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Golwalkar

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(54) **SHARED AGGREGATED E-COMMERCE SHOPPING CART**

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CPC ***G06Q 30/0633*** (2013.01)

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See application file for complete search history.

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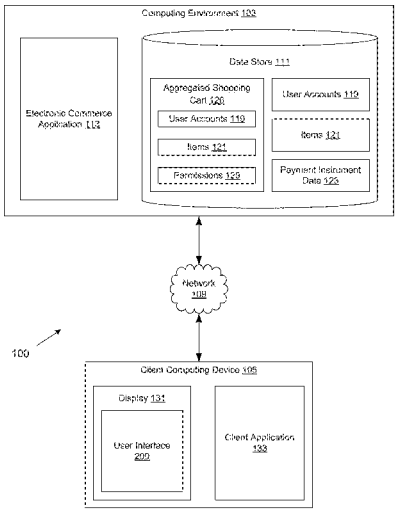
Primary Examiner — Kathleen Palavecino
Assistant Examiner — Lance Y Cai
(74) *Attorney, Agent, or Firm* — Thomas | Horstemeyer, LLP

(57) **ABSTRACT**

Disclosed are various embodiments for a shopping cart component of an electronic commerce application. The shopping cart may be shared by one or more users of the electronic commerce application. In this respect, the shopping cart represents the aggregate purchase of items on behalf of multiple users of the electronic commerce application. Each user with access to the shopping cart may add to or remove items from the shopping cart or purchase some or all of the items within the shopping cart. Further, each user may share the shopping cart with other users of the electronic commerce application. Discounts or other promotional or marketing credits or benefits may also be added to and shared by all users with access to the shopping cart.

20 Claims, 9 Drawing Sheets



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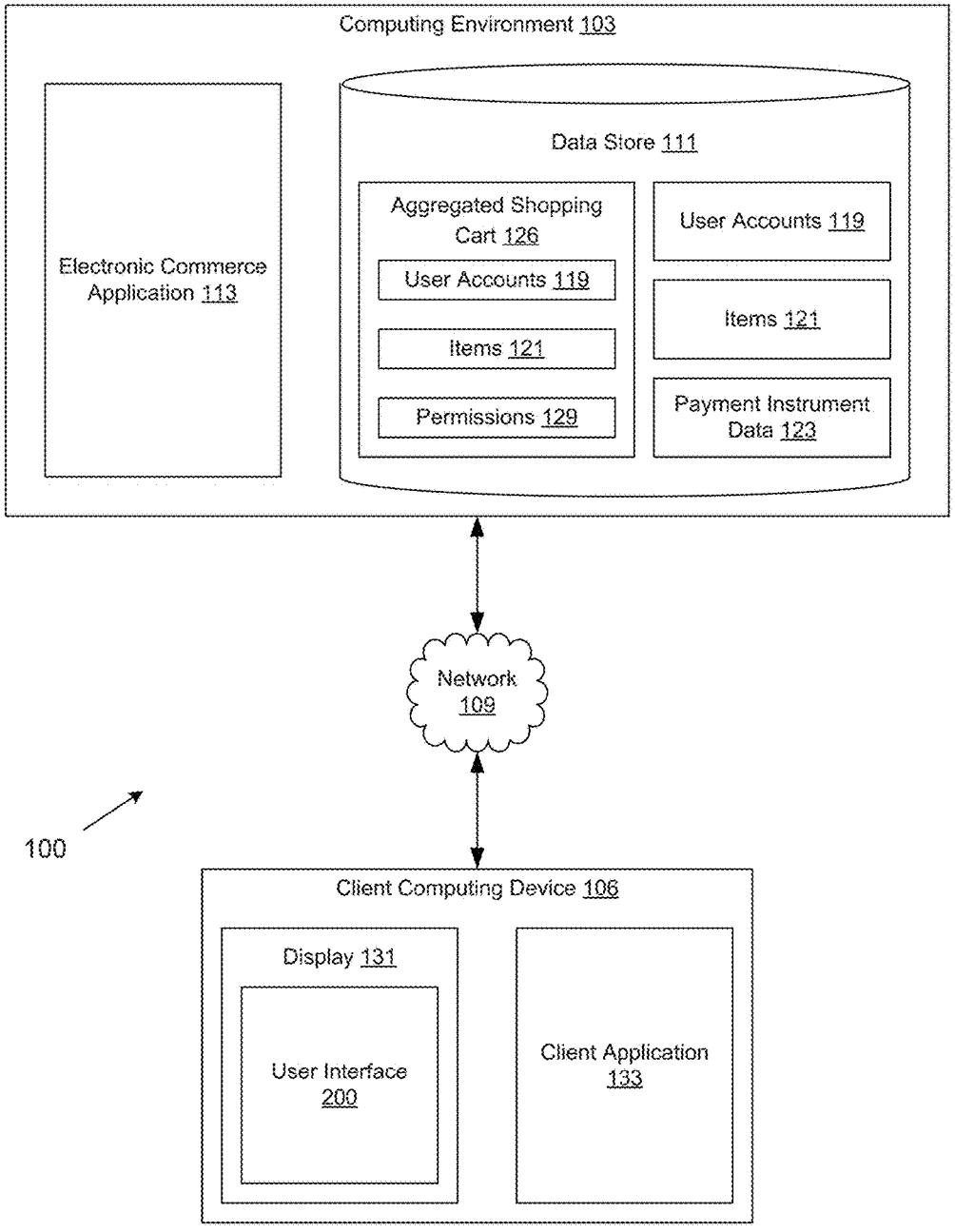
Computing Environment 103
Electronic Commerce Application 113
Data Store 111
Aggregated Shopping Cart 126
User Accounts 119
Items 121
Permissions 129
User Accounts 119
Items 121
Payment Instrument Data 123
Network 109
100
Client Computing Device 106
Display 131
User Interface 200
Client Application 133

FIG. 1

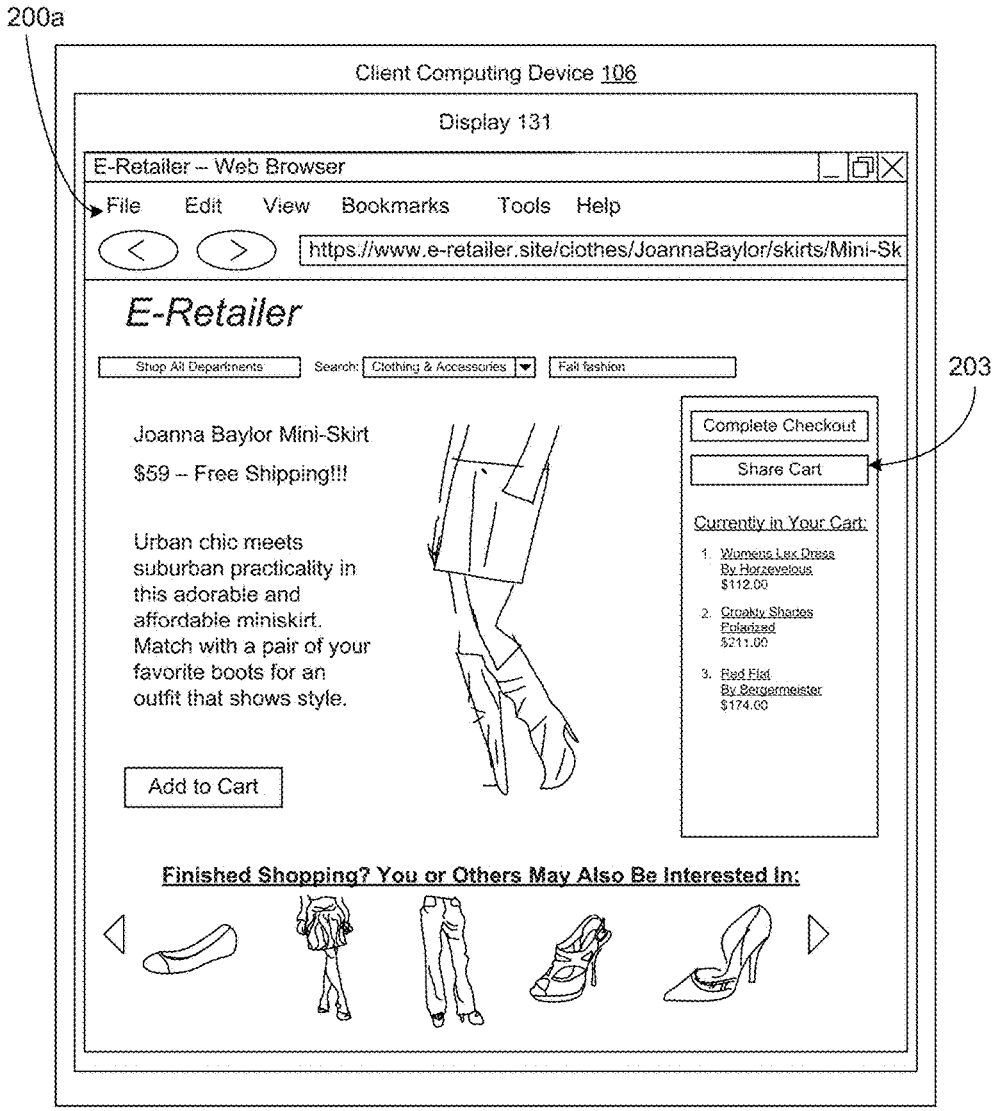
200a
Client Computing Device 106
Display 131
E-Retailer – Web Browser
File Edit View Bookmarks Tools Help
https://www.e-retailer.site/clothes/JoannaBaylor/skirts/Mini-Sk
E-Retailer
Shop All Departments
Search: Clothing & Accessories
Fall fashion
203
Joanna Baylor Mini-Skirt
$59 – Free Shipping!!!
Urban chic meets suburban practicality in this adorable and affordable miniskirt. Match with a pair of your favorite boots for an outfit that shows style.
Add to Cart
Complete Checkout
Share Cart
Currently in Your Cart:
1. Womens Lex Dress By Herzevelous $112.00
2. Croaky Shades Polarized $211.00
3. Red Flat By Bergermeister $174.00
Finished Shopping? You or Others May Also Be Interested In:

FIG. 2A

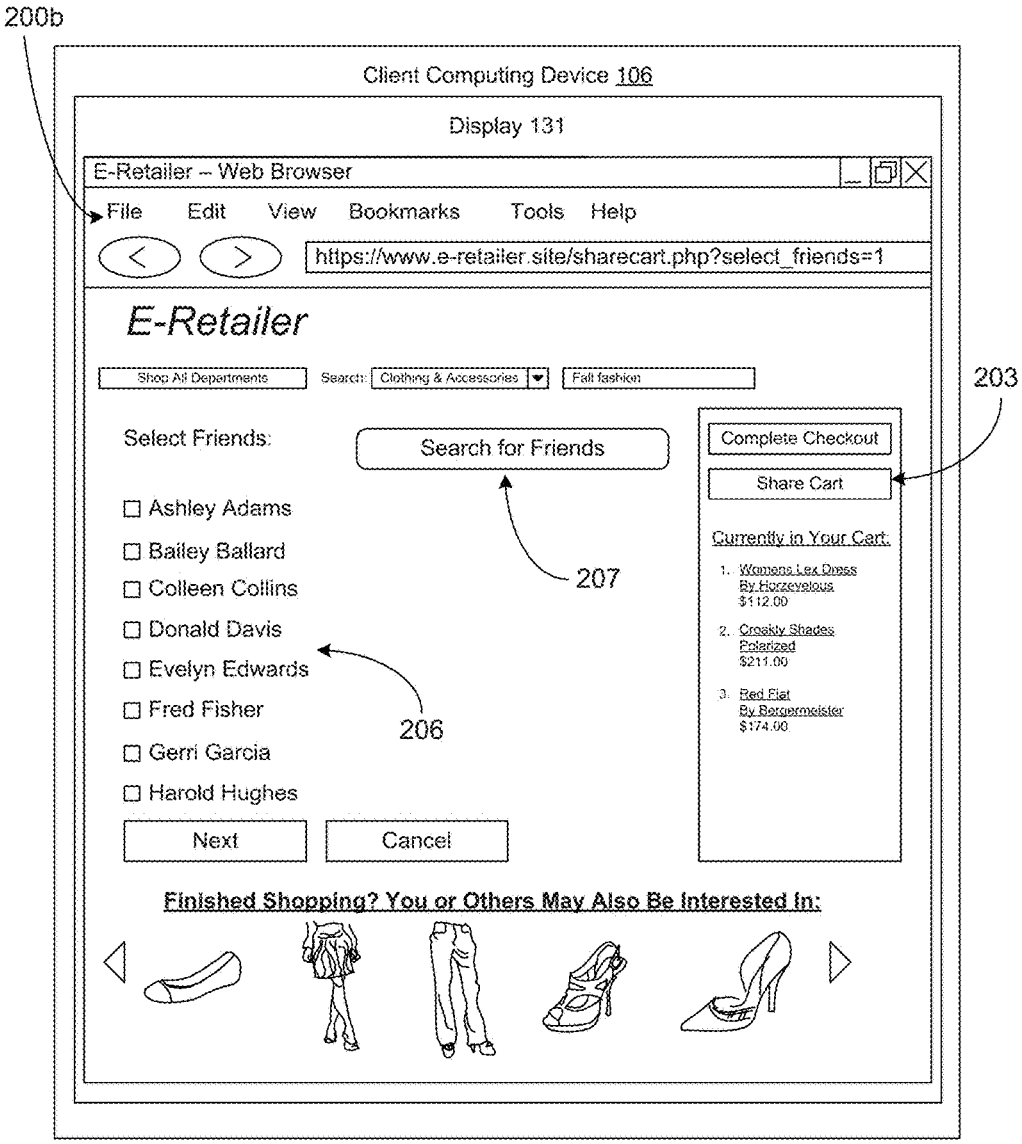
200b
Client Computing Device 106
Display 131
E-Retailer – Web Browser
File Edit View Bookmarks Tools Help
https://www.e-retailer.site/sharecart.php?select_friends=1
E-Retailer
Shop All Departments
Search: Clothing & Accessories
Fall fashion
203
Select Friends:
Search for Friends
Complete Checkout
Share Cart
Currently in Your Cart:
1. Womens Lex Dress
By Horzevelous
$112.00
2. Creakly Shades
Polarized
$211.00
3. Red Flat
By Bergermeister
$174.00
Ashley Adams
Bailey Ballard
Colleen Collins
Donald Davis
Evelyn Edwards
Fred Fisher
Gerri Garcia
Harold Hughes
207
206
Next
Cancel
Finished Shopping? You or Others May Also Be Interested in:

FIG. 2B

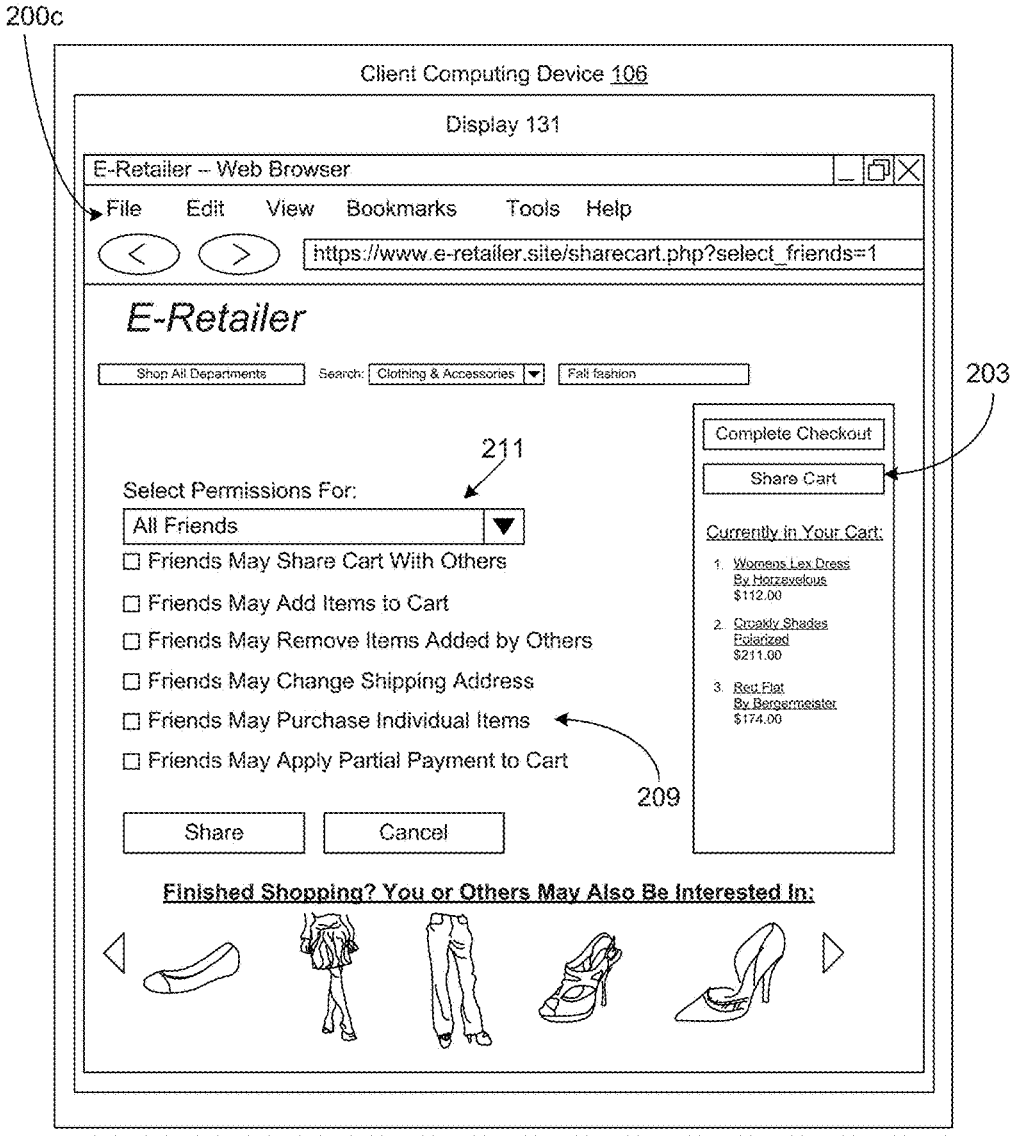
200c
Client Computing Device 106
Display 131
E-Retailer -- Web Browser
File Edit View Bookmarks Tools Help
https://www.e-retailer.site/sharecart.php?select_friends=1
E-Retailer
Shop All Departments
Search: Clothing & Accessories
Fall fashion
203
211
Select Permissions For:
All Friends
Friends May Share Cart With Others
Friends May Add Items to Cart
Friends May Remove Items Added by Others
Friends May Change Shipping Address
Friends May Purchase Individual Items
Friends May Apply Partial Payment to Cart
209
Share
Cancel
Complete Checkout
Share Cart
Currently in Your Cart:
1. Womens Lex Dress
By Horzevelous
$112.00
2. Qpaldy Shades
Polarized
$211.00
3. Rez Flat
By Bergermeister
$174.00
Finished Shopping? You or Others May Also Be Interested In:

FIG. 2C

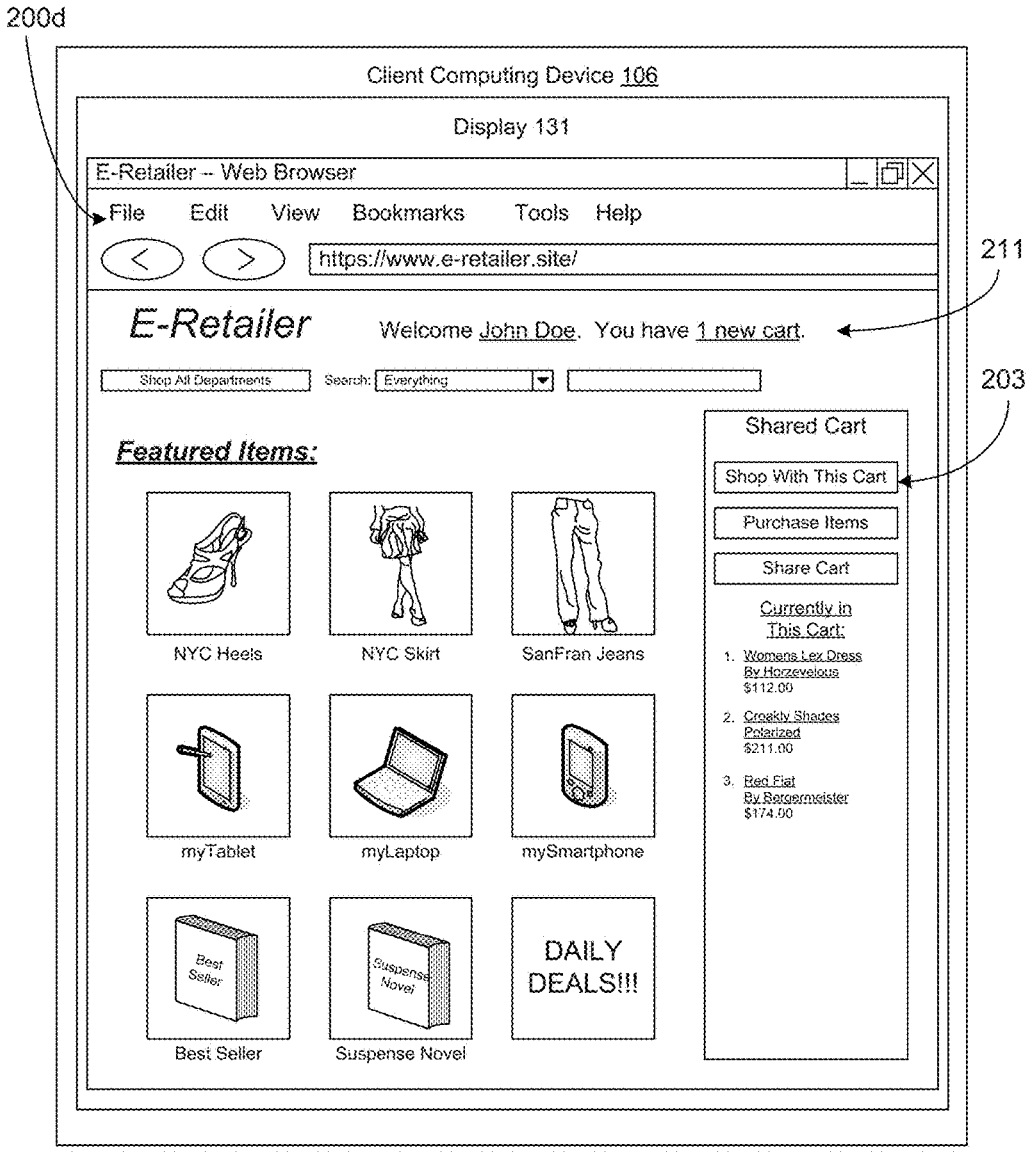
200d
Client Computing Device 106
Display 131
E-Retailer -- Web Browser
File Edit View Bookmarks Tools Help
https://www.e-retailer.site/
211
E-Retailer
Welcome John Doe. You have 1 new cart.
203
Shop All Departments
Search: Everything
Featured Items:
NYC Heels
NYC Skirt
SanFran Jeans
myTablet
myLaptop
mySmartphone
Best Seller
Suspense Novel
DAILY DEALS!!!
Shared Cart
Shop With This Cart
Purchase Items
Share Cart
Currently in This Cart:
1. Womens Lex Dress By Horzevelous $112.00
2. Creakly Shades Polarized $211.00
3. Red Flat By Sergermeister $174.00

FIG. 2D

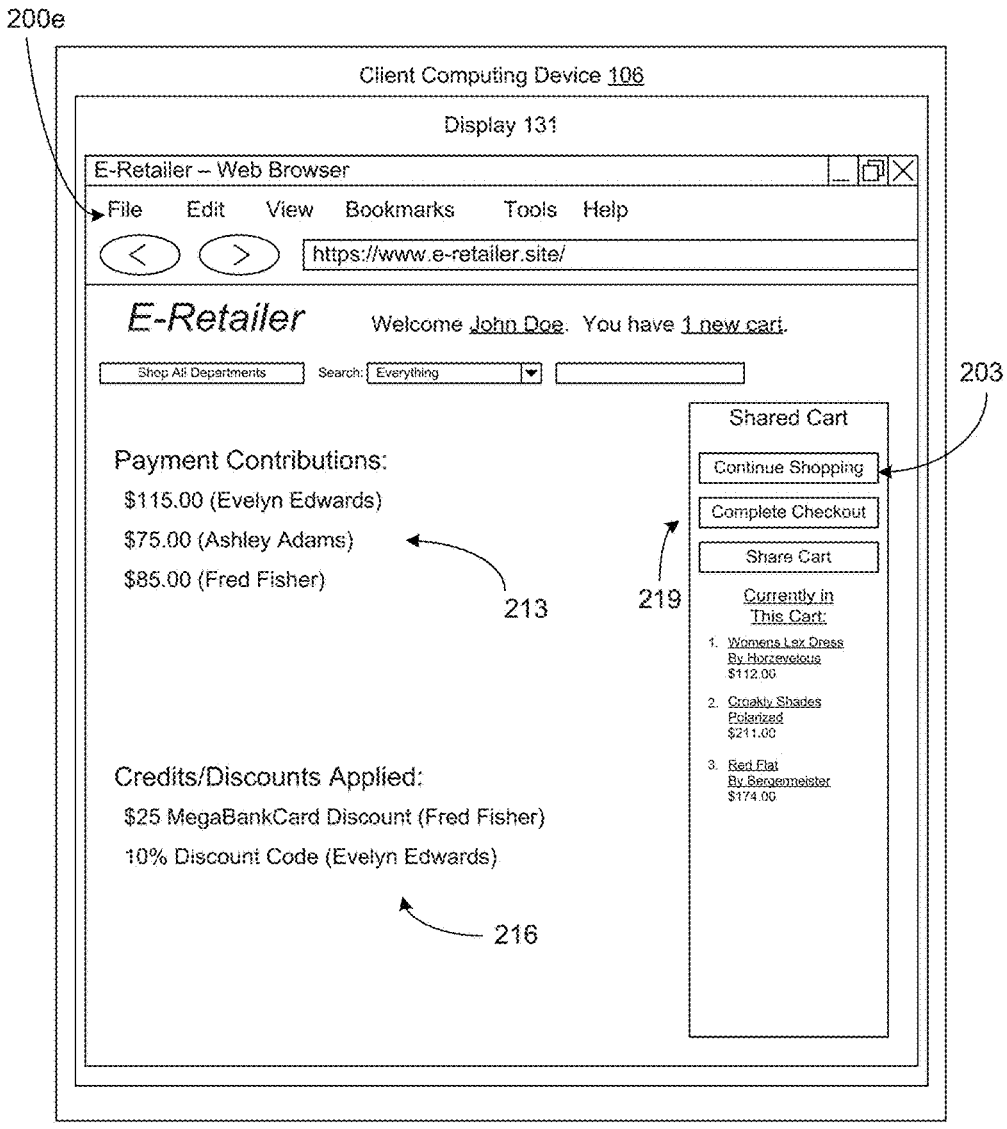
200e
Client Computing Device 106
Display 131
E-Retailer – Web Browser
File Edit View Bookmarks Tools Help
https://www.e-retailer.site/
E-Retailer
Welcome John Doe. You have 1 new cart.
Shop All Departments
Search: Everything
203
Shared Cart
Continue Shopping
Complete Checkout
Share Cart
Currently in This Cart:
1. Womens Lex Dress By Horzevelous $112.00
2. Croakly Shades Polarized $211.00
3. Red Flat By Sergeemeister $174.00
Payment Contributions:
$115.00 (Evelyn Edwards)
$75.00 (Ashley Adams)
$85.00 (Fred Fisher)
213
219
Credits/Discounts Applied:
$25 MegaBankCard Discount (Fred Fisher)
10% Discount Code (Evelyn Edwards)
216

FIG. 2E

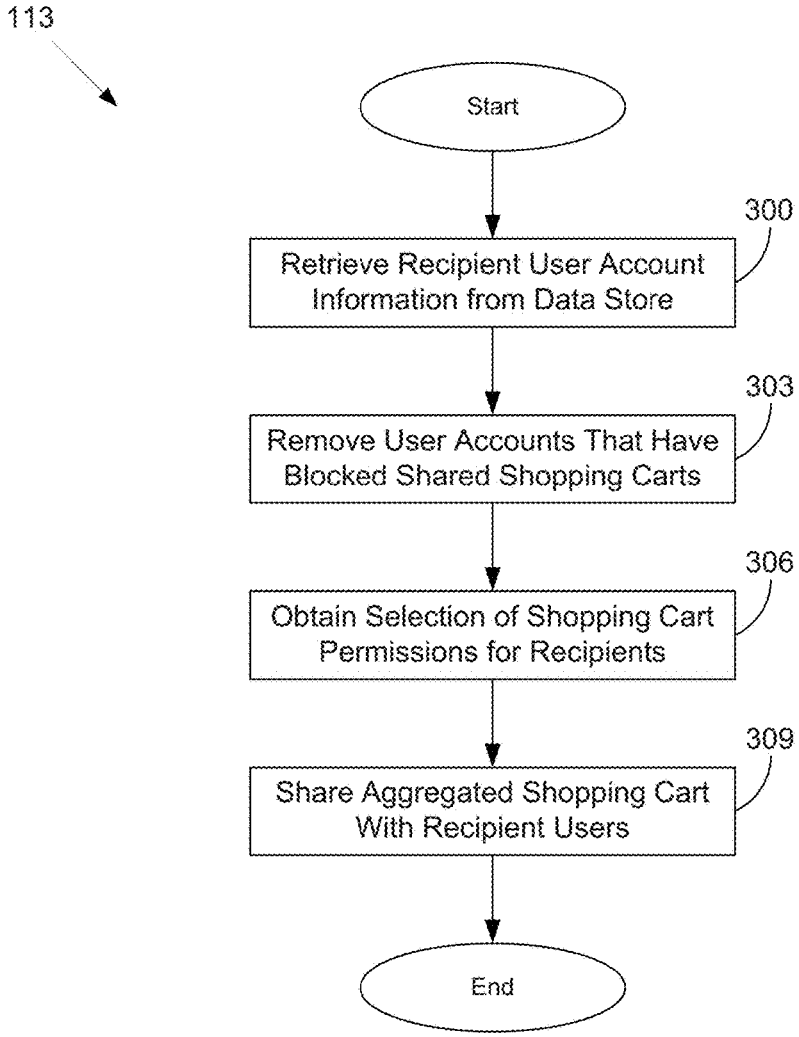
113
Start
300
Retrieve Recipient User Account Information from Data Store
303
Remove User Accounts That Have Blocked Shared Shopping Carts
306
Obtain Selection of Shopping Cart Permissions for Recipients
309
Share Aggregated Shopping Cart With Recipient Users
End

FIG. 3

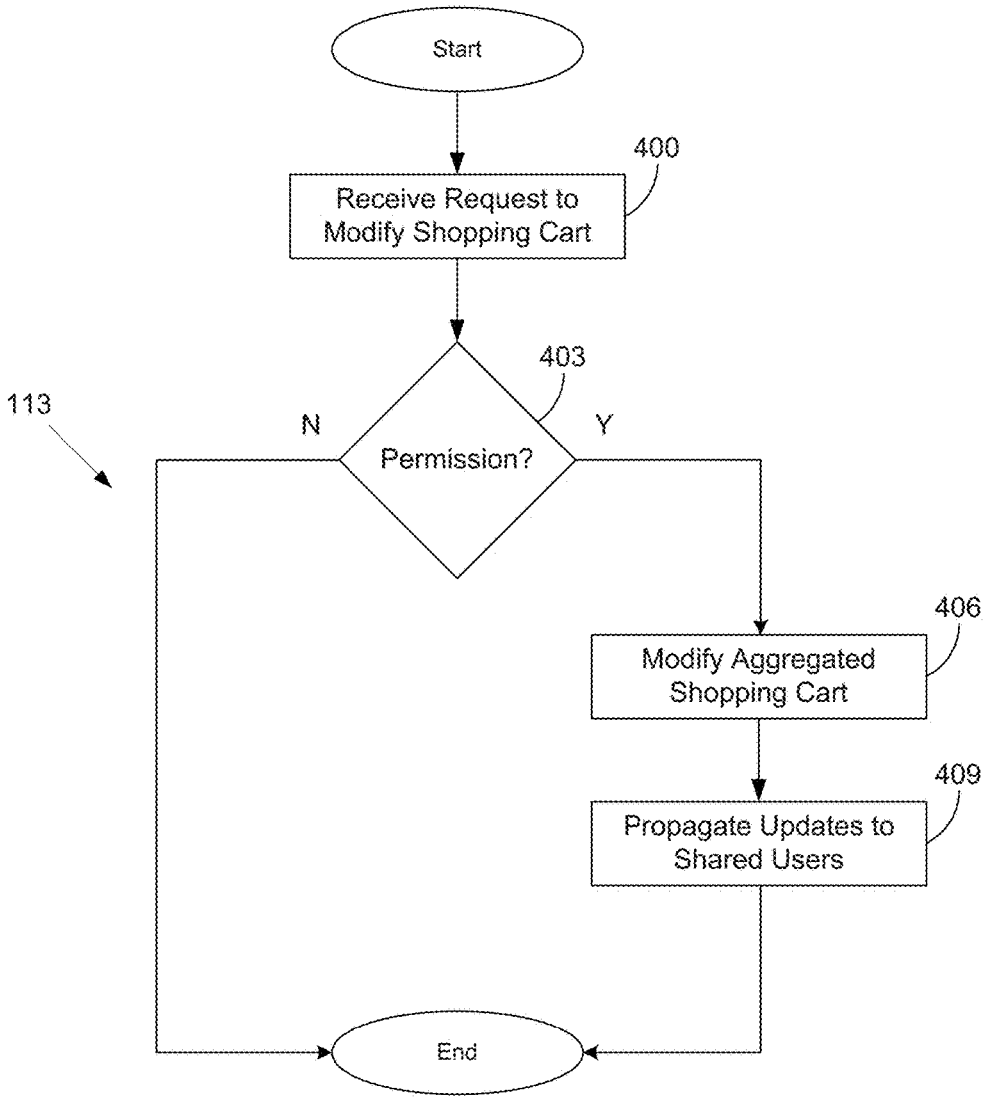
Start
400
Receive Request to Modify Shopping Cart
403
113
N
Permission?
Y
406
Modify Aggregated Shopping Cart
409
Propagate Updates to Shared Users
End

FIG. 4

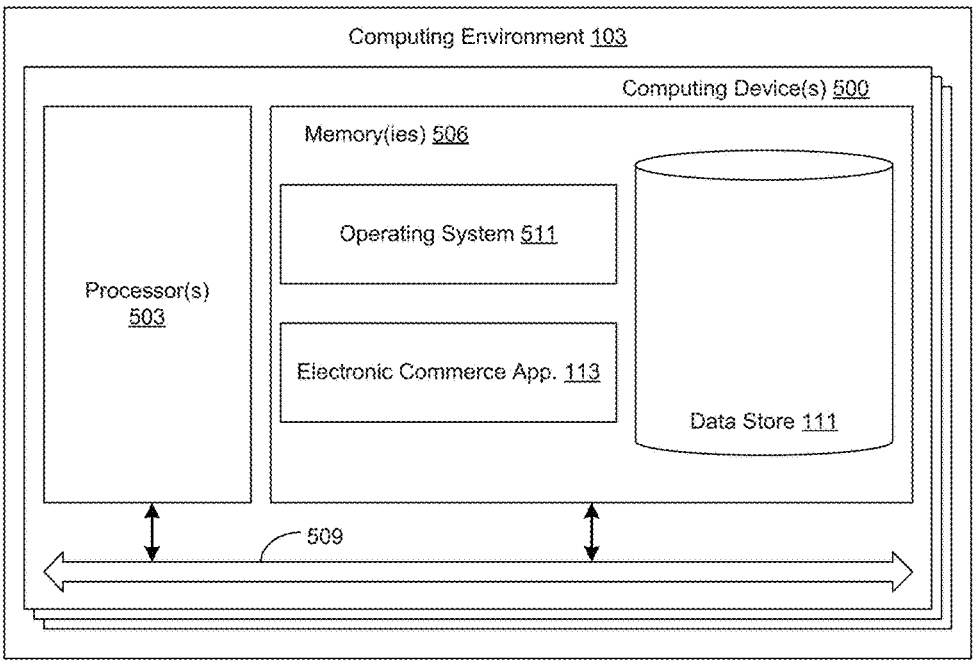
Computing Environment 103
Computing Device(s) 500
Memory(ies) 506
Operating System 511
Electronic Commerce App. 113
Data Store 111
Processor(s) 503
509

FIG. 5

SHARED AGGREGATED E-COMMERCE SHOPPING CART

BACKGROUND

Online or electronic merchants have traditionally supplied customers with electronic shopping carts allowing individual customers to purchase multiple items. These electronic shopping carts are often linked to individual users or individual user accounts. Users may add items they wish to purchase their shopping cart, purchase items in their shopping cart, and save their shopping cart in order to purchase items at a later time.

BRIEF DESCRIPTION OF THE DRAWINGS

Many aspects of the present disclosure can be better understood with reference to the following drawings. The components in the drawings are not necessarily to scale, with emphasis instead being placed upon clearly illustrating the principles of the disclosure. Moreover, in the drawings, like reference numerals designate corresponding parts throughout the several views.

FIG. **1** is a drawing of a networked environment according to various embodiments of the present disclosure.

FIGS. **2**A-**2**E are drawings of an example of a user interface rendered by a client in the networked environment of FIG. **1** according to various embodiments of the present disclosure.

FIG. **3** is a flowchart illustrating one example of functionality implemented as portions of the electronic commerce application executed in a computing environment in the networked environment of FIG. **1** according to various embodiments of the present disclosure.

FIG. **4** is a flowchart illustrating another example of additional functionality implemented as portions of the electronic commerce application executed in a computing environment in the networked environment of FIG. **1** according to various embodiments of the present disclosure.

FIG. **5** is a schematic block diagram that provides one example illustration of a computing environment employed in the networked environment of FIG. **1** according to various embodiments of the present disclosure.

DETAILED DESCRIPTION

The present disclosure relates to aggregating the purchases of multiple items from multiple users into a single shopping cart accessible by multiple user accounts. The shopping cart is initially created by a single user and access to the cart is then shared with other users of an electronic commerce application or electronic commerce site. Any user with whom the shopping cart has been shared may add items to or remove items from the shopping cart. Users with whom the shopping cart has been shared may also choose to share the shopping cart with additional users. In some embodiments of the present disclosure, the user creating the shopping cart may set permissions or create rules defining what actions users may or may not take with respect to the shopping cart. In some particular embodiments, the permissions may be set on a per user or per item basis.

As additional users gain access to and add items to the shopping cart, the shared shopping cart comes to represent the aggregated purchase of items for multiple users. Alternatively, the shopping cart may embody the purchase of items by one person on behalf of another. In the following discussion, a general description of the system and its components is provided, followed by a discussion of the operation of the same.

With reference to FIG. **1**, shown is a networked environment **100** according to various embodiments. The networked environment **100** includes a computing environment **103** and a client computing device **106**, which are in data communication with each other via a network **109**. The network **109** includes, for example, the Internet, intranets, extranets, wide area networks (WANs), local area networks (LANs), wired networks, wireless networks, or other suitable networks, etc., or any combination of two or more such networks.

The computing environment **103** may comprise, for example, a server computer or any other system providing computing capability. Alternatively, the computing environment **103** may employ a plurality of computing devices that may be employed that are arranged, for example, in one or more server banks or computer banks or other arrangements. Such computing devices may be located in a single installation or may be distributed among many different geographical locations. For example, the computing environment **103** may include a plurality of computing devices that together may comprise a cloud computing resource, a grid computing resource, and/or any other distributed computing arrangement. In some cases, the computing environment **103** may correspond to an elastic computing resource where the allotted capacity of processing, network, storage, or other computing-related resources may vary over time.

Various applications and/or other functionality may be executed in the computing environment **103** according to various embodiments. Also, various data is stored in a data store **111** that is accessible to the computing environment **103**. The data store **111** may be representative of a plurality of data stores **111** as can be appreciated. The data stored in the data store **111**, for example, is associated with the operation of the various applications and/or functional entities described below.

The components executed on the computing environment **103**, for example, include an electronic commerce application **113** and other applications, services, processes, systems, engines, or functionality not discussed in detail herein.

The electronic commerce application **113** is executed in order to facilitate the online purchase of items **121** over the network **109**. The electronic commerce application **113** also performs various backend functions associated with the online presence of a merchant in order to facilitate the online purchase of items **121** as will be described. For example, the electronic commerce application **113** generates network pages such as web pages or other types of network content that are provided to client computing devices **106** for the purposes of selecting items **121** for purchase, rental, download, lease, or other form of consumption as will be described.

The data stored in the data store **111** includes, for example, user accounts **119**, items **121**, payment data **123**, aggregated shopping carts **126** comprising items **121** and permissions **129** in association with user accounts **119**. The data store **111** may also potentially comprise other data.

User accounts **119** may include a user name, an account password, shipping addresses, user preferences, and other such data. While user accounts **119** often have a one-to-one correspondence with a single person, it is possible for a user account **119** to represent a one-to-many relationship. For example, user accounts may be shared by members of a

family, where spouses have access to each other's user accounts or children are able to access a parent's user account.

Items **121** may comprise data associated with each item. Such data includes the type, price, quantity, description, ratings, reviews and other such data.

Payment instrument data **123** represents payment instruments accepted for purchase of items within an aggregated shopping cart. Such data includes the type of instrument, such as store credit, credit card data, debit card data, and other forms of electronic payment instruments. Payment instrument data **123** is generally linked to user accounts **119** and to aggregated shopping carts **126**. The link between payment instrument data **123** and user accounts **119** represents the type of payments a user associated with a user account **119** may make. The link between payment instrument data **123** and aggregated shopping carts **126** represents how items within an aggregated shopping cart will be purchased. It is understood that one or more payment instruments may be linked to a single user account **119** or a single aggregated shopping cart **126**.

Aggregated shopping carts **126** may comprise shopping cart data such as items **121** added to the shopping cart. Aggregated shopping carts **126** may further be associated with user accounts **119** that have access to the aggregated shopping cart **126**. In addition, aggregated shopping carts **126** may have permissions **129** limiting the actions that users associated with certain user accounts **119** or classes of user accounts **119** may take with respect to the aggregated shopping cart **126**.

The client computing device **106** is representative of a plurality of client devices that may be coupled to the network **109**. The client computing device **106** may comprise, for example, a processor-based system such as a computer system. Such a computer system may be embodied in the form of a desktop computer, a laptop computer, personal digital assistants, cellular telephones, smartphones, set-top boxes, music players, web pads, tablet computer systems, game consoles, electronic book readers, or other devices with like capability. The client computing device **106** may include a display **131**. The display **131** may comprise, for example, one or more devices such as liquid crystal display (LCD) displays, gas plasma-based flat panel displays, organic light emitting diode (OLED) displays, LCD projectors, or other types of display devices, etc.

The client computing device **106** may be configured to execute various applications such as a client application **133** and/or other applications. The client application **133** may be executed in a client computing device **106**, for example, to access network content served up by the computing environment **103** and/or other servers, thereby rendering a user interface **200** on the display **131**. To this end, the client application **133** may comprise, for example, a browser, a dedicated application, etc., and the user interface **200** may comprise a network page, an application screen, etc. The client computing device **106** may be configured to execute applications beyond the client application **133** such as, for example, email applications, social networking applications, word processors, spreadsheets, and/or other applications.

Next, a general description of the operation of the various components of the networked environment **100** is provided. To begin, the client computing device **106** sends a request across the network **109** to the electronic commerce application **113** executing within the computing environment **103** to browse or purchase one or more items **121** for sale. This request may represent, for example, a request by a user to browse or search a merchant's online catalog for one or more items to purchase. The request is processed by the electronic commerce application **113** and information related to one or more items **121** is returned to the client application **133** executing in the client computing device **106**. The results are used by the client application **133** to render a user interface **200** on the display **131** of the client computing device **106**.

Optionally, an additional request to login to the electronic commerce application using credentials associated with a user account **119** may be sent across the network **109** by the client application **133** executing on the client computing device **106** to the electronic commerce application **113** executing within the computing environment **103**. Doing so permits the electronic commerce application **113** to provide customized content or recommend specific items based on information associated with the user account **119**. Doing so also permits a user associated with the user account **119** to make use of additional features associated with the aggregated shopping cart **126**. Such features may include saving an aggregated shopping cart **126** between visits or uses of the electronic commerce application **113**. Alternatively, logging in permits a user associated with the user account **119** to share an aggregated shopping cart **126** with other user accounts **119**.

As a part of the user interface **200** associated with the electronic commerce application **113**, a user may add one or more items **121** to an aggregated shopping cart **126**. The management of the aggregated shopping cart **126** is handled by the purchase electronic commerce application **113**. The electronic commerce application **113** tracks the user accounts **119**, the items **121**, and the permissions **129** associated with each aggregated shopping cart **126**.

After one or more items **121** have been have been added to the aggregated shopping cart **126**, a user may choose to share the aggregated shopping cart **126** with other user accounts **119**. As a general principal, sharing an aggregated shopping cart **126** with one or more additional user accounts **119** grants access to the aggregated shopping cart to the additional user accounts **119** and any users associated with those user accounts **119**. However, permissions **129** may be set on an aggregated shopping cart **126** limiting the nature and type of access any particular user account **119** may have to the aggregated shopping cart. For example, permissions **129** may permit or deny a user account **119** from adding or removing additional items **119** to or from the aggregated shopping cart **126**. Alternatively, permissions may permit a user associated with a user account **119** to share the aggregated shopping cart **126** with additional user accounts **119**.

Once an aggregated shopping cart **126** has been shared with additional user accounts **119**, the electronic commerce application sends a notification across the network **109** to one or more client computing devices **106** associated with the additional user accounts **119**. Such notification may constitute an email, SMS message, or other notice. Alternatively, the electronic commerce application **113** may wait until a request is received from a client computing device **106** associated with the additional user accounts **119**. In this alternative embodiment, a notification is rendered by the client application **133** on the display **131** as part of the user interface **200**.

The user with whom the aggregated shopping cart **126** has been shared may then access the aggregated shopping cart **126** by sending a request to view the aggregated shopping cart **126** to the electronic commerce application **113**. Such requests may be sent from the client computing device **106** of the recipient user. The electronic commerce application **113** then response to the request with information about the

aggregated shopping cart. The client application **133** then renders the aggregated shopping cart on the display **131** as a portion of the user interface **200** for the client application **133**.

The users of the electronic commerce application **113** may access the aggregated shopping cart as described herein. FIGS. **2**A-**2**E represent a series of depictions of user interface **200** according to various embodiments of the present disclosure. Each of the figures corresponds to one of the events or use cases described above.

Referring next to FIG. **2**A, shown is an example of a user interface **200**, denoted herein as user interface **200***a*, according to various embodiments. In this particular embodiment, user interface **200***a* is generated by a client application **133** (FIG. **1**) displaying a network page on a display **131**. The client application **133** presents a user interface **200***a* for interacting with the electronic commerce application **113** (FIG. **1**). As part of the user interface **200***a*, a shopping cart frame **203** is presented representing an aggregated shopping cart **126** (FIG. **1**). The shopping cart frame is rendered by the client application **133** using data provided by the electronic commerce application **113**.

With regard to FIG. **2**A, it is assumed that a user associated with a user account **119** has browsed the network page associated with the electronic commerce application **113** and added several items **121** to the aggregated shopping cart **126**. As a user continues to browse the network page represented by the user interface **200***a*, the user has the option to add additional items **121** to the aggregated shopping cart **126**. Alternatively, the user has the option to finish shopping and proceed to the checkout process and purchase the items **121** previously added to the aggregated shopping cart **126**. However, the user may also interact with the shopping cart frame **203** to share the aggregated shopping cart **126** with additional user accounts **119**.

Turning now to FIG. **2**B, shown is an example of a user interface **200**, denoted herein as user interface **200***b*, according to various embodiments. Here, the initial user has chosen to share the aggregated shopping cart **126** (FIG. **1**) with other user accounts **119** (FIG. **1**). The electronic commerce application **113** (FIG. **1**) has queried the data store **111** (FIG. **1**) to create a list of user accounts **206** with whom the user may choose to share the aggregated shopping cart **126**.

The list of user accounts **206** may be generated by any one of several approaches. The list of user accounts **206** may be created from a list based off of a social network. Such social network may comprise integration with a social network service such as FaceBook®, Google+®, Twitter®, LinkedIn®, MySpace® or similar social network services. Alternatively, the social network may comprise a proprietary or application specific social network where user accounts **119** may be associated with other user accounts **119**.

The list of user accounts **206** may also be generated based on suggested matches. For example, users may be suggested because information associated with the user accounts **119** indicates one or more users live at the same address or live on the same street or in the same neighborhood.

In another embodiment, user accounts may be manually added to the list of user accounts **206**. For example, names or email addresses associated with user accounts **119** may be manually entered in order to share the aggregated shopping cart with specific users. In other embodiments, users may use the search button **207** to manually search for and include one or more user accounts **119** corresponding to friends, relatives, and other users.

Moving on to FIG. **2**C, shown is an example of a user interface **200**, denoted herein as user interface **200***c*, according to various embodiments. Here, a user may set or select one or more permissions **129** (FIG. **1**) from a list of permissions **209**. The permissions grant or deny users associated with other user accounts **119** the ability to take certain actions with respect to the aggregated shopping cart **126** (FIG. **1**). For example, users may be granted a permission **129** to share the cart with additional users. Users may also be granted a permission **129** to add or remove items from the aggregated shopping cart **126**. Further, users may be granted a permission **129** to remove items added by others to the aggregated shopping cart **126**. Users may also be granted a permission **129** to purchase individual items **121** (FIG. **1**) from the aggregated shopping cart **126**.

Permissions **129** may be cumulative or mutually exclusive according to various embodiments of the present disclosure, and the user interface **200***c* will further reflect that fact and indicate such information to the user. For example, a user may be able to select or deselect cumulative permissions **129** by checking or unchecking boxes. With regard to mutually exclusive permissions **129**, a user may be able to select one from a set using a radio box.

Further, the user interface **200***c* may be configured to set permissions **129** on a per user account **119** basis or apply permissions **129** to all user accounts **119** or a group of user accounts **119** with which the cart is shared. For example, a drop down box **211** may allow the specification of user accounts **119** to which permissions **129** will apply. It is understood that other methods exist in the art to convey similar information to a user and obtain similar user selections.

Referring next to FIG. **2**D, shown is an example of a user interface **200**, denoted herein as user interface **200***d*, according to various embodiments. Here, a first user associated with another user account **119** (FIG. **1**) has created an aggregated shopping cart **126** (FIG. **1**) and shared the aggregated shopping cart **126** with a second user. The user of the client application **133** (FIG. **1**) executing on the client computing device **106** is notified by the notification bar **211** rendered as a portion of the user interface **200***d* that another user account has shared an aggregated shopping cart with the user. The contents of the shared aggregated shopping cart are displayed in the shopping cart frame **203**. The user may choose to purchase items from or contribute payment to the purchase of the items in the aggregated shopping cart **126**. Alternatively, the user may share the cart with additional users or continue shopping with the aggregated shopping cart **126** and add additional items to it.

Moving to FIG. **2**E, shown is an example of a user interface **200**, denoted herein as user interface **200***e*, according to various embodiments. Here, a user associated with a user account **119** (FIG. **1**) is viewing purchase instrument data **123** (FIG. **1**) represented by a list of purchase instruments **213** associated with the aggregated shopping cart **126** (FIG. **1**) represented by the shopping cart frame **203**. Also shown is a list of discounts **216** applied to the aggregated shopping cart contributed by one or more users with whom the aggregated shopping cart **126** has been shared.

In this particular embodiment of the present disclosure, a number of users associated with user accounts **119** have made a number of contributions towards the total purchase price. Similarly, a number of discounts have been applied to the order. It is understood that some discounts may be applied only because a particular user is involved with the transaction. For example, a particular individual may have access to a promotion that other customers associated with the order do not.

Once a combination of discounts or other promotions and contributions have been contributed towards the total purchase price, any user associated with a user account **119** granted a permission **129** for completing the checkout process may do so by clicking on the complete checkout button **219**. During the checkout process, the electronic commerce application **113** may request that shipping information, such as shipping service or the shipping address, be provided. The electronic commerce application **113** may further request that order, billing, payment information be confirmed. Last minute modifications to the aggregated shopping cart **126** may also be permitted. For example, items **121** may be added, removed, or substituted, or shipping addresses may be changed.

During the checkout process, access to the aggregated shopping cart **126** may be locked for the duration of the checkout. For example, items **121** may not be permitted to be added by user accounts **119** other than the user account **119** associated with the checkout process. Such a lock prevents race conditions where the type and quantity of items **121** ordered changes as payment is being finalized and shipping times and costs are being estimated.

Alternatively, the lock may last for a predetermined period of time beginning with the initiation of the checkout process. By ending the lock after the passage of a predetermined period of time, the lock is prevented from permanently blocking user accounts **119** from accessing or interacting with the aggregated shopping cart **126**. For example, if a user account **119** stops half-way through the checkout process, other user accounts **119** may have to wait for an indefinite period until the checkout process is resumed. Alternatively, application crashes during the checkout process could leave the aggregated shopping cart **126** permanently locked. These and similar situations are avoided by associating a predetermined time limit with the lock.

It is further understood that locks may also be used in some embodiments of the present disclosure to coordinate changes to the aggregated shopping cart **126** outside of the checkout process. As a non-limiting example, certain updates before the checkout process, such as contributing a partial or full payment towards at least one item, may require a lock in order to prevent overpayment by one or more users.

Turning now to FIG. **3**, shown is a flowchart that provides one example of the operation of a portion of the electronic commerce application **113** (FIG. **1**) according to various embodiments. It is understood that the flowchart of FIG. **3** provides merely an example of the many different types of functional arrangements that may be employed to implement the operation of the portion of the electronic commerce application **113** as described herein. As an alternative, the flowchart of FIG. **3** may be viewed as depicting an example of steps of a method implemented in the computing environment **103** (FIG. **1**) according to one or more embodiments.

More specifically, the flowchart represented by FIG. **3** illustrates the plurality of steps or actions functionally implemented by the electronic commerce application **113** in response to receiving a request by a user to share the aggregated shopping cart **126** (FIG. **1**) with one or more additional users. For the purposes of discussing the flowchart represented by FIG. **3**, it is assumed that a user has chosen to share the aggregated shopping cart **126** with one or more additional user accounts **119** (FIG. **1**) and that the user has selected the user accounts **119** with which to share the aggregated shopping cart **126**.

Beginning with box **300**, the electronic commerce application **113** retrieves information associated with each user account **119** that is indicated as having access to the aggregated shopping cart **126**.

Proceeding to box **303**, the electronic commerce application **113** analyzes preferences associated with each recipient user account **119**. If preference for a user account **119** indicates that the user account **119** does not desire to share aggregated shopping carts **126**, then the user account **119** is removed from the list. Such a preference may be a blanket or universal preference that aggregated shopping carts should never be shared with the user account **119**. Alternatively, the preference may be set on a per user basis, where some user accounts **119** may share an aggregated shopping cart **126** with the recipient user account **119**, but other user accounts **119** are blocked from sharing an aggregated shopping cart **126** with the recipient use account. Allowing such preferences to be set, allows for users to avoid their user account **119** receiving unwanted aggregated shopping carts **126** (i.e. "spam carts").

Moving to box **306**, the electronic commerce application **113** obtains a selection of permissions **129** (FIG. **1**) from the user to assign to the aggregated shopping cart **126**. Permissions may be applied individually to user accounts **119** or to groups or classes of user accounts **119**. Such permissions limit actions that a user associated with a user account **119** may perform on an aggregated shopping cart **126** that has been assigned to the user account **119**. Possible permissions include the ability to share the aggregated shopping cart **126** with other user accounts **119**; the ability to add or remove items **121** from the aggregated shopping cart **126**; the ability to remove items **121** added by others; the ability to change the shipping address for individual items **121** or for the entire order; the ability to pay for individual items **121** within the aggregated shopping cart **126**; the ability to pay for the order in full or to contribute a partial payment towards the total purchase price; and other similar permissions.

The assignment of permissions **129** to the aggregated shopping cart **126** allows the aggregated shopping cart **126** to be employed in many different situations. For example, permissions **129** related to split payment or partial payment allows multiple users to aggregate their purchases into a single order. Such an aggregated order may permit bulk discounts that no single user could qualify for individually. Alternatively, individual users could apply coupon codes, promotions or other credits or discounts to a shared order for the benefit of all, while only paying for individual items **121** within an order. A limitation on who can share an aggregated shopping cart **126** with other user accounts **119** allows users to keep shared orders to a manageable size. Limitations on who can add items **121**, remove items **121**, or change the shipping address associated with items **121** or the order helps prevent fraud and theft.

Finally, in box **309**, the electronic commerce application **113** (FIG. **1**) shares the aggregated shopping cart **126** with the recipient user accounts **119**. Here, users associated with recipient user accounts **119** are granted access to the aggregated shopping cart **126** subject to any permissions **129**. Once the aggregated shopping cart **126** is available, notifications are sent to the users associated with the recipient user accounts **119**. Notifications may include emails or SMS messages alerting users associated with the recipient user accounts **119** that an aggregated shopping cart is available. Alternatively, when a user logs into the electronic commerce application **113** with their user account **119**, a notification may be rendered within the user interface **200***d* (FIG. **2**D).

Other methods of notification are also possible, and a user account **119** may also include preferred methods for receiving notifications.

Moving on to FIG. **4**, shown is a flowchart that provides one example of the operation of a portion of the electronic commerce application **113** (FIG. **1**) according to various embodiments. It is understood that the flowchart of FIG. **4** provides merely an example of the many different types of functional arrangements that may be employed to implement the operation of the portion of the electronic commerce application **113** as described herein. As an alternative, the flowchart of FIG. **4** may be viewed as depicting an example of steps of a method implemented in the computing environment **103** (FIG. **1**) according to one or more embodiments.

More specifically, the flowchart represented by FIG. **4** illustrates the plurality of steps or actions performed by the electronic commerce application **113** in response to receiving a request to modify the aggregated shopping cart **126** (FIG. **1**) from a user with whom the aggregated shopping cart has been shared. For example, a user may wish to add or remove items from an aggregated shopping cart. For the purposes of discussing the flowchart represented by FIG. **4**, it is assumed that an aggregated shopping cart **126** has already been created by a user and shared with at least one user account **119** (FIG. **1**).

Beginning with box **400**, a modification request is received from a user associated with a user account **119** that has access to the aggregated shopping cart **126**. The request is sent from a client application **133** (FIG. **1**) executing on a client computing device **106** (FIG. **1**) across a network **109** (FIG. **1**) to the computing environment **103**. The request may comprise a request to modify any aspect of the aggregated shopping cart. Example requests include requests to add or remove items **121**, share the aggregated shopping cart **126** with additional user accounts **119** or similar requests.

In several embodiments of the present disclosure, the electronic commerce application **113** may check to determine if the aggregated shopping cart is currently locked. For example, the cart may be locked because it is in the checkout process or another user is viewing or modifying the aggregated shopping cart **126**. In response to determining that the aggregated shopping cart **126** is locked, the electronic commerce application **113** may wait for the lock to be released. Alternatively, in response to determining that the aggregated shopping cart **126** is locked, the electronic commerce application **113** may respond with a notification that the aggregated shopping cart **126** is locked. Some embodiments of the present disclosure may further disclosed in the notification the user account **119** which has the lock.

Moving on to box **403**, the electronic commerce application **113** checks the permissions **129** (FIG. **1**) of the aggregated shopping cart **126** to confirm that user associated with the user account **119** is permitted to modify the aggregated shopping cart **126** in the desired manner. If the user account **119** does not have the necessary permissions **129** to modify the aggregated shopping cart, **126**, then the request to modify is rejected and execution ends. If the appropriate permissions **129** have been assigned to the user account **119** associated with the modification request, then execution proceeds to box **406**.

Moving on to box **406**, the aggregated shopping cart **126** is modified as requested. A confirmation is sent from the electronic commerce application **113** executing within the computing environment **103** back across the network to the client application **133** executing on the client computing device **106**. Such confirmation may be conveyed in any one of a number of ways. For example, confirmation may be conveyed by updating a section or portion of a network page rendered on the display **131** (FIG. **1**) of the client computing device. Confirmation may be sent in a message such as an email or SMS message. It is understood that a user may be notified by other methods and that multiple methods may be used in conjunction with each other.

Proceeding to box **409**, the modifications made to the aggregated shopping cart **126** are propagated to other user accounts **119** with which the aggregated shopping cart is shared. While the changes to the aggregated shopping cart **126** may occur instantaneously in the data store **111**, these changes must be relayed to the users. For example, a user currently logged in to his or her user account **119** associated with the electronic commerce application may see the shopping cart frame **203** (FIG. **2**) update automatically. Once the changes have propagated, execution ends.

With reference to FIG. **5**, shown is a schematic block diagram of the computing environment **103** according to an embodiment of the present disclosure. The computing environment **103** includes one or more computing devices **500**. Each computing device **500** includes at least one processor circuit, for example, having a processor **503** and a memory **506**, both of which are coupled to a local interface **509**. To this end, each computing device **500** may comprise, for example, at least one server computer or like device. The local interface **509** may comprise, for example, a data bus with an accompanying address/control bus or other bus structure as can be appreciated.

Stored in the memory **506** are both data and several components that are executable by the processor **503**. In particular, stored in the memory **506** and executable by the processor **503** are the electronic commerce application **113** and potentially other applications. Also stored in the memory **506** may be a data store **111** and other data. In addition, an operating system **511** may be stored in the memory **506** and executable by the processor **503**.

It is understood that there may be other applications that are stored in the memory **506** and are executable by the processor **503** as can be appreciated. Where any component discussed herein is implemented in the form of software, any one of a number of programming languages may be employed such as, for example, C, C++, C#, Objective C, Java®, JavaScript®, Perl, PHP, Visual Basic®, Python®, Ruby, Flash or other programming languages.

A number of software components are stored in the memory **506** and are executable by the processor **503**. In this respect, the term "executable" means a program file that is in a form that can ultimately be run by the processor **503**. Examples of executable programs may be, for example, a compiled program that can be translated into machine code in a format that can be loaded into a random access portion of the memory **506** and run by the processor **503**, source code that may be expressed in proper format such as object code that is capable of being loaded into a random access portion of the memory **506** and executed by the processor **503**, or source code that may be interpreted by another executable program to generate instructions in a random access portion of the memory **506** to be executed by the processor **503**, etc. An executable program may be stored in any portion or component of the memory **506** including, for example, random access memory (RAM), read-only memory (ROM), hard drive, solid-state drive, USB flash drive, memory card, optical disc such as compact disc (CD) or digital versatile disc (DVD), floppy disk, magnetic tape, or other memory components.

The memory **506** is defined herein as including both volatile and nonvolatile memory and data storage components. Volatile components are those that do not retain data values upon loss of power. Nonvolatile components are those that retain data upon a loss of power. Thus, the memory **506** may comprise, for example, random access memory (RAM), read-only memory (ROM), hard disk drives, solid-state drives, USB flash drives, memory cards accessed via a memory card reader, floppy disks accessed via an associated floppy disk drive, optical discs accessed via an optical disc drive, magnetic tapes accessed via an appropriate tape drive, and/or other memory components, or a combination of any two or more of these memory components. In addition, the RAM may comprise, for example, static random access memory (SRAM), dynamic random access memory (DRAM), or magnetic random access memory (MRAM) and other such devices. The ROM may comprise, for example, a programmable read-only memory (PROM), an erasable programmable read-only memory (EPROM), an electrically erasable programmable read-only memory (EEPROM), or other like memory device.

Also, the processor **503** may represent multiple processors **503** and/or multiple processor cores and the memory **506** may represent multiple memories **506** that operate in parallel processing circuits, respectively. In such a case, the local interface **509** may be an appropriate network that facilitates communication between any two of the multiple processors **503**, between any processor **503** and any of the memories **506**, or between any two of the memories **506**, etc. The local interface **509** may comprise additional systems designed to coordinate this communication, including, for example, performing load balancing. The processor **503** may be of electrical or of some other available construction.

Although the electronic commerce application, the purchase aggregator, and other various systems described herein may be embodied in software or code executed by general purpose hardware as discussed above, as an alternative the same may also be embodied in dedicated hardware or a combination of software/general purpose hardware and dedicated hardware. If embodied in dedicated hardware, each can be implemented as a circuit or state machine that employs any one of or a combination of a number of technologies. These technologies may include, but are not limited to, discrete logic circuits having logic gates for implementing various logic functions upon an application of one or more data signals, application specific integrated circuits (ASICs) having appropriate logic gates, field-programmable gate arrays (FPGAs), or other components, etc. Such technologies are generally well known by those skilled in the art and, consequently, are not described in detail herein.

The flowcharts of FIGS. **3** and **4** show the functionality and operation of an implementation of portions of the electronic commerce application **113**. If embodied in software, each block may represent a module, segment, or portion of code that comprises program instructions to implement the specified logical function(s). The program instructions may be embodied in the form of source code that comprises human-readable statements written in a programming language or machine code that comprises numerical instructions recognizable by a suitable execution system such as a processor **503** in a computer system or other system. The machine code may be converted from the source code, etc. If embodied in hardware, each block may represent a circuit or a number of interconnected circuits to implement the specified logical function(s).

Although the flowcharts of FIGS. **3** and **4** show a specific order of execution, it is understood that the order of execution may differ from that which is depicted. For example, the order of execution of two or more blocks may be scrambled relative to the order shown. Also, two or more blocks shown in succession in FIGS. **3** and **4** may be executed concurrently or with partial concurrence. Further, in some embodiments, one or more of the blocks shown in FIGS. **3** and **4** may be skipped or omitted. In addition, any number of counters, state variables, warning semaphores, or messages might be added to the logical flow described herein, for purposes of enhanced utility, accounting, performance measurement, or providing troubleshooting aids, etc. It is understood that all such variations are within the scope of the present disclosure.

Also, any logic or application described herein, including the electronic commerce application **113**, that comprises software or code can be embodied in any non-transitory computer-readable medium for use by or in connection with an instruction execution system such as, for example, a processor **503** in a computer system or other system. In this sense, the logic may comprise, for example, statements including instructions and declarations that can be fetched from the computer-readable medium and executed by the instruction execution system. In the context of the present disclosure, a "computer-readable medium" can be any medium that can contain, store, or maintain the logic or application described herein for use by or in connection with the instruction execution system.

The computer-readable medium can comprise any one of many physical media such as, for example, magnetic, optical, or semiconductor media. More specific examples of a suitable computer-readable medium would include, but are not limited to, magnetic tapes, magnetic floppy diskettes, magnetic hard drives, memory cards, solid-state drives, USB flash drives, or optical discs. Also, the computer-readable medium may be a random access memory (RAM) including, for example, static random access memory (SRAM) and dynamic random access memory (DRAM), or magnetic random access memory (MRAM). In addition, the computer-readable medium may be a read-only memory (ROM), a programmable read-only memory (PROM), an erasable programmable read-only memory (EPROM), an electrically erasable programmable read-only memory (EEPROM), or other type of memory device.

It should be emphasized that the above-described embodiments of the present disclosure are merely possible examples of implementations set forth for a clear understanding of the principles of the disclosure. Many variations and modifications may be made to the above-described embodiment(s) without departing substantially from the spirit and principles of the disclosure. All such modifications and variations are intended to be included herein within the scope of this disclosure and protected by the following claims.

Therefore, the following is claimed:

1. A non-transitory computer-readable medium embodying a program comprising machine readable instructions executable in at least one computing device, wherein the machine readable instructions, when executed, cause the at least one computing device to at least:

create an aggregated shopping cart associated with an electronic commerce system in response to a request received from a first user associated with a first user account;

permit the first user associated with the first user account to modify the aggregated shopping cart;

generate a search user interface, wherein the search user interface is configured to receive a search request for a second user account with which to share the aggregated shopping cart;

cause the search user interface to be transmitted to a first client device associated with the first user;

search for the second user account with which to share the aggregated shopping cart in response to receiving the search request via the search user interface;

permit the first user associated with the first user account or a second user associated with the second user account to purchase at least one item in the aggregated shopping cart;

accept a plurality of partial payments toward a purchase of at least one item within the aggregated shopping cart;

permit the second user associated with the second user account to modify the aggregated shopping cart in response to the aggregated shopping cart being shared with the second user account;

permit the first user associated with the first user account to limit an ability of the second user associated with the second user account to modify the aggregated shopping cart;

permit the second user associated with the second user account to share the aggregated shopping cart with a third user account;

permit a third user associated with the third user account to modify the aggregated shopping cart in response to the aggregated shopping cart being shared with the third user account;

permit the third user associated with the third user account to contribute toward the purchase of the at least one item in the aggregated shopping cart;

permit the second user associated with the second user account to block the first user associated with the first user account from sharing the aggregated shopping cart with the second user associated with the second user account;

generate a permissions user interface configured to receive a plurality of permissions from the first client device associated with the first user, individual ones of the plurality of permissions controlling whether the second user is permitted to take a single respective action with respect to the aggregated shopping cart;

cause the permissions user interface to be transmitted to the first client device associated with the first user;

apply a predetermined discount to a purchase price associated with the aggregated shopping cart; and

generate a payment user interface configured to display the predetermined discount.

2. A system, comprising

a computing device; and

an application executable in the computing device, the application comprising machine readable instructions that, when executed by the computing device, cause the computing device to at least:

create an aggregated shopping cart associated with an electronic commerce system in response to a request received from a first user associated with a first user account;

permit the first user associated with the first user account to modify the aggregated shopping cart;

generate a search user interface, wherein the search user interface is configured to receive a search request for a second user account with which to share the aggregated shopping cart;

cause the search user interface to be transmitted to a first client device associated with the first user;

search for the second user account with which to share the aggregated shopping cart in response to receiving the search request via the search user interface;

determine that the first user associated with the first user account is permitted to share the aggregated shopping cart with the second user account based at least on a determination that the second user associated with the second user account has not blocked the first user associated with the first user account from sharing the aggregated shopping cart with the second user associated with the second user account;

receive, on behalf of the second account, a share request from the first user account to share the aggregated shopping cart with the second user associated with the second user;

conditionally grant the share request based at least in part on a share preference associated with the second account;

generate a permissions user interface configured to receive a selection of a permission from a plurality of mutually exclusive permissions from the first client device associated with the first user;

cause the permissions user interface to be transmitted to the first client device associated with the first user; and

permit a second user associated with the second user account to contribute to a purchase of at least one item in the aggregated shopping cart based at least in part on the permission received via the permissions user interface.

3. The system of claim **2**, wherein the application further causes the computing device to at least accept a plurality of partial payments from at least one payment instrument toward the purchase of the at least one item within the aggregated shopping cart.

4. The system of claim **2**, wherein the application further causes the computing device to at least permit the second user associated with the second user account to modify the aggregated shopping cart in response to the aggregated shopping cart being shared with the second user account based at least in part on the permission received via the permissions user interface.

5. The system of claim **4**, wherein the application further causes the computing device to at least receive a limitation of an ability of the second user associated with the second user account to modify the aggregated shopping cart from the first user associated with the first user account via the permissions user interface.

6. The system of claim **4**, wherein the application further causes the computing device to at least receive a limitation of an ability of the second user associated with the second user account to modify individual items within the aggregated shopping cart from the first user associated with the first user account via the permissions user interface.

7. The system of claim **2**, wherein the application further causes the computing device to at least:

permit the second user associated with the second user account to share the aggregated shopping cart with a third user account;

permit a third user associated with the third user account to modify the aggregated shopping cart after the aggregated shopping cart has been shared with the third user account; and

permit the third user associated with the third user account to contribute to the purchase of the at least one item in

the aggregated shopping cart based at least in part on permission received via the permissions user interface.

8. The system of claim 2, wherein the application further causes the computing device to permit the second user associated with the second user account to block the first user associated with the first user account from sharing the aggregated shopping cart with the second user associated with the second user account.

9. A method, comprising:

creating, via at least one of one or more computing devices, an aggregated shopping cart associated with an electronic commerce system in response to a request received from a first user associated with a first user account;

modifying, via at least one of the one or more computing devices, the aggregated shopping cart in response to receiving a first modification request from the first user associated with the first user account;

generating, via at least one of the one or more computing devices, a search user interface configured to receive a search request for a second user account with which to share the aggregated shopping cart;

causing, via at least one of the one or more computing devices, the search user interface to be transmitted to a first client device associated with the first user;

searching, via at least one of the one or more computing devices, for the second user account associated with a second user in response to receiving the search request via the search user interface;

sharing, via at least one of the one or more computing devices, the aggregated shopping cart with the second user account in response to receiving a first request to share from the first user associated with the first user account;

generating, via at least one of the one or more computing devices, a suggested share recipient user interface, including a group of suggested share recipients, based at least in part on a commonality between an address associated with the first user account and respective addresses associated with individual ones of the plurality of suggested share recipients;

causing, via at least one of the one or more computing devices, the suggested share recipient user interface to be transmitted to a first client device associated with the first user;

determining, via at least one of the one or more computing devices, that the first user associated with the first user account is permitted to share the aggregated shopping cart with the second user account, the determining comprising at least determining that the second user associated with the second user account has not blocked the first user associated with the first user account from sharing the aggregated shopping cart with the second user associated with the second user account;

permitting, via at least one of the one or more computing devices, the first user associated with the first user account to share the aggregated shopping cart with the second user account in response to receiving, via the user interface, an indication of the second user account as a share recipient;

generating, via at least one of the one or more computing devices, a permissions user interface configured to receive a plurality of permissions from the first client device associated with the first user;

causing, via at least one of the one or more computing devices, the permissions user interface to be transmitted to the first client device associated with the first user; and

accepting a payment, via at least one of the one or more computing devices, toward a purchase of at least one item in the aggregated shopping cart from the second user account associated with the second user based at least in part on at least one of the plurality of permissions specified by the first user associated with the first user account via the permissions user interface.

10. The method of claim 9, further comprising accepting, via at least one of the one or more computing devices, a plurality of partial payments from a plurality of payment instruments toward the purchase of the at least one item in the aggregated shopping cart.

11. The method of claim 9, further comprising modifying, via at least one of the one or more computing devices, the aggregated shopping cart in response to receiving a second modification request from the second user associated with the second user account in response to the aggregated shopping cart being shared with the second user account.

12. The non-transitory computer-readable medium of claim 1, wherein a particular permission of the plurality of permissions controls whether the second user is permitted to change a shipping address associated with the aggregated shopping cart.

13. The non-transitory computer-readable medium of claim 1, wherein a particular permission of the plurality of permissions controls whether the second user is permitted to invite a third user associated with a third user account to share the aggregated shopping cart.

14. The non-transitory computer-readable medium of claim 1, wherein a particular permission of the plurality of permissions controls whether the second user is permitted to change a shipping address associated with a particular item in the aggregated shopping cart.

15. The non-transitory computer-readable medium of claim 1, wherein a particular permission of the plurality of permissions controls whether the second user is permitted to remove a particular item from the aggregated shopping cart.

16. The system of claim 2, wherein the application further causes the computing device to at least:

deny the share request from the first user account based at least in part on the first user account being listed in the share preference; and

grant the share request from the first user account based at least in part on the first user account being absent from the share preference.

17. The system of claim 2, wherein the share preference operates to grant the share request regardless of an identity of the first user.

18. The system of claim 2, wherein the share preference operates to deny the share request regardless of an identity of the first user.

19. The non-transitory computer-readable medium of claim 1, wherein the plurality of permissions comprises at least three permissions, wherein the permissions user interface is further configured to display the at least three permissions in a list.

20. The non-transitory computer-readable medium of claim 19, wherein the permissions user interface is further configured to receive the at least three permissions by the first user checking boxes associated with the at least three permissions.

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