. If the entitlement was for editing, then the portlet would be bound to the template and would be visible to the user, however only GoldMember users would be allowed to edit the portlet's contents. Entitlements can be evaluated by rules engine **208**. In one embodiment, entitlements are persisted in data store **204**. After portlet manager **202** has bound portlets to the template, it provides the template to client **200**. The portal page is then rendered based on the template.

The foregoing description of the preferred embodiments of the present invention has been provided for the purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise forms disclosed. Many modifications and variations will be apparent to the practitioner skilled in the art. Embodiments were chosen and described in order to best describe the principles of the invention and its practical application, thereby enabling others skilled in the art to understand the invention, the various embodiments and with various modifications that are suited to the particular use contemplated. It is intended that the scope of the invention be defined by the following claims and their equivalents.

CLAIMS

What is claimed is:

5   1.   A method for describing a portal page, comprising:

defining a placeholder on a template;

associating at least one portlet with the placeholder; and

wherein the template can be customized for least one of a group and a user.

10   2.   The method of claim 1 wherein:

the portal page can be described with more than one template.

3.   The method of claim 1 wherein:

the template can have more than one placeholder.

15

4.   The method of claim 1 wherein:

the template is a Hypertext Markup Language (HTML) table and the

placeholder is a cell in the table.

20   5.   The method of claim 1 wherein:

the template can be created and edited in a Hypertext Markup Language

(HTML) editor.

6.   The method of claim 1 wherein:

25   customization includes at least one of determining the location of the at

least one portlet on the template, removing the at least one portlet from the

template, and adding a new portlet to the template.

7.   The method of claim 1 wherein:

the template and the at least one portlet can be persisted in Extensible

Markup Language (XML).

5   8.   The method of claim 1, further comprising:

associating at least one entitlement with the at least one portlet.

9.   The method of claim 8 wherein:

the at least one entitlement includes at least one rule to associate a role with

10   a user.

10.   A method for describing a portal page, comprising:

defining a template, the template having a placeholder;

associating at least one portlet with the placeholder; and

15   wherein the template can be customized for least one of a group and a user.

11.   The method of claim 10 wherein:

the portal page can be described with more than one template.

20   12.   The method of claim 10 wherein:

the template can have more than one placeholder.

13.   The method of claim 10 wherein:

the template is a Hypertext Markup Language (HTML) table and the

25   placeholder is a cell in the table.

14.   The method of claim 10 wherein:

the template can be created and edited in a Hypertext Markup Language

(HTML) editor.

15.   The method of claim 10 wherein:

        customization includes at least one of determining the location of the at

least one portlet on the template, removing the at least one portlet from the

template, and adding a new portlet to the template.

16.   The method of claim 10 wherein:

        the template and the at least one portlet can be persisted in Extensible

Markup Language (XML).

17.   The method of claim 10, further comprising:

        associating at least one entitlement with the at least one portlet.

18.   The method of claim 17 wherein:

        the at least one entitlement includes at least one rule to associate a role with

a user.

19.   A method for rendering a portal page, comprising:

        selectively associating at least one portlet with a placeholder in a

customizable template; and

        wherein the association is based on evaluation of at least one entitlement.

20.   The method of claim 19 wherein:

        the portal page can be rendered with more than one template.

21.   The method of claim 19 wherein:

        the template can have more than one placeholder.

22.   The method of claim 19 wherein:

the template is a Hypertext Markup Language (HTML) table and the placeholder is a cell in the table.

5

23.   The method of claim 19 wherein:

the template can be created and edited in a Hypertext Markup Language (HTML) editor.   .

10   24.   The method of claim 19 wherein:

customization includes at least one of determining the location of the at least one portlet on the template, removing the at least one portlet from the template, and adding a new portlet to the template.

15   25.   The method of claim 19 wherein:

the template and the at least one portlet can be persisted in Extensible Markup Language (XML).

26.   The method of claim 19 wherein:

20   selectively associating includes evaluating at least one entitlement.

27.   The method of claim 26 wherein:
the at least one entitlement includes at least one rule to associate a role with a user.

25

28.   A system for rendering a portal page, comprising:

a portal manager to selectively bind at least one portlet to a template;

a client to accept the bound template from the portal manager; and

a rules engine coupled to the portal manager to determine which of the at least one portlets are selectively bound.

29.   The system of claim 28 wherein:

the portal page can be rendered with more than one template.

30.   The system of claim 28, further comprising:

a placeholder, wherein the at least one portlet is associated with the placeholder.

31.   The system of claim 30 wherein:

the template is a Hypertext Markup Language (HTML) table and the placeholder is an HTML table cell.

32.   The system of claim 28 wherein:

the template can be created and edited in a Hypertext Markup Language (HTML) editor.

33.   The system of claim 28 wherein:

the template and the at least one portlet definition can be persisted in Extensible Markup Language (XML).

34.   The system of claim 28, further comprising:

the rules engine evaluates at least one entitlement.

35.   The system of claim 34 wherein:

the at least one entitlement includes at least one rule to associate a role with a user.

36.   A method for describing a portal page, comprising:

        creating a second template based on a first template; and

        wherein the second template customizes the first template; and

5   wherein the second template describes the portal page.

37.   The method of claim 36 wherein:

        customization includes at least one of determining the location of at least

one portlet on the second template, removing the at least one portlet from the

10   second template, and adding a new portlet to the second template.

38.   The method of claim 36 wherein:

        the first template has at least one placeholder; and

        wherein the second template has at least one placeholder.

15

39.   The method of claim 36 wherein:

        at least one of the first template and the second template is a Hypertext

Markup Language (HTML) table.

20   40.   The method of claim 36 wherein:

        at least one of the first template and the second template can be created and

edited in a Hypertext Markup Language (HTML) editor.

41.   The method of claim 36 wherein:

25   the first template and the second template can be persisted in Extensible

Markup Language (XML).

42.   The method of claim 36, further comprising:

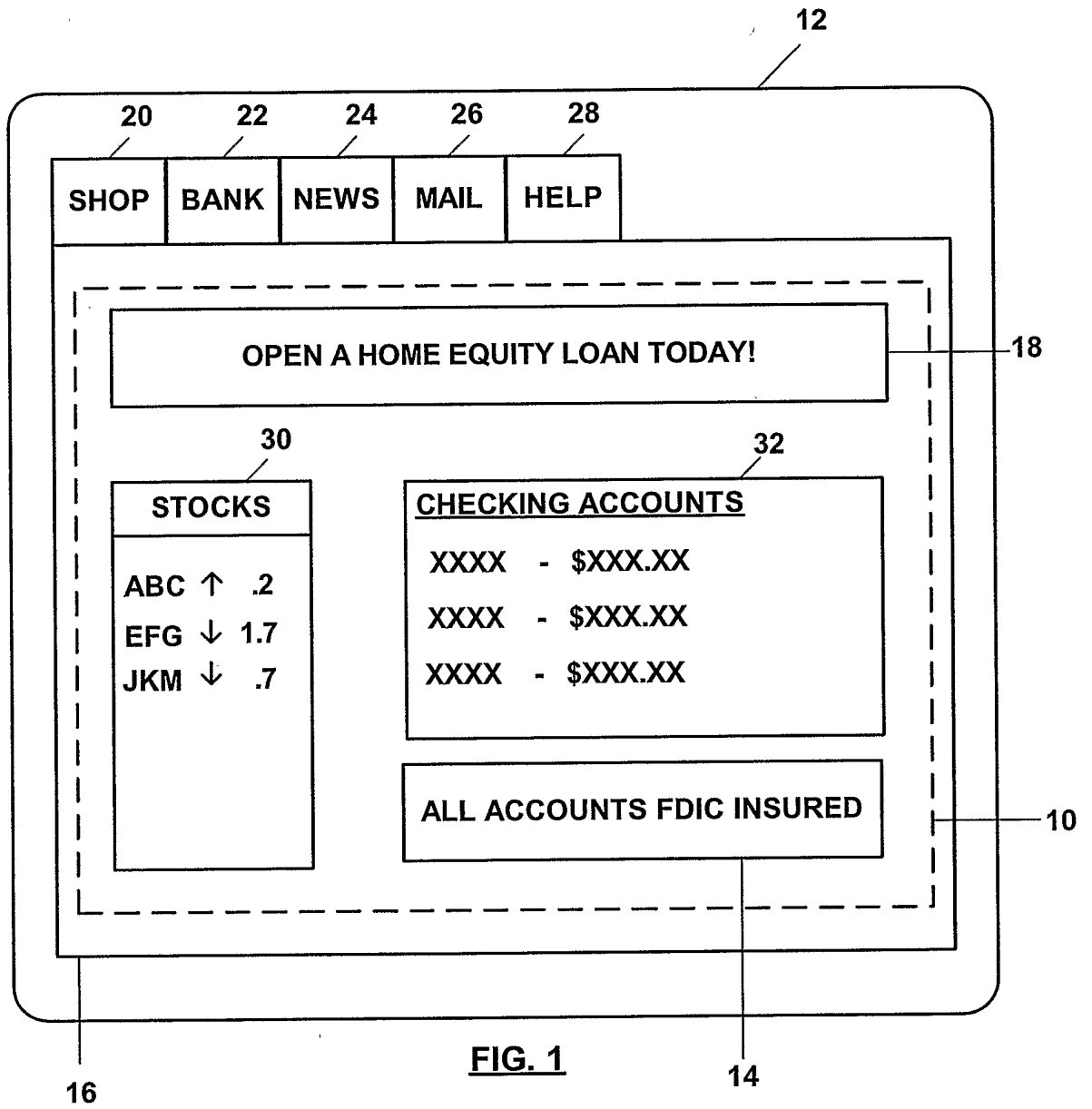associating at least one entitlement with the at least one portlet.

43. The method of claim 42 wherein:

the at least one entitlement includes at least one rule to associate a role with

a user.

44. A machine readable medium having instructions stored thereon that when

executed by a processor cause a system to:

define a placeholder on a template;

associate at least one portlet with the placeholder; and

wherein the template can be customized for least one of a group and a user.

45. The machine readable medium of claim 44 wherein:

the portal page can be described with more than one template.

46. The machine readable medium of claim 44 wherein:

the template can have more than one placeholder.

47. The machine readable medium of claim 44 wherein:

the template is a Hypertext Markup Language (HTML) table and the

placeholder is a cell in the table.

48. The machine readable medium of claim 44 wherein:

the template can be created and edited in a Hypertext Markup Language

(HTML) editor.

49. The machine readable medium of claim 44 wherein:

customization includes at least one of determining the location of the at

least one portlet on the template, removing the at least one portlet from the template, and adding a new portlet to the template.

50.   The machine readable medium of claim 44 wherein:
        the template and the at least one portlet can be persisted in Extensible Markup Language (XML).

51.   The machine readable medium of claim 44, further comprising instructions that when executed cause the system to:
        associate at least one entitlement with the at least one portlet.

52.   The machine readable medium of claim 44 wherein:
        the at least one entitlement includes at least one rule to associate a role with a user.

12

SHOP	BANK	NEWS	MAIL	HELP

20 22 24 26 28

OPEN A HOME EQUITY LOAN TODAY! ———— 18

30

STOCKS

ABC ↑ .2

EFG ↓ 1.7

JKM ↓ .7

32

CHECKING ACCOUNTS

XXXX - $XXX.XX

XXXX - $XXX.XX

XXXX - $XXX.XX

ALL ACCOUNTS FDIC INSURED ———— 10

FIG. 1

16 14

GLOBAL

GROUP A

USER X

100

P1

P2

102

P1

P2

104

P2

P1

USER Y

P1

108

GROUP B

P1

P3

112
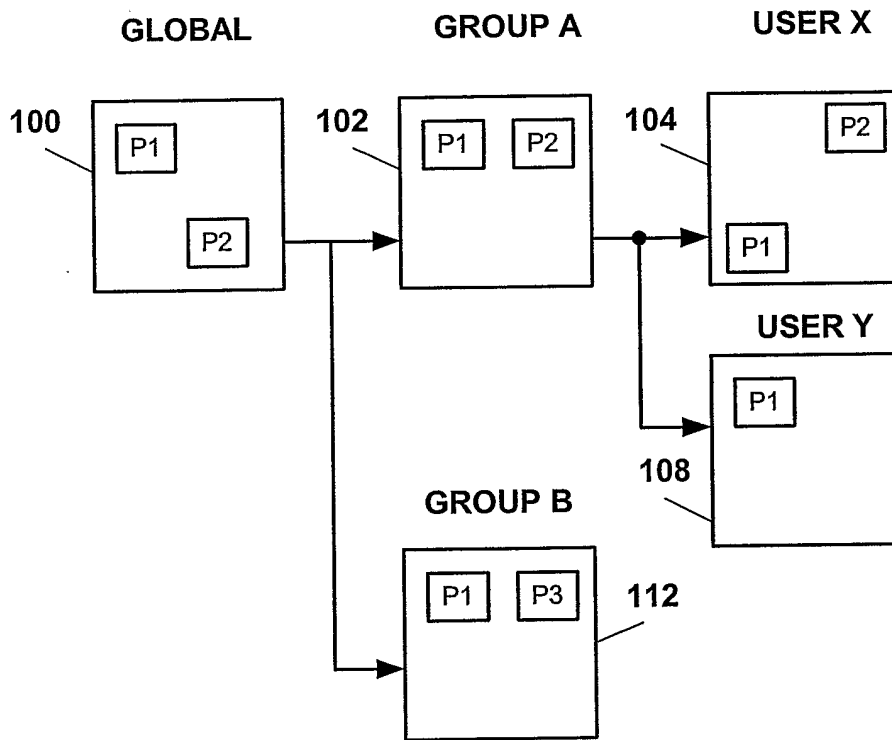
FIG. 2
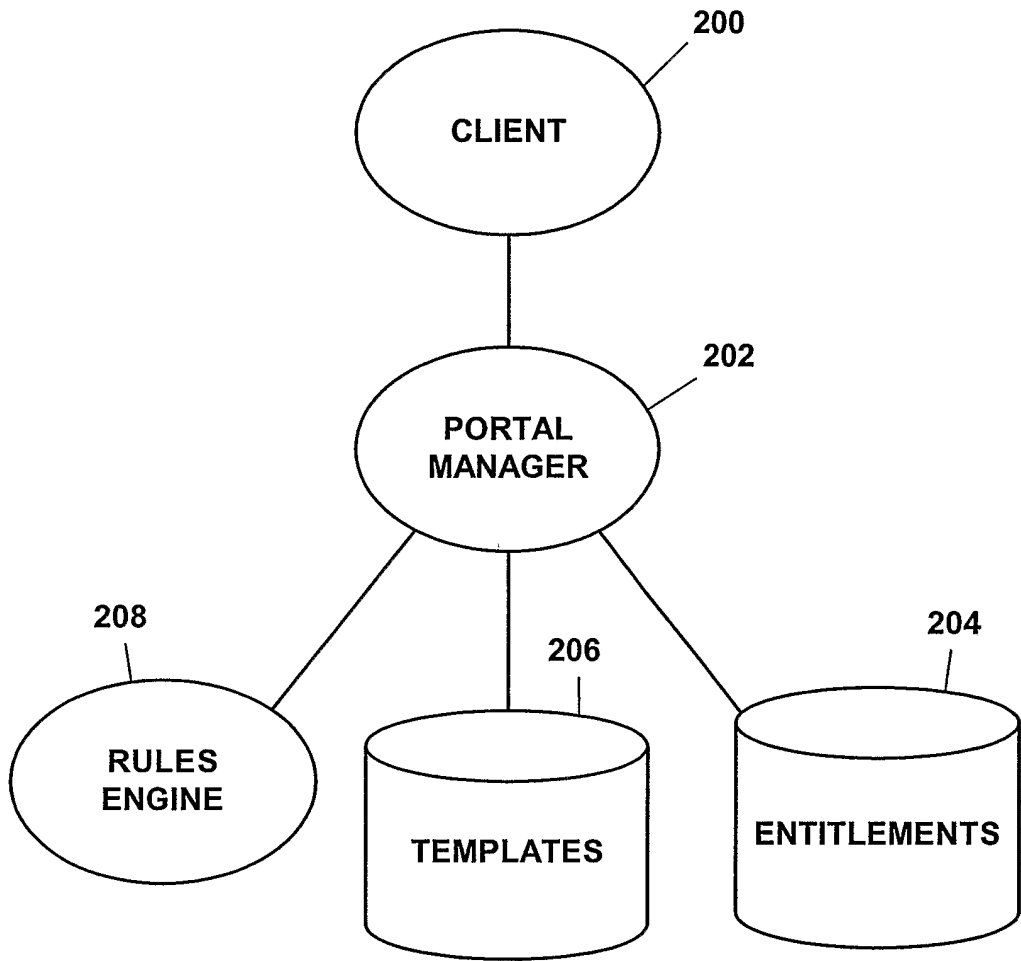
FIG. 3

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7)   : G06F 19/00
US CL   : 705/10, 1

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)

U.S. :   705/10, 1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
FOLDOC computing disctionary

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

EAST, WEST

C.   DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,236,991 B1 (FRAUENHOFER et al.) 22 May 2001, col. 2-5	1-52
X	US 6,285,983 B1 (JENKINS) 04 September 2001, col. 4-7	1-52
X	US 6,112,192 A (CAPEK) 29 August 2000, col. 3-5	1-52
X	US 6,009,410 A (LEMOLE et al.) 28 December 1999, col. 3-7	1-52
X	US 5,991,735 A (GERACE) 23 November 1999, col. 4-18	1-52
X	US 6,006,265 A (RANGAN et al.) 21 December 1999, col. 17-30	1-52

| X | Further documents are listed in the continuation of Box C. | ☐ See patent family annex. |

*	Special categories of cited documents:	"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
"A"	document defining the general state of the art which is not considered to be of particular relevance		
"E"	earlier document published on or after the international filing date	"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
"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)	"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
"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	"&"	document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
22 JANUARY 2003	10 FEB 2003

Name and mailing address of the ISA/US	Authorized Officer
Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	SALEH NAJJAR
Facsimile No. (703) 305-3230	Telephone No. (703) 308-7613

Form PCT/ISA/210 (second sheet) (July 1998)★

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,195,696 B1 (BABER et al.) 27 February 2001, col. 4-14	1-52
X	US 6,128,663 A (THOMAS) 03 October 2000, col. 4-12	1-52
X	US 6,081,829 A (SIDANA) 27 June 2000, col. 4-10	1-52
X	US 6,026,433 A (D'ARLACH et al.) 15 February 2000, col. 3-10	1-52

Form PCT/ISA/210 (continuation of second sheet) (July 1998)★

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/34089

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
   because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
   because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
   because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest   ☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

Form PCT/ISA/210 (continuation of first sheet(1)) (July 1998)★