Software Requirements Specification

Gardener’s Exchange Mobile Application

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Introduction

This document serves as the description of the functional and nonfunctional requirements of the Gardner's Exchange mobile phone application. This document will outline all of the designs necessary to assist in the development of the application by Taylor University students.

The main functions of the application will be to provide a platform for local peoples to buy and sell home-grown goods and to develop gardening communities.

Glossary

Associative Table - A table in a database needed to connect tables that have a many-to-many relationship like students and teachers.

Database - An organized collection of data.

Entity - A table in a database.

FK, Foreign Key - A column in a table that is used as a unique identifier for a row in another table.

Functional System Requirements - A series of documents that describe the requirements of the behavior of the system itself.

GB - Gigabytes

GET Request - A method for requesting data from a web source.

Home Feed - The main page in the application where all of the listings are located.

Listing - A certain produce that a user has put up for sale.

Non-Functional System Requirements - A series of documents that describe the requirements of the operation of the system itself.

Order - An instance of a user buying one or more items.

PK, Primary Key - A unique identifier for a row in a table.

PUT Request - A method for sending data to a web source.

SQL - A database querying language used for retrieving, updating, and removing data from a database as well as developing the database itself.

SQL Injection - A security attack where unsanitized user input is exploited to run malicious SQL statements.

Trade - An instance of a user trading one or more items for another set of items.

Wireframe - A mockup design of a specific page in an application.

User Roles

These are the users who will interact with the system and will be referred to throughout this document:

User
A user is any users of the system. Users have many states including guest, customer, and seller.

Unregistered User/Guests
An unregistered user is anyone using the system that is not logged in. Unregistered users can only view items.

Customer
A customer is the state of a user that is explicitly looking to purchase produce.

Seller
A seller is the state of a user that is explicitly looking to sell produce.

Collaborating Systems/Software

- PayPal Express Checkout
    - This would be the integrated payment system that will use PayPal systems to send the payment from Buyer to the Seller.
- Amazon Web Services(AWS) S3
    - This system will host all of the servers that will be needed hold the user content and serve up the content to the many users.

Schedule

Date	Milestone
January 30th	Start product development
February 15th	Backend complete, app development begin
March 15th	External systems integrated
March 30th	Start testing
April 20th	Polish product
May 5th	Documentation and preparation for app release
May 17th	App released on App Store

Functional System Requirements

System Response Table

Event ID	Source	Trigger	Response	Major Outputs	External Destinations
L1	Guest	Enters the app	Shows a list of items within 25 miles	Home feed	None
L2	Guest	Presses the account button	Shows login page	Login page	None
L3	User	Login to user account	Validation from the server	1. User logged in 2. Error	None
L4	Guest	Selects to create an account	Creates a form to allowed to enter user information	1. New account sent into the home feed 2. Error	Project database
L5	Guest	Submitting the create account form	Sent to the server for validation	1. User added to the database and sent to the home feed 2. Error	Project database
L6	User	Selects to delete an account	Server asks if customer is certain that they want their account information removed	Updates account status to “inactive”	Project database
L7	User	Updating user account	Updates the information in the user profile	1. Update account information 2. Error	Project database
L8	User	Pressing the Distance Button	Pop up box where customer can edit the distance that the app looks for items	Changes searching distance to the set amount	None
L9	User	Get user update account form	Displays a page with fillable fields to update account information	Account update form	None

L10	User	Get Purchase History Page	Displays a page with previous orders and trades	Purchases Page	None
C1	Customer	Enters a quantity	Calculates price	Price	None
C2	Customer	Buys items	Adds an order to the database and notifies the seller	Order data, Email to seller, Home Feed	Project database, seller email
C3	User	Presses listing tab	User sent to the home feed	Home feed	None
C4	User	Views the details of a listing	Generates page with more information about the item	Item page	None
T1	Customer	Offers Trade	Adds a trade to the database, notifies seller	Trade data, email to seller	Project database, seller email
T2	Seller	Accepted Trade	Update trade data to close trade and email offering customer	Trade data, email to offering customer	Project database, offering customer email
T3	Seller	Cancel Trade Offer	Update the status of the trade to ‘declined’	The trade is canceled	Project database
S1	Seller	Lists an item for sale	Adds new listing to database	Listing data	Project database
S2	Seller	Wants to create a new post	Goes to a new post form	Displays the new post form	None
S3	Seller	Remove listing	Sets listing to inactive	Listing data	Project database
S4	Seller	Clicks button to view trade offers	Sent to trade offers page	Trade offers page	None
S5	Seller	Clicks on button to view account listings	Sent to account listings page	Account listings page	None
S6	Seller	Clicks to edit	Sent to edit listing page	Edit listing page	None

		listing			
S7	Seller	Confirms edits to listing	Edits listing in database	Listing data	Project database

Use Cases

Listing

ID	L1			
NAME	Enters the App			
Primary Actor	Guest			
Other Actors	None			
Description	Guest enters app without a login			
Actor Action			System Response	
Typical Event Flow	1. Guest opens app on smartphone			
			2. System opens app to the home feed	
Alternate Event Flows	1. Guest opens app on smartphone			
			2. System crashes on opening the app	
Business Focus			System Focus	
Before event	Trigger	Enters the App	Preconditions	App installed on smartphone
After event	Conclusion	Shows listing of items within 25 miles	Postconditions	Display the home feed

<table>
<tr><td>ID</td><td colspan="4">L2</td></tr>
<tr><td>NAME</td><td colspan="4">Presses Account Button</td></tr>
<tr><td>Primary Actor</td><td colspan="4">Guest</td></tr>
<tr><td>Other Actors</td><td colspan="4">None</td></tr>
<tr><td>Description</td><td colspan="4">Presses Account Button to access login page</td></tr>
<tr><td colspan="3">Actor Action</td><td colspan="2">System Response</td></tr>
<tr><td rowspan="2">Typical Event Flow</td><td colspan="2">1. Guest presses the account button</td><td colspan="2"></td></tr>
<tr><td colspan="2"></td><td colspan="2">2. System produces a login page</td></tr>
<tr><td colspan="3">Business Focus</td><td colspan="2">System Focus</td></tr>
<tr><td>Before event</td><td>Trigger</td><td>Presses the account button</td><td>Preconditions</td><td>Application running, user not logged in</td></tr>
<tr><td>After event</td><td>Conclusion</td><td>Shows login page</td><td>Postconditions</td><td>Display login page</td></tr>
</table>

ID	L3			
NAME	Login			
Primary Actor	User			
Other Actors	None			
Description	User attempts to log in with valid information			
Actor Action			System Response	
Typical Event Flow	1. User enters correct login information			
			2. System validates login information against database	
			3. System logs user in	
Alternate Event Flows	1. User enters incorrect login information			
			2. System validates login information against database	
			3. System does not log user in	
Business Focus			System Focus	
Before event	Trigger	Login to user account	Preconditions	Application running, user not logged in
After event	Conclusion	Validation from the server	Postconditions	User logged in

ID	L4			
NAME	Create Account			
Primary Actor	Guest			
Other Actors	None			
Description	User selects to create an account			
Actor Action			System Response	
Typical Event Flow	1. Guest selects Account tab			
			2. System generates Create Account page	
			3. Returns page	
Business Focus			System Focus	
Before event	Trigger	Selects to create an account	Preconditions	User is not logged in
After event	Conclusion	Creates a form allowed to enter user information	Postconditions	None

ID	L5			
NAME	Submit Create Account Form			
Primary Actor	Guest			
Other Actors	None			
Description	User submits filled out account form			
Actor Action			System Response	
Typical Event Flow	1. Guest submits Create Account form			
			2. System verifies account information, no duplicate account name	
			3. New account created in database	
Alternate Event Flows	1. Guest submits Create Account form			
			2. System verifies account information, finds duplicate account name	
			3. System return duplicate account error	
Business Focus			System Focus	
Before event	Trigger	Submitting the create account form	Preconditions	Guest has no account
After event	Conclusion	Sent to the server for validation	Postconditions	New user registered in database

ID	L6			
NAME	Delete Account			
Primary Actor	User			
Other Actors	None			
Description	User selects to delete account			
Actor Action			System Response	
Typical Event Flow	1. User selects to delete their account			
			2. System asks to confirm account deletion	
	3. User confirms account deletion			
			4. System set account status to “inactive”	
Alternate Event Flows	1. User selects to delete their account			
			2. System asks to confirm account deletion	
	3. User does not confirm account deletion			
			4. System does not set account to “inactive”	
Business Focus			System Focus	
Before event	Trigger	Selects to delete account	Preconditions	User logged in
After event	Conclusion	Server asks if customer is certain that they want their account information removed	Postconditions	User account set to “inactive”

ID	L7			
NAME	Update Account			
Primary Actor	User			
Other Actors	None			
Description	User selects to update account			
Actor Action			System Response	
Typical Event Flow	1. User presses Update Account button			
	2. User fills out new account information			
			3. System verifies updated account information	
			4. System updates account information in the database	
Alternate Event Flows	1. User presses Update Account button			
	2. User fills out new account information			
			3. System verifies updated account information	
			4. System detects duplicate account name, returns error	
Business Focus			System Focus	
Before event	Trigger	Updating user account	Preconditions	User logged in
After event	Conclusion	Updates the information in the user profile	Postconditions	Updated account information

ID	L8			
NAME	Search by distance			
Primary Actor	Guest			
Other Actors	None			
Description	User changes the distance parameter			
Actor Action			System Response	
Typical Event Flow	1. User presses the Distance button			
	2. User enters a new distance			
			3. System refreshes Home Feed with new listings	
Business Focus			System Focus	
Before event	Trigger	Pressing the Distance button	Preconditions	Application running
After event	Conclusion	Pop up box where user can edit the distance that the app looks for items	Postconditions	Home feed updated with new distance parameter

ID	L9			
NAME	Update user account			
Primary Actor	User			
Other Actors	None			
Description	User requests to update their account			
Actor Action			System Response	
Typical Event Flow	1. User presses Update Account button			
			2. System generates Update Account page	
Business Focus			System Focus	
Before event	Trigger	Get user update account form	Preconditions	User logged in
After event	Conclusion	Displays a page with fillable fields to update account information	Postconditions	None

ID	L10			
NAME	View purchase history			
Primary Actor	User			
Other Actors	None			
Description	User views transaction history			
Actor Action			System Response	
Typical Event Flow	1. User presses Purchase History button			
			2. System generates Purchase History page	
Business Focus			System Focus	
Before event	Trigger	Viewing purchase history	Preconditions	User logged in
After event	Conclusion	Shows a list of previous purchases	Postconditions	None

Customer

ID	C1			
NAME	Enter quantity			
Primary Actor	Customer			
Other Actors	None			
Description	Customer enters a quantity for an item			
Actor Action			System Response	
Typical Event Flow	1. Customer presses item listing for details			
	2. Customer enters quantity for item			
			3. System calculates price for items	
Business Focus			System Focus	
Before event	Trigger	Enters a quantity	Preconditions	Customer logged in
After event	Conclusion	Calculates price	Postconditions	None

ID	C2			
NAME	Buying items			
Primary Actor	Customer			
Other Actors	None			
Description	Customer buys the items			
Actor Action			System Response	
Typical Event Flow	1. Customer presses the Buy button			
			2. System asks for confirmation	
	3. Customer confirms buy order			
			4. System create a new order entry in database	
			5. System notifies seller of buy order	
Alternate Event Flows	1. Customer presses the Buy button			
			2. System asks for confirmation	
	3. Customer cancels buy order			
			4. System loads item details page	
Business Focus			System Focus	
Before event	Trigger	Buys items	Preconditions	Customer logged in
After event	Conclusion	Adds an order to the database and notifies the seller	Postconditions	New order entry in database

ID	C3			
NAME	Home Feed			
Primary Actor	User			
Other Actors	None			
Description	Customer selects to return to Home Feed			
Actor Action			System Response	
Typical Event Flow	1. Customer presses the Home Feed tab button			
			2. System loads the Home Feed	
Business Focus			System Focus	
Before event	Trigger	Presses Home Feed tab	Preconditions	Customer logged in
After event	Conclusion	Customer sent to the home feed	Postconditions	Home Feed displayed

ID	C4			
NAME	View listing details			
Primary Actor	Customer			
Other Actors	None			
Description	Customer views the details of a particular listing			
Actor Action			System Response	
Typical Event Flow	1. Customer presses on a listing			
			2. System loads the item details	
Business Focus			System Focus	
Before event	Trigger	Views the details of a listing	Preconditions	Customer logged in
After event	Conclusion	Generates page with more information about the item	Postconditions	Item details displayed

Trading

ID	T1			
NAME	Offer a trade			
Primary Actor	Customer			
Other Actors	Seller			
Description	Customer offers to trade their item for seller’s item			
Actor Action			System Response	
Typical Event Flow	1. Customer presses the Trade button			
	2. Customer enters items to trade			
			3. System confirms trade offer, adds trade entry to database	
			4. System notifies seller of trade offer	
Alternate Event Flows	1. Customer presses the Trade button			
	2. Customer enters items to trade			
	3. Customer cancels trade offer			
Business Focus			System Focus	
Before event	Trigger	Offers trade	Preconditions	Customer logged in
After event	Conclusion	Adds a trade to the database	Postconditions	Trade entry added to database

ID	T2			
NAME	Accept trade			
Primary Actor	Seller			
Other Actors	Customer			
Description	Seller accepts Customer’s trade offer			
Actor Action			System Response	
Typical Event Flow	1. Seller accepts a trade offer			
			2. System confirms trade entry	
			3. System marks trade entry as completed	
			4. System notifies Customer of payment information	
Business Focus			System Focus	
Before event	Trigger	Accepted trade	Preconditions	Seller logged in
After event	Conclusion	Update trade data to close trade and email offering customer	Postconditions	Trade entry completed

ID	T3			
NAME	Decline trade			
Primary Actor	Seller			
Other Actors	Customer			
Description	Seller declines Customer’s trade offer			
Actor Action			System Response	
Typical Event Flow	1. Seller declines a trade offer			
			2. System marks trade entry as declined	
			3. System notifies Customer trade decline	
Business Focus			System Focus	
Before event	Trigger	Declined Trade Offer	Preconditions	Seller logged in
After event	Conclusion	Update the status of the trade to ‘declined’	Postconditions	Trade entry set to declined

Seller

ID	S1			
NAME	List an item			
Primary Actor	Seller			
Other Actors	None			
Description	Seller posts an item for sale			
Actor Action			System Response	
Typical Event Flow	1. Seller submits form with item information			
			2. System adds item to database	
			3. System generates Home Feed	
			4. Returns to Home Feed	
Business Focus			System Focus	
Before event	Trigger	Lists an item for sale	Preconditions	Seller logged in
After event	Conclusion	Adds new listing to database	Postconditions	Item listed

ID	S2			
NAME	Change listing sale time			
Primary Actor	Seller			
Other Actors	None			
Description	Seller changes the time that the listing is for sale			
Actor Action			System Response	
Typical Event Flow	1. Seller presses the view/edit button and selects a post to edit			
			2. Post details are displayed in editable form fields	
	3. Seller presses the change time button			
			4. Popup with a change time widget shows up	
	5. The seller puts the time and presses the update item button			
			6. Time is changed in the project database	
Alternate Event Flows	1. Seller presses the view/edit button and selects a post to edit			
			2. Post details are displayed in editable form fields	
	3. Seller presses the change time button			
			4. Popup with a change time widget shows up	
	5. The seller puts the time and presses the update item button			
			6. The time is invalid and an error is displayed to the seller	
Business Focus			System Focus	
Before event	Trigger	Changes time that listing is for sale	Preconditions	Logged in and on posts listings

After event	Conclusion	Updates expiration date of listing	Postconditions	Time is updated

ID	S3			
NAME	Removing a listing			
Primary Actor	Seller			
Other Actors	None			
Description	Seller removes a listing			
Actor Action			System Response	
Typical Event Flow	1. Seller presses the view/edit post button and selects a post			
			2. The posting details are listed to the screen	
	3. Seller presses the delete item button			
			4. Confirmation pops up	
	5. Seller presses Ok button			
			6. Listing is marked as inactive in the project database	
Alternate Event Flows	1. Seller presses the view/edit post button and selects a post			
			2. The posting details are listed to the screen	
	3. Seller presses the delete item button			
			4. Confirmation pops up	
	5. Seller presses Cancel button			
			6. Returned to the listing details page	
Business Focus			System Focus	
Before event	Trigger	Remove listing	Preconditions	Logged in and on postings tab
After event	Conclusion	Sets listing to inactive	Postconditions	Listing is marked as inactive

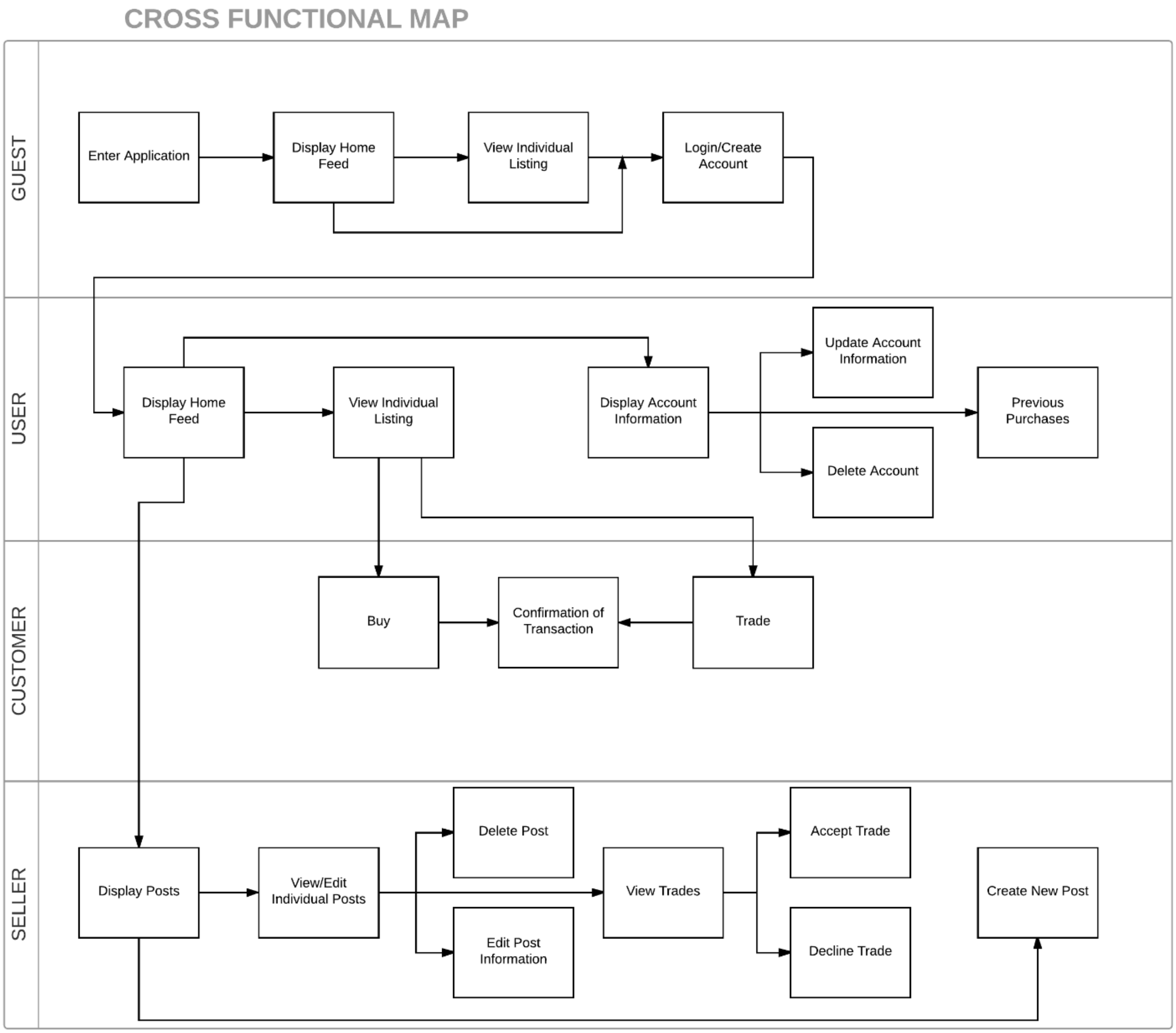
ID	S4			
NAME	View trade offers			
Primary Actor	Seller			
Other Actors	None			
Description	Seller views current trade offers from customers			
Actor Action			System Response	
Typical Event Flow	1. Seller presses the Post tab			
			2. System loads the Post page	
	3. Seller presses the View Trades button			
			4. System loads trade offers	
Business Focus			System Focus	
Before event	Trigger	Clicks button to view trade offers	Preconditions	Seller logged in
After event	Conclusion	Sent to trade offers page	Postconditions	None

ID	S5			
NAME	Viewing account listings			
Primary Actor	Seller			
Other Actors	None			
Description	Seller views all of their listings			
Actor Action			System Response	
Typical Event Flow	1. Seller presses the Post tab			
			2. System loads the Post page	
Business Focus			System Focus	
Before event	Trigger	Clicks on button to view account listings	Preconditions	Seller logged in
After event	Conclusion	Sent to account listings page	Postconditions	None

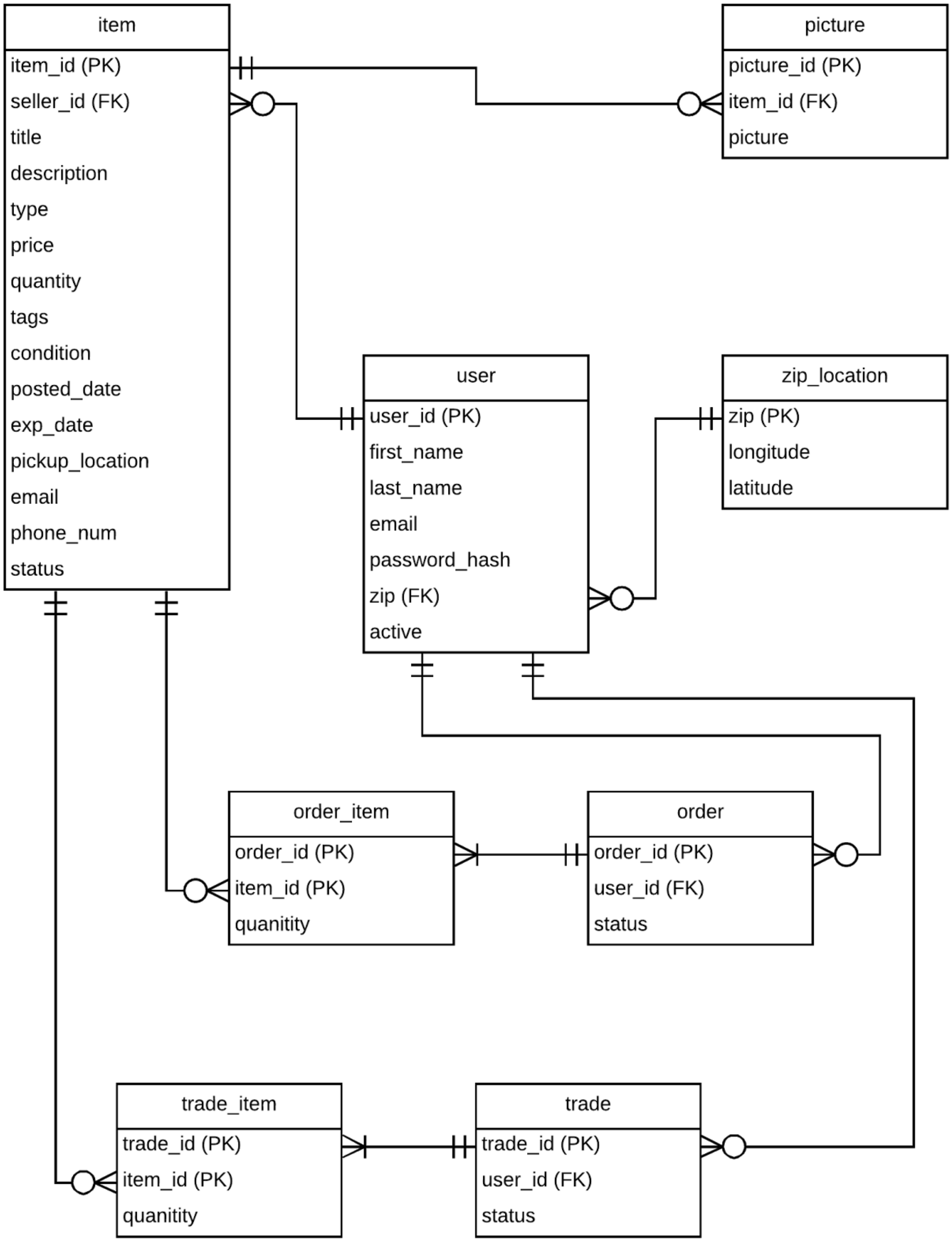
ID	S6			
NAME	Edit listing			
Primary Actor	Seller			
Other Actors	None			
Description	Seller edits the listing details			
Actor Action			System Response	
Typical Event Flow	1. Seller selects Edit on their listing			
			2. System generates Edit Listing form	
Business Focus			System Focus	
Before event	Trigger	Clicks to edit listing	Preconditions	Seller logged in
After event	Conclusion	Sent to edit listing page	Postconditions	None

ID	S7			
NAME	Confirm edit to listing			
Primary Actor	Seller			
Other Actors	None			
Description	Seller confirms their edits to a listing			
Actor Action			System Response	
Typical Event Flow	1. Seller edits their listing			
			2. System asks for confirmation	
	3. Seller confirms changes to listing			
			4. System updates item entry in database	
Alternate Event Flows	1. Seller edits their listing			
			2. System asks for confirmation	
	3. Seller cancels edits to listing			
			4. System cancels changes	
Business Focus			System Focus	
Before event	Trigger	Confirms edits to listing	Preconditions	Seller logged in
After event	Conclusion	Edits listing in database	Postconditions	Updated item entry in database

Cross-Functional Map

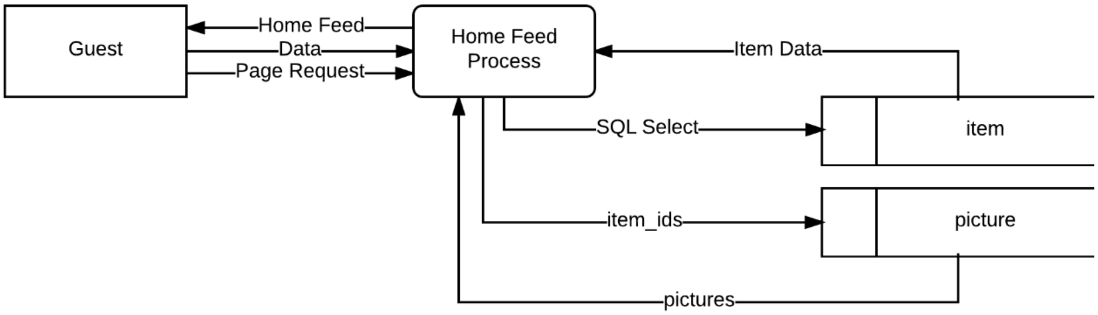


Logical Data Model



Logical Process Model

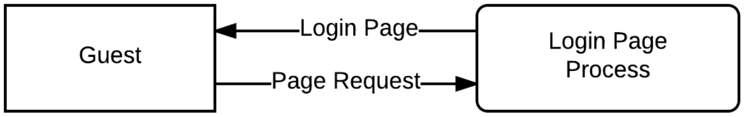
L1 - Entering the App



Data = distance, {user_id}
SQL Select = status, {user_id}
Item Data = item_id, title, price, quantity

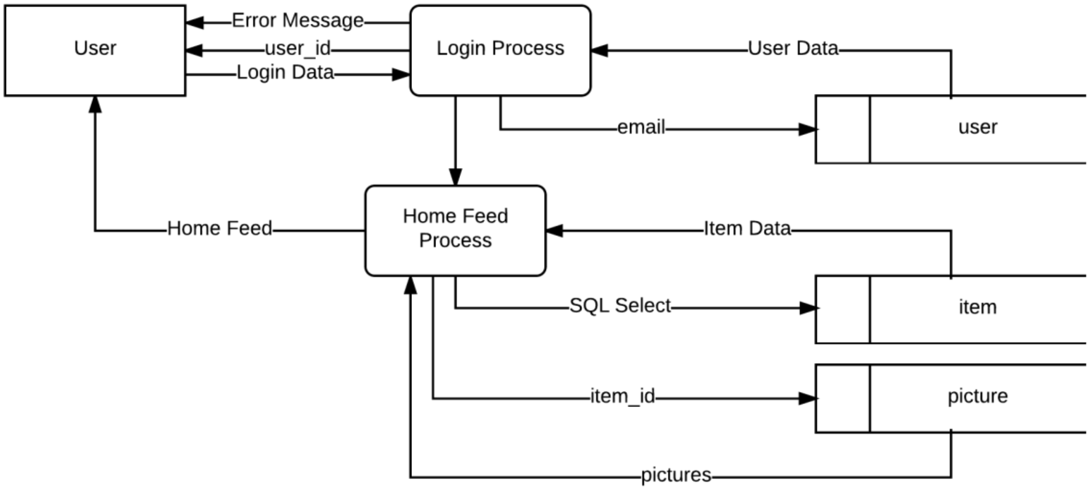
#Enter App
Request Home Feed
Get items within distance
Get item pictures
Generate page
Return page

L2 - Viewing Login Page



#Login Page
Request Login Page
Return Login Page

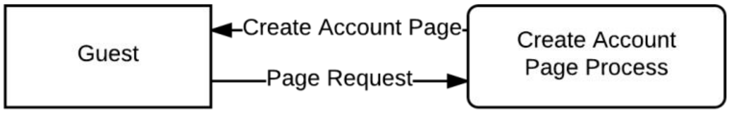
L3 - Logging In



Login Data = email, password
User Data = user_id, password_hash
Item Data = item_id, title, price, quantity
SQL Select = user_id, status

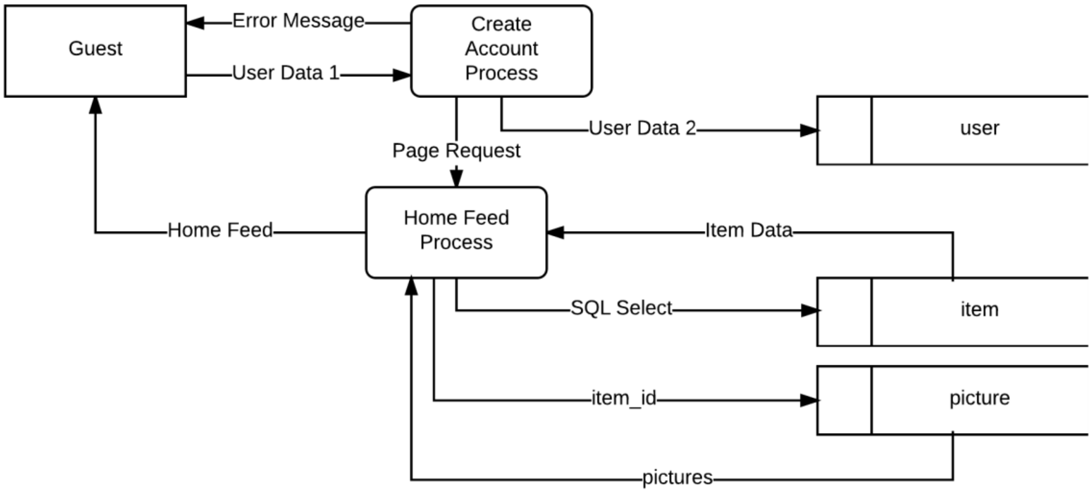
```
#Logging in
Get login information
Get user_id and password for compare
if(info is valid):
        Log user in
        Generate Home Feed
        Return Home Feed
else:
        Return error message
        Request valid login
```

L4 - Viewing Create Account Page



#Create Account Page
Request Create Account Page
Return Create Account Page

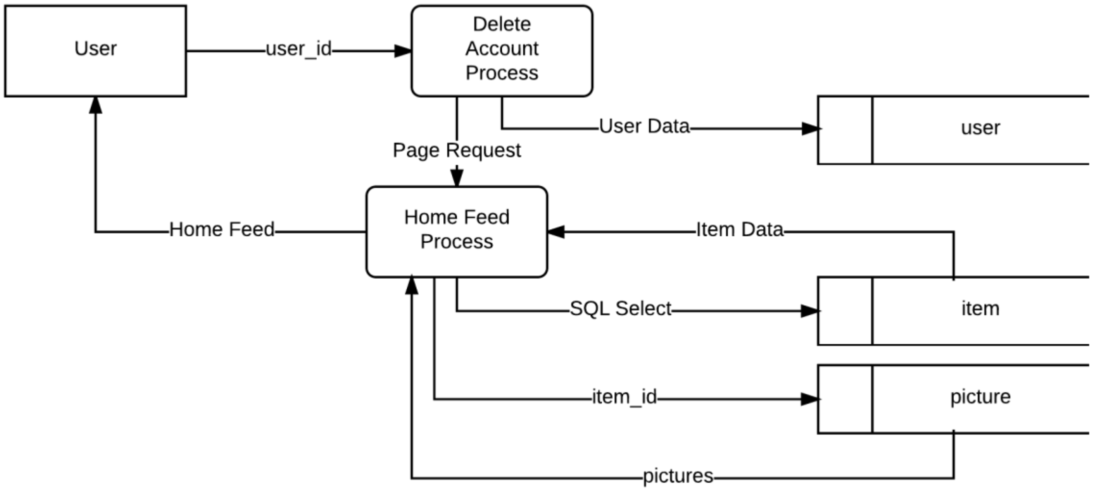
L5 - Creating Account



User Data 1 = first_name, last_name, email, password, zip
User Data 2 = first_name, last_name, email, password_hash, zip
SQL Select = status, {user_id}
Item Data = item_id, title, price, quantity

```
#Account Creation
Get info for new account
if(info is valid):
        Save data to user table
        Log new user in
        Generate Home Feed
        Return Home Feed
else:
        Return error message
        Request valid information
```

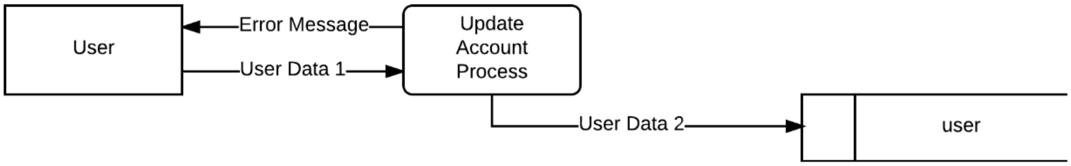
L6 - Deleting Account



User Data = user_id, status
SQL Select = user_id, status
Item Data = item_id, title, price, quantity

#Account Deletion
Get user_id
Set account status for user_id to inactive in user table
Log user out
Generate Home Feed
Return Home Feed

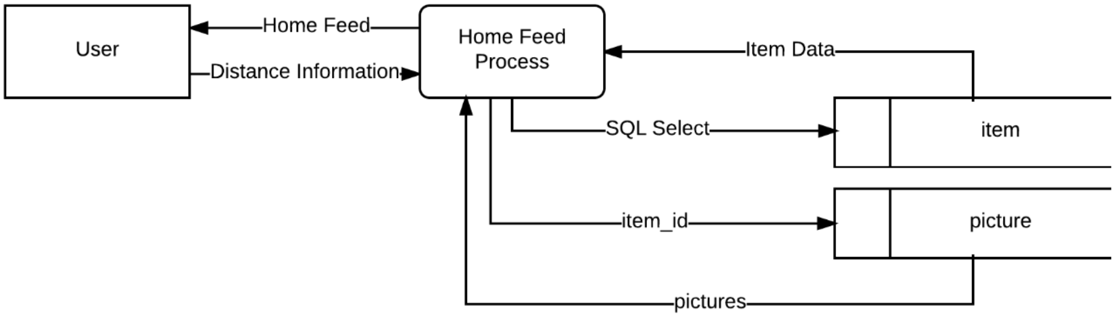
L7 - Updating Account



User Data 1 = first_name, last_name, email, password, zip
User Data 2 = first_name, last_name, email, password_hash, zip

```
#Updating Account
Get update data
if(data is valid):
        Update user in user table
else:
        Return error message
        Request valid information
```

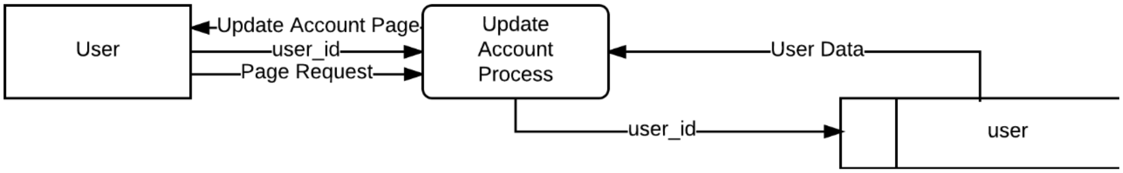
L8 - Changing Distance



Distance Data = user_id, distance
SQL Select = status, {user_id}
Item Data = item_id, title, price, quantity

```
#Changing Distance
Get new distance
Generate Home Feed
Return Home Feed
```

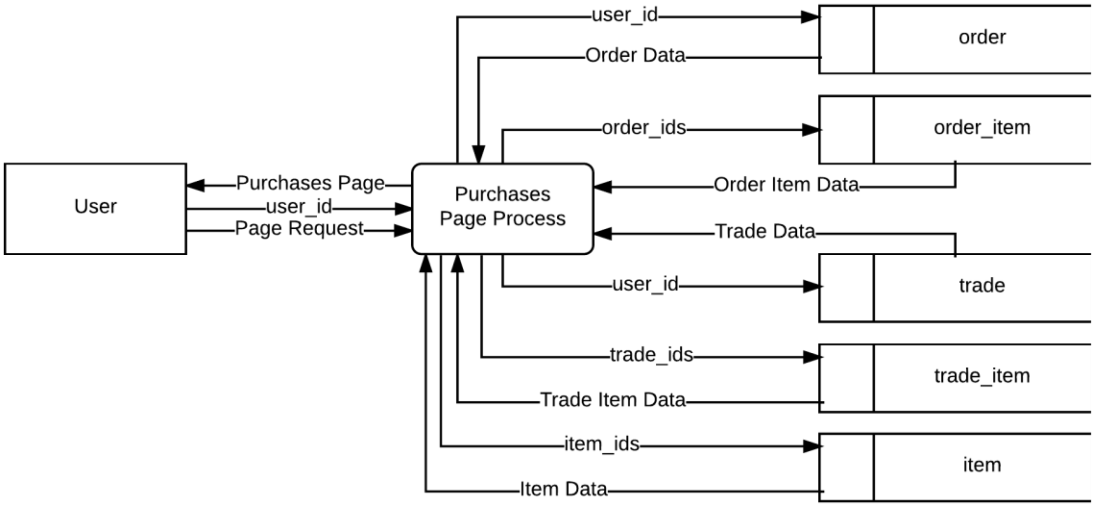
L9 - Viewing Update Account Page



User Data = first_name, last_name, email, password_hash, zip

```
#Account Update Page
Get user_id
Get user data from user table
Generate Update Account Page
Return Update Account Page
```

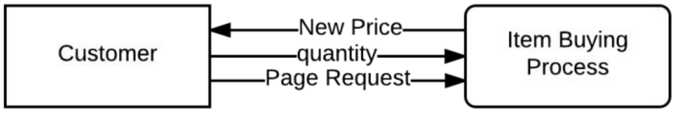
L10 - Viewing Purchase Page



Trade Data = trade_id, status
Trade Item Data = item_id, quantity
Order Data = order_id, status
Order Item Data = item_id, quantity
Item Data = seller_id, title, price, quantity

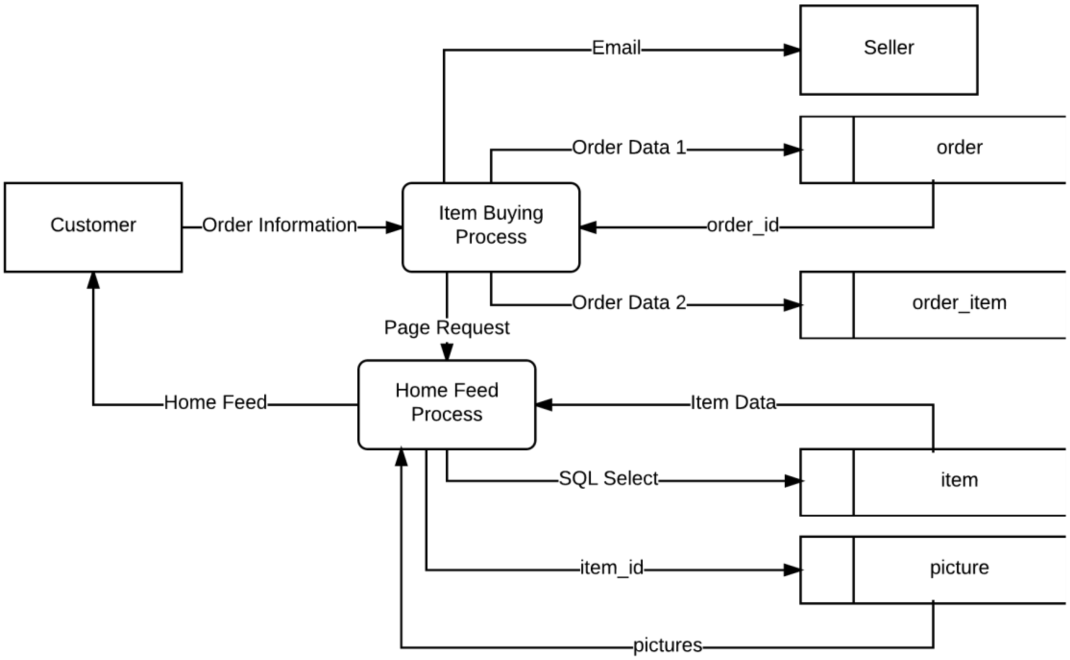
```
#Viewing Purchases
Get user_id
Get orders from order table
Get items associated with orders from order_item table
Get trades from trade table
Get items associated with trades from trade_item table
Get item information from item table
Generate Purchases Page
Return Purchases Page
```

C1 - Changing Buy Amount



#Changing Quantity
Get new quantity
Return new price

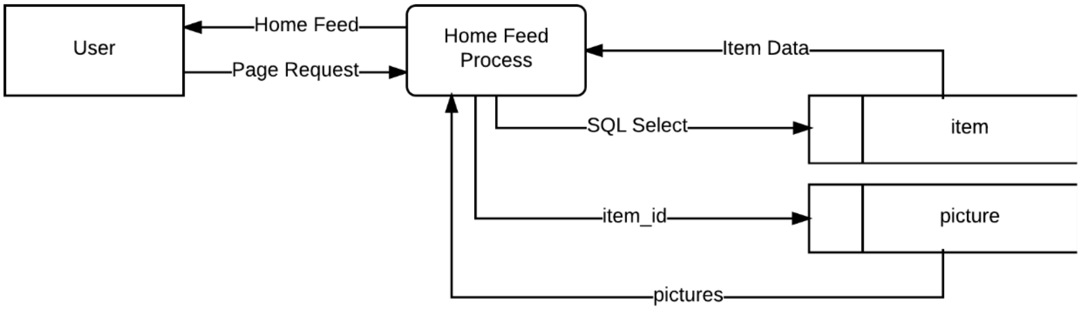
C2 - Buying an Item



Order Data 1 = user_id, status, SQL Select for order_id
Order Data 2 = order_id, item_id, quantity
SQL Select = user_id, status
Item Data = item_id, title, price, quantity

#Buying
Get order info
Create new order in order table
Get new order_id
Create associations of items to new order in order_item table
Email the seller of the item
Generate Home Feed
Return Home Feed

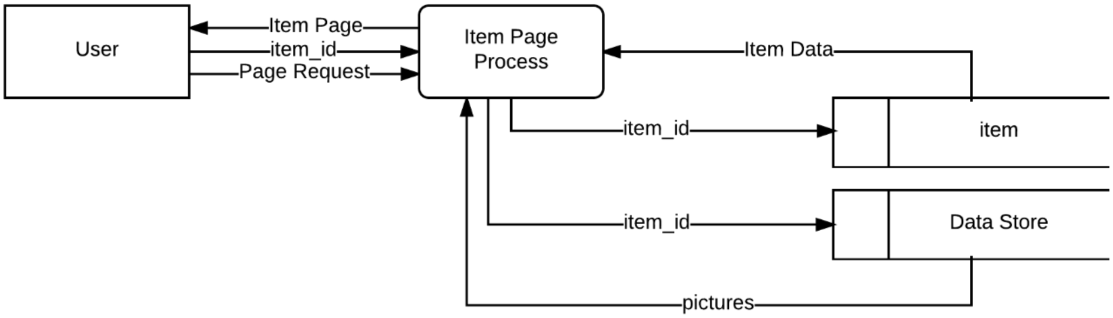
C3 - Returning to the Home Feed



SQL Select = user_id, status
Item Data = item_id, title, price, quantity

#Hitting the Listing Tab
Request Home Feed
Get items within distance
Get item pictures
Generate page
Return page

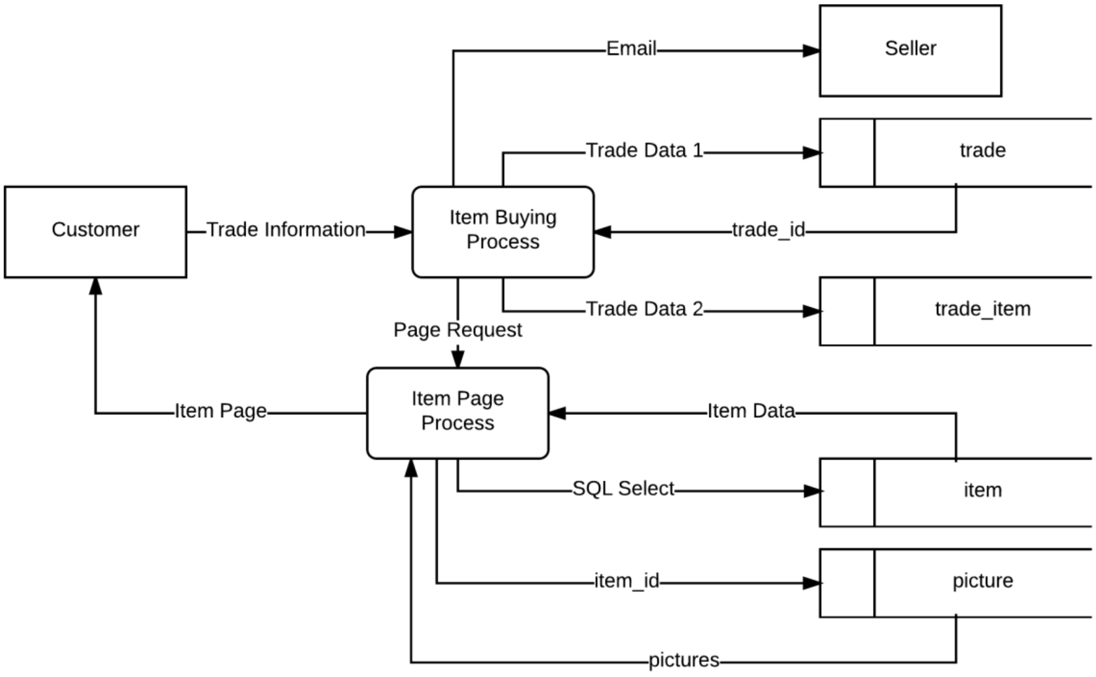
C4 - Viewing Item Information



Item Data = seller_id, title, description, type, price, quantity, condition, posted_data, exp_date, pickup_location, email, phone_num

#Item Page
Get item_id
Get item data from item table using item_id
Generate Item Page
Return Item Page

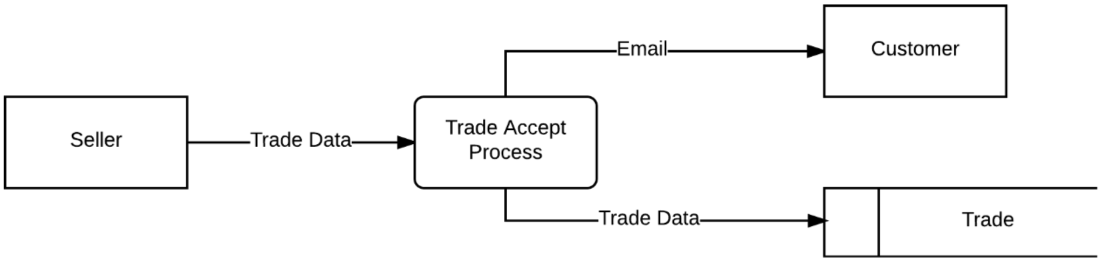
T1 - Offering a Trade



Trade Data 1 = user_id, status, SQL Select for trade_id
Trade Data 2 = trade_id, item_id, quantity
SQL Select = item_id, status
Item Data = item_id, title, price, quantity

#Setting Up a Trade
Get trade info
Create new trade in trade table
Get new trade_id
Create associations of items to new trade in trade_item table
Email the seller of the item
Generate Item Page
Return Item Page

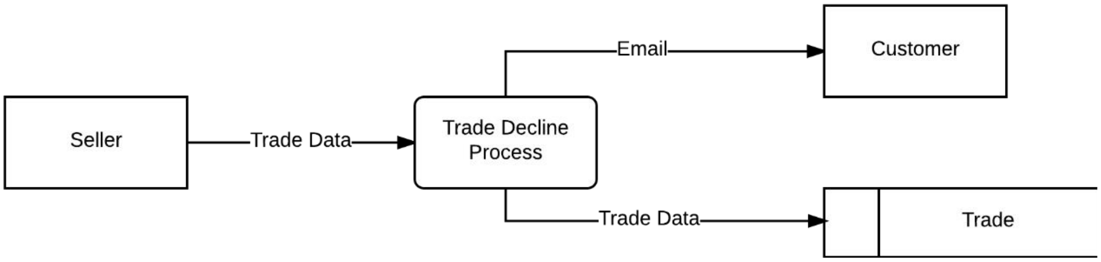
T2 - Accepting a Trade



Trade Data = trade_id, status

#Accepting Trades
Get trade data
Change status of trade in trade table
Email trading customer

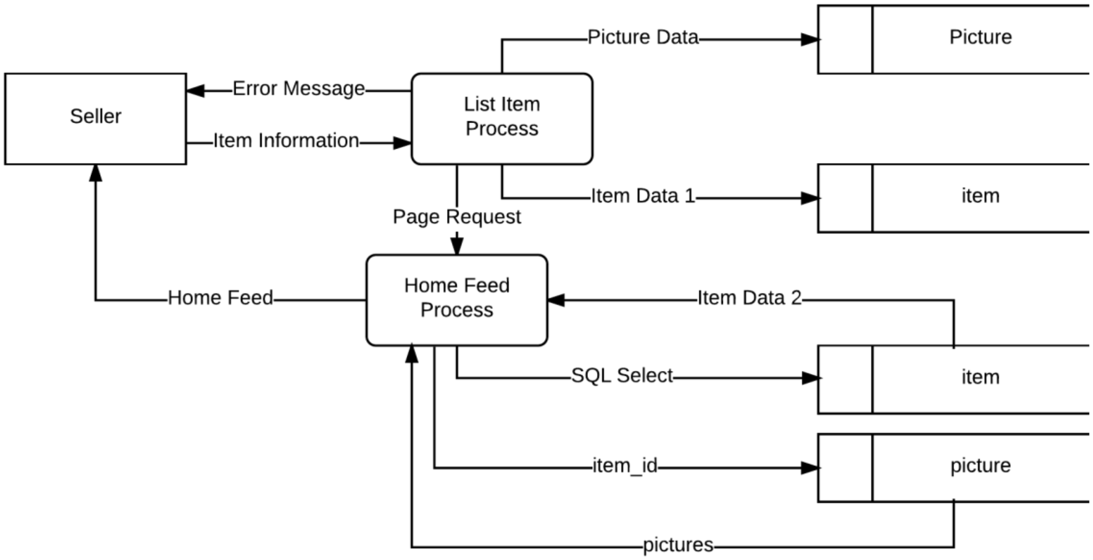
T3 - Declining a Trade



Trade Data = trade_id, status

#Declining Trades
Get trade data
Change status of trade in trade table
Email trading customer

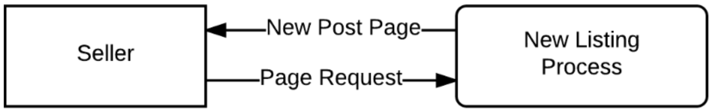
S1 - Listing an Item



Item Information = seller_id, title, description, type, price, quantity, tags, condition, posted_data, exp_date, pickup_location, email, phone_num, pictures
Picture Data = item_id, picture
Item Data 1 = seller_id, title, description, type, price, quantity, condition, posted_data, exp_date, pickup_location, email, phone_num
SQL Select = item_id, status
Item Data 2 = seller_id, title, description, type, price, quantity, tags, condition, posted_data, exp_date, pickup_location, email, phone_num

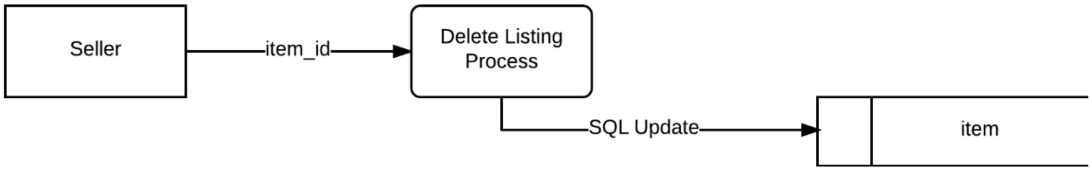
```
#New Listing
Get item info
if(info is valid):
        Add new item to item table
        Add item pictures to picture table
        Generate Home Feed
        Return Home Feed
else:
        Return error message
        Request valid information
```

S2 - Viewing New Listing Page



#New Post Page
Request New Post Page
Return New Post Page

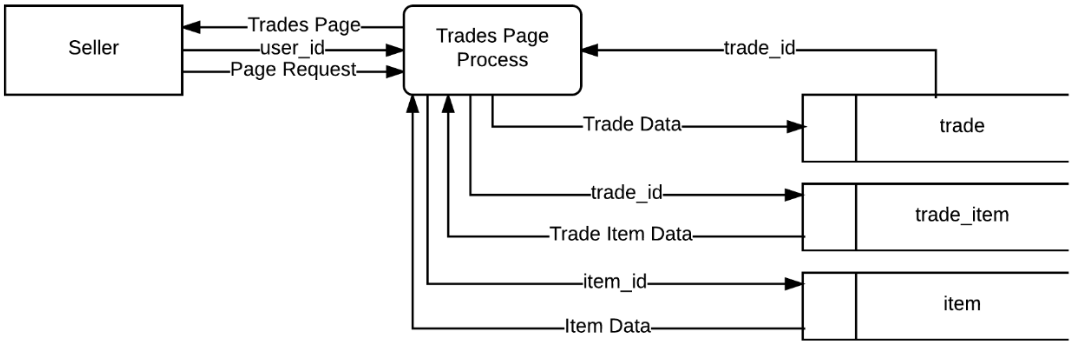
S3 - Removing a Listing



SQL Update = item_id, status

#Removing Listing
Get item_id
Update status of item in item table

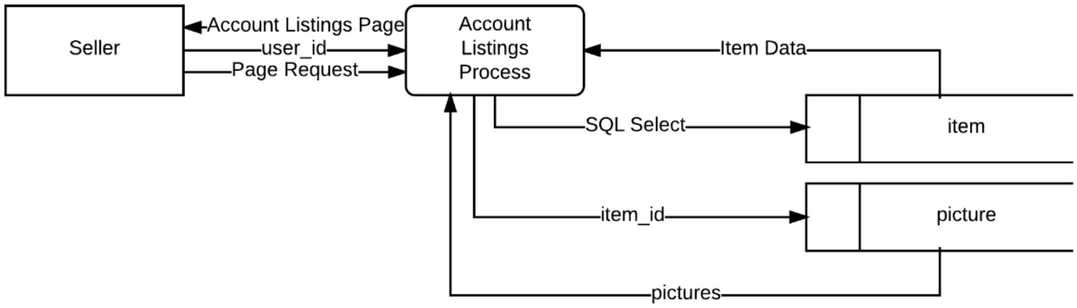
S4 - Viewing Trade Offers



Trade Data = user_id, status
Trade Item Data = item_id, quantity
Item Data = title, prices

```
#Trade Offers Page
Get user_id
Get trade_ids for user_id from trade table
Get item_ids associated with trades from trade_item
Get item data of item_ids
Generate Trade Offers Page
Return Trade Offers Page
```

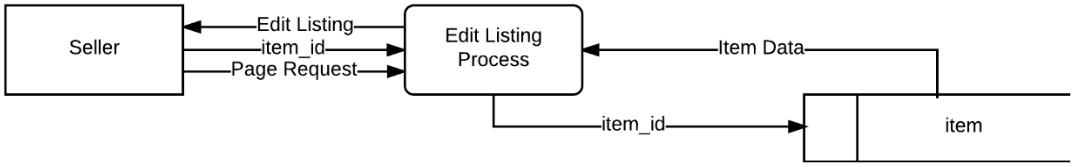
S5 - Viewing Account Listing Page



SQL Select = user_id, status
Item Data = item_id, title, price, quantity

#Account Listings Page
Get user_id
Get data for users' active listings from item table
Generate Account Listings Page
Return Account Listings Page

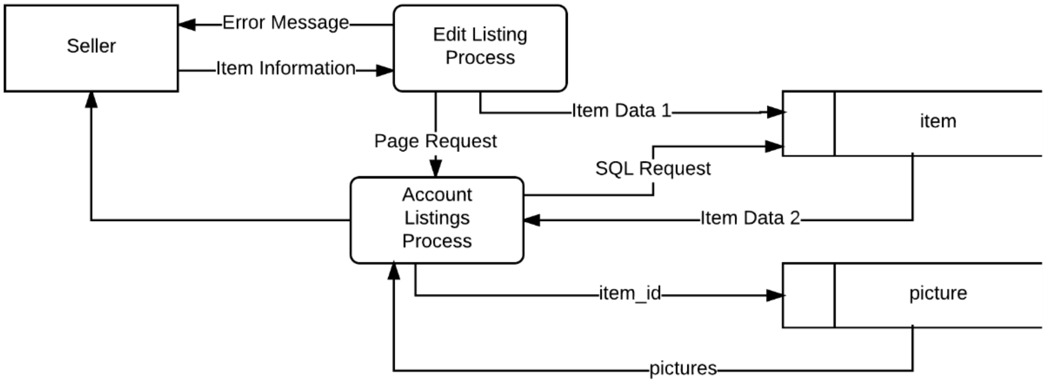
S6 - Viewing Edit Listing Page



Item Data = seller_id, title, description, type, price, quantity, tags, condition, posted_data, exp_date, pickup_location, email, phone_num

#Edit Listing Page
Get item_id
Get item data from item table
Generate Edit Listing Page
Return Edit Listing Page

S7 - Editing Listing



Item Data 1 = seller_id, title, description, type, price, quantity, tags, condition, posted_data, exp_date, pickup_location, email, phone_num
SQL Select = user_id, status
Item Data 2 = item_id, title, price, quantity

```
#Editing Listing
Get item information
if(info is valid):
        Update item info in item table
        Generate Account Listing Page
        Return Account Listing Page
else:
        Return Error Message
        Request valid information
```

Data Dictionary

User - Entity for storing information associated with users

- Relationships
    - One-to-many with item
    - One-to-many with order
    - One-to-many with trade
    - Many-to-one with zip_location
- Attributes
    - user_id, PK, unique identifier for each user in the system, integer
    - first_name, varchar
    - last_name, varchar
    - email, varchar
    - password_hash, varchar
    - zip, FK, integer
    - active, describes the status of the account, bit

Item - Entity for storing information associated with listings

- Relationships
    - Many-to-one with user
    - One-to-many with order_item, associative
    - One-to-many with trade_item, associative
    - One-to-many with picture
- Attributes
    - item_id, PK, unique identifier for each item in the system, integer
    - seller_id, FK, user_id of the seller, integer
    - title, name of the item, varchar
    - description, text
    - type, category of the item, varchar
    - price, decimal
    - quantity, integer
    - tags, searchable keywords for the item, text
    - condition, varchar
    - posted_date, datetime
    - exp_date, expiration date of the listing, datetime
    - pickup_location, varchar
    - email, varchar
    - phone_num, integer
    - status, status of the listing, varchar

Order - Entity for storing information associated with buy orders

- Relationships
    - One-to-many with order_item, associative
    - Many-to-one with user
- Attributes
    - order_id, PK, unique identifier for each order in the system, integer

- user_id, FK, user_id of the customer, integer
- status, status of the order, varchar

Trade - Entity for storing information associated with trade orders

Relationships

- One-to-many with trade_item, associative
- Many-to-one with user

Attributes

- trade_id, PK, unique identifier for each trade in the system, integer
- user_id, FK, user_id of the customer, integer
- status, status of the trade, varchar

Order Item (Associative) - Entity for associating Orders and Items

Relationships

- Many-to-one with item
- Many-to-one with order

Attributes

- order_id, PK, compound key with item_id to identify each item in an order, integer
- item_id, PK, compound key with order_id to identify each item in an order, integer
- quantity

Trade Item (Associative) - Entity for associating Trades and Items

Relationships

- Many-to-one with item
- Many-to-one with trade

Attributes

- trade_id, PK, compound key with item_id to identify each item in an order, integer
- item_id, PK, compound key with trade_id to identify each item in an order, integer
- quantity

Picture - Entity for storing information associated with item pictures

Relationships

- Many-to-one with item

Attributes

- picture_id, PK, unique identifier for each picture on a posted item, integer
- item_id, FK, item_id for the item the picture is associated with, integer
- picture, a picture link or stored picture, blob

Zip Location - Entity for storing information associated with user locations

Relationships

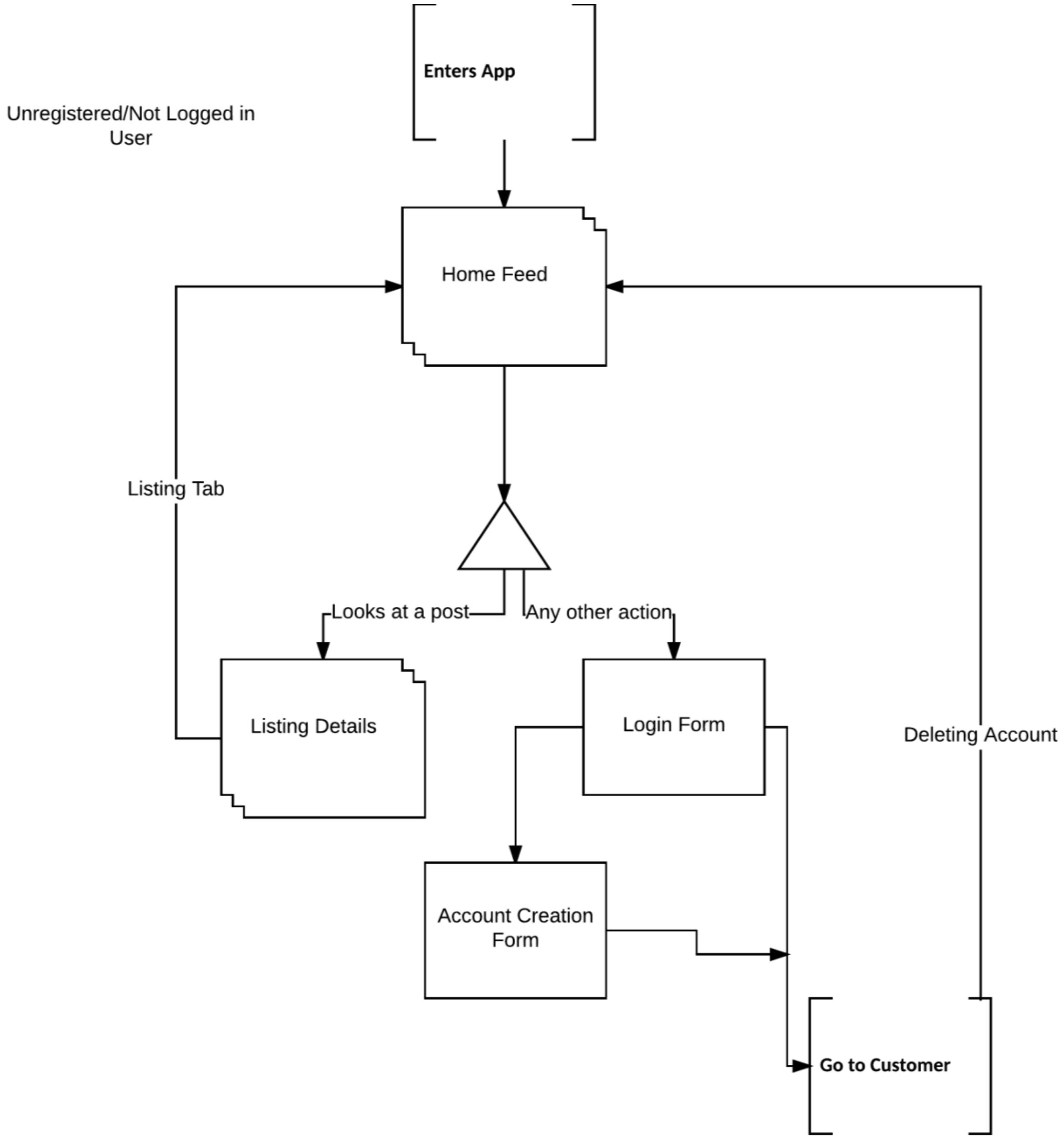
- One-to-many with user

Attributes

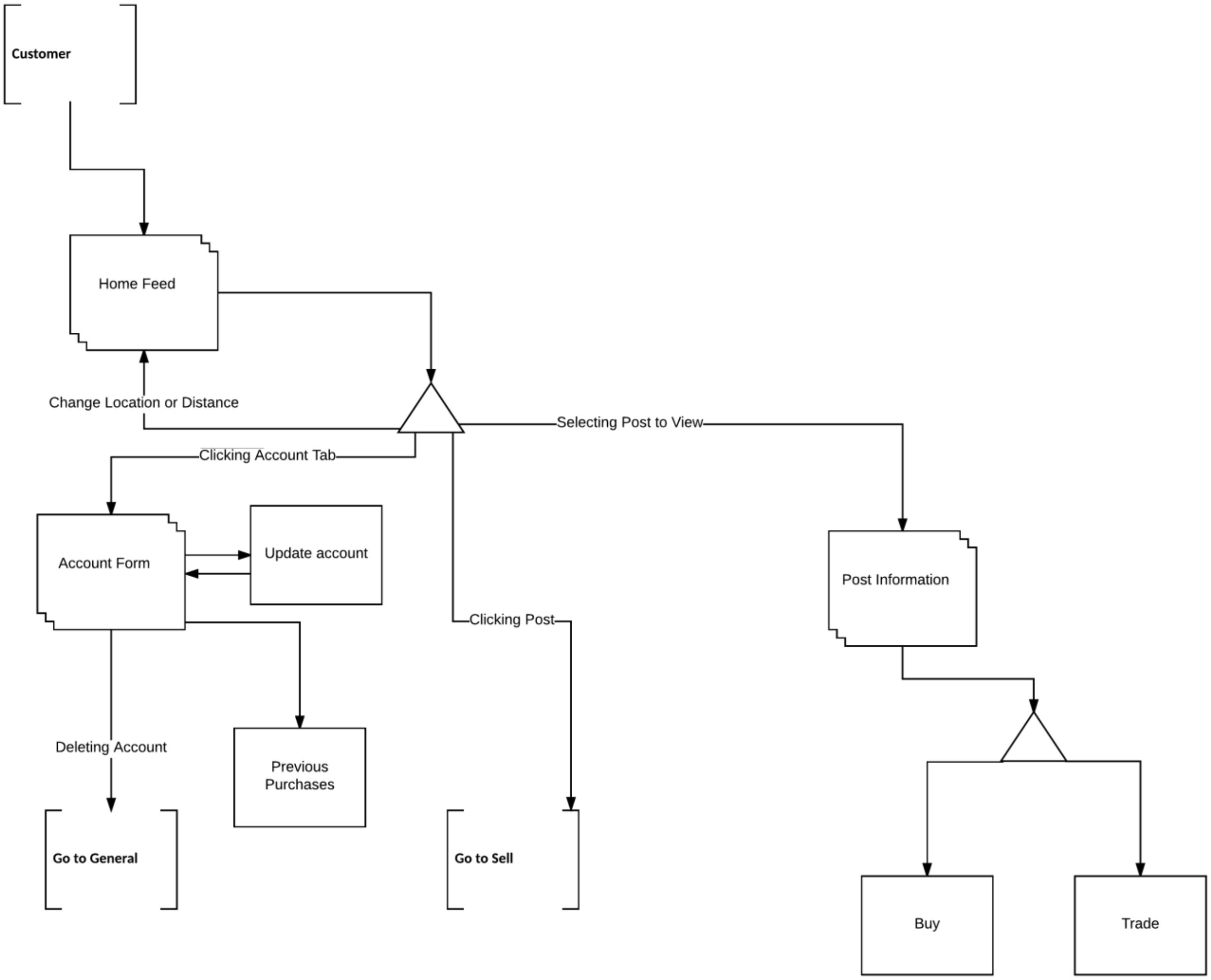
- zip, PK, integer
- longitude, decimal
- latitude, decimal

User Experience Diagrams

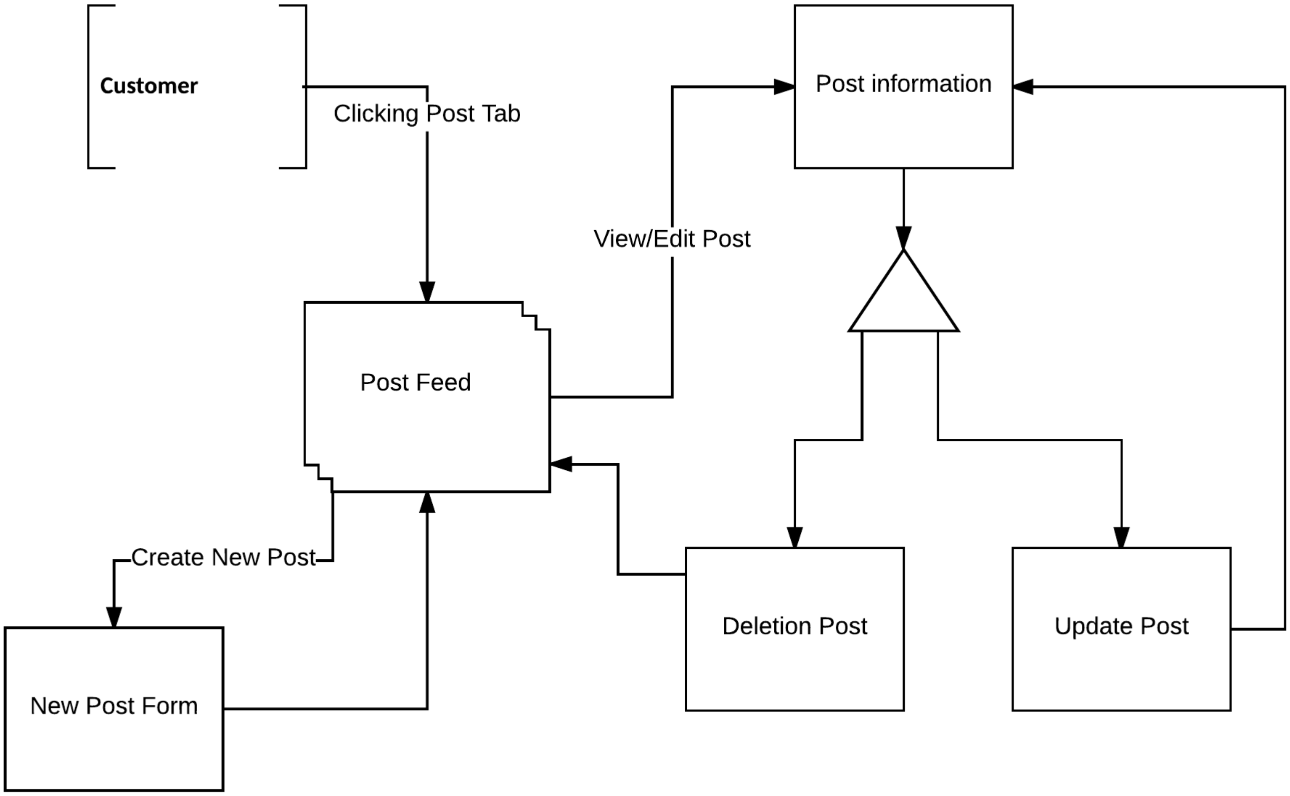
General



Customer

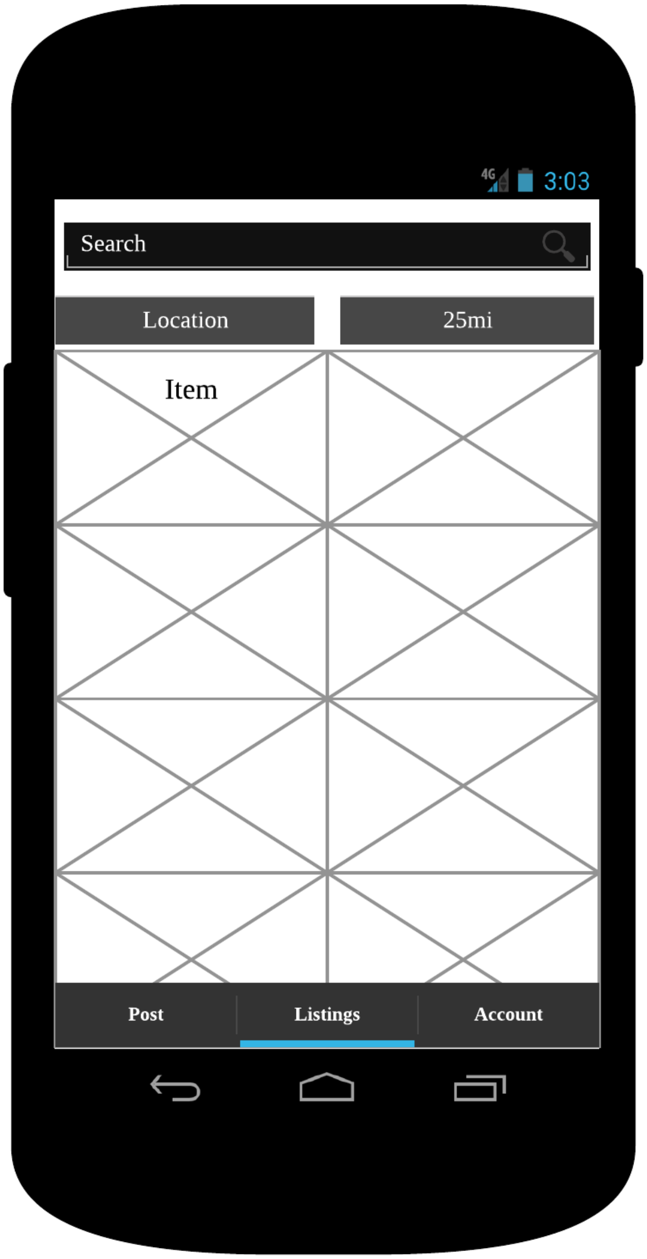

Customer
Home Feed
Change Location or Distance
Selecting Post to View
Clicking Account Tab
Account Form
Update account
Post Information
Clicking Post
Deleting Account
Previous Purchases
Go to General
Go to Sell
Buy
Trade

Sell


Customer
Clicking Post Tab
Post information
View/Edit Post
Post Feed
Create New Post
New Post Form
Deletion Post
Update Post

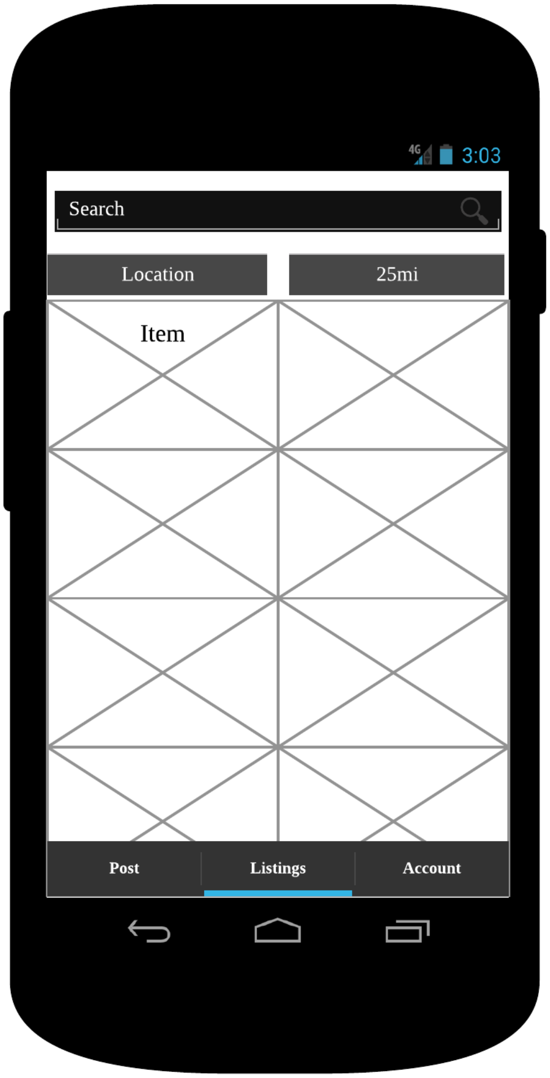
Wireframes

L1

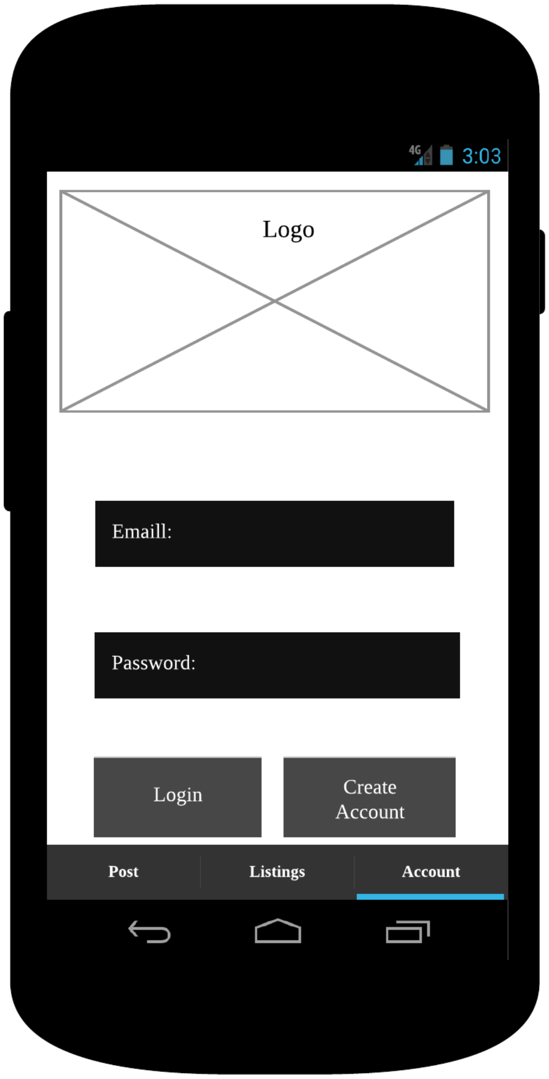


Landing Page for customer

L2

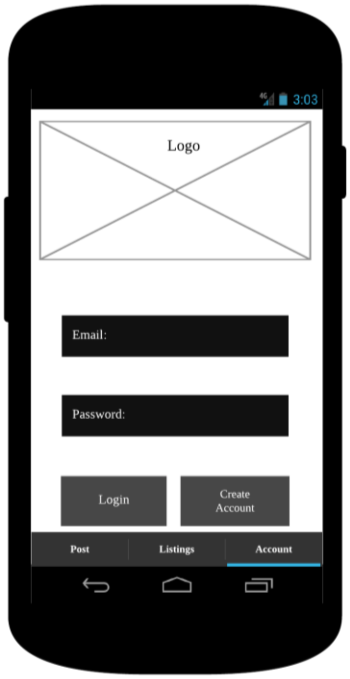


Landing Page for customer

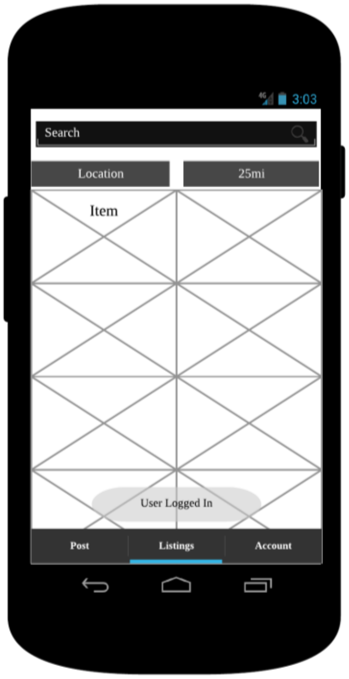


Login

L3

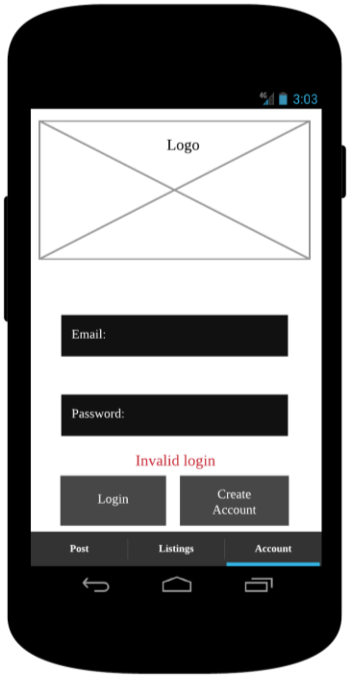


Login



User Logged In

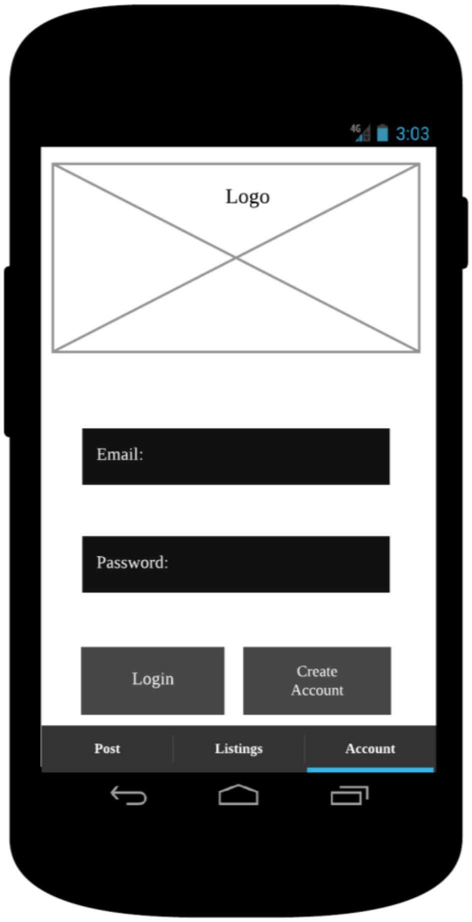
Landing Page for customer
after logging in succesfully



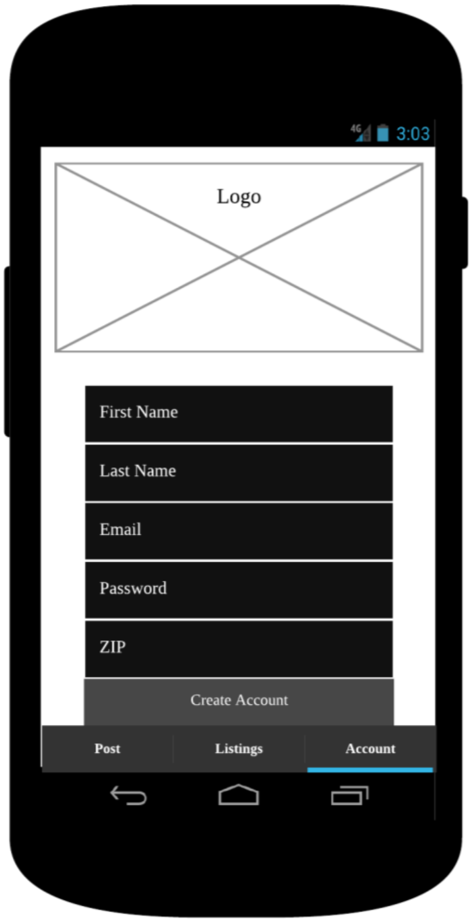
Invalid login

invalid Login

L4

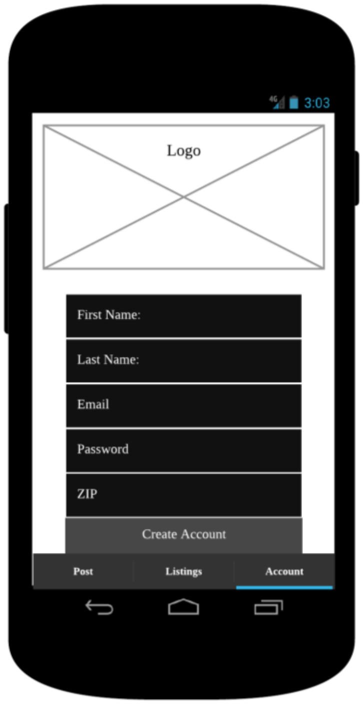


Login

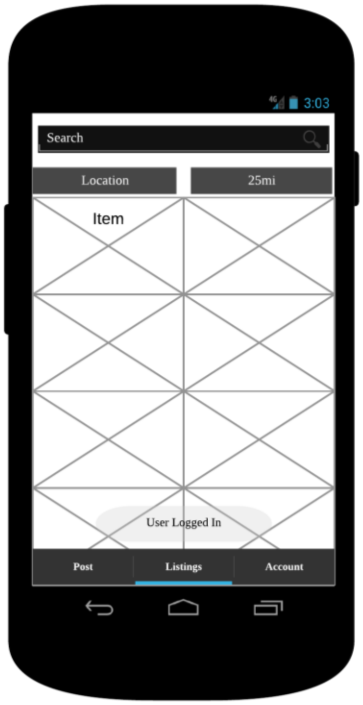


Create Account

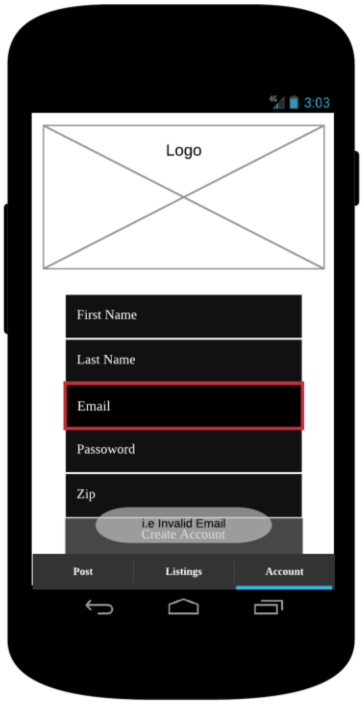
L5



Create Account

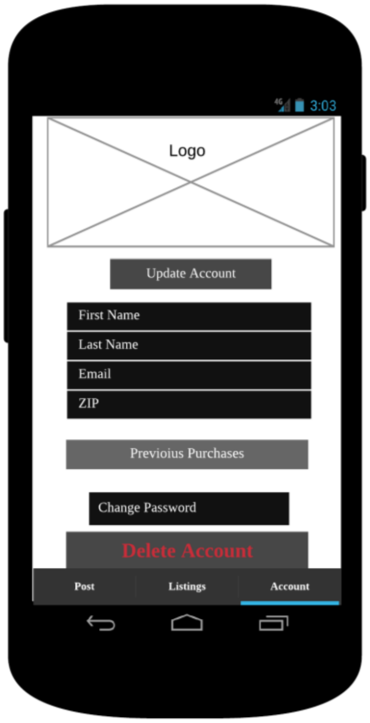


Landing Page for customer after creating account succesfully

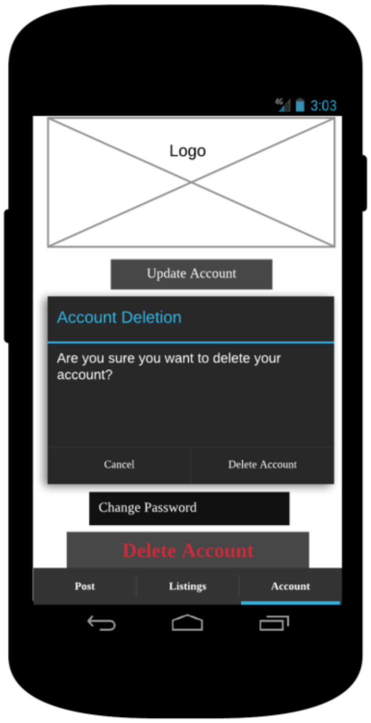


Invalid Account Details

L6

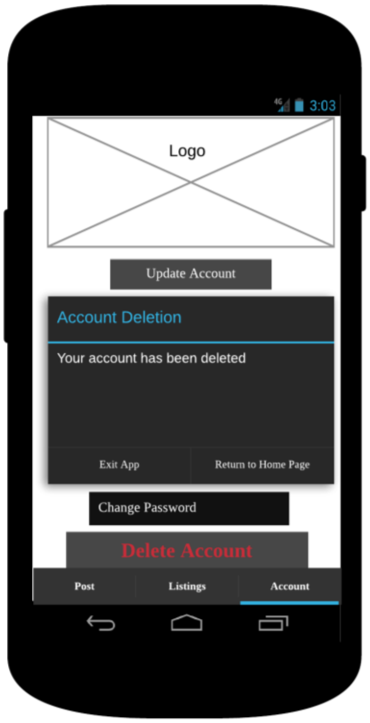


Account Information



Are you sure you want to delete your account?

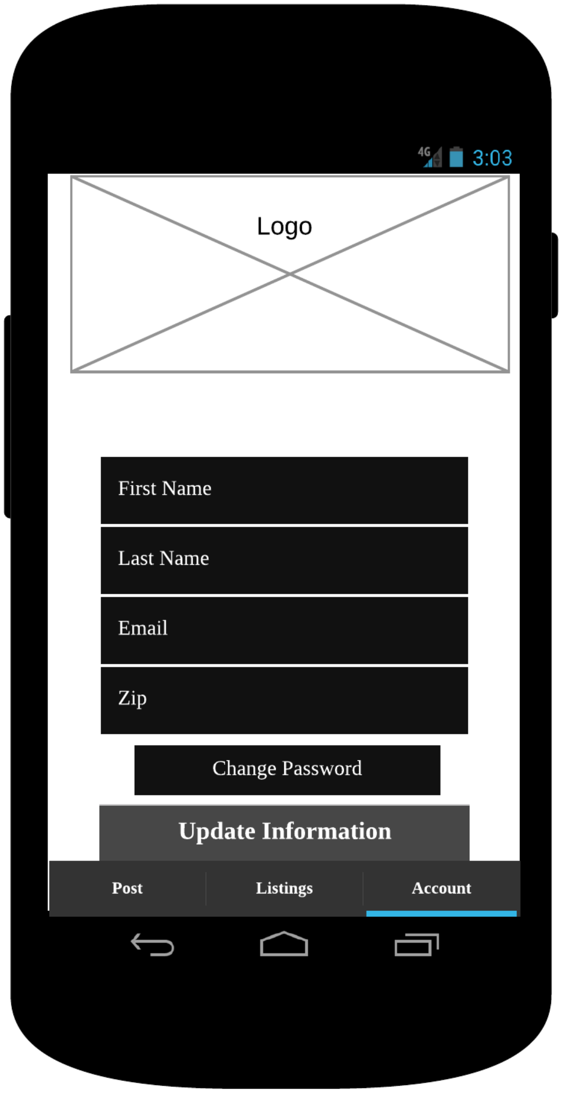
Confirms Account Deletion



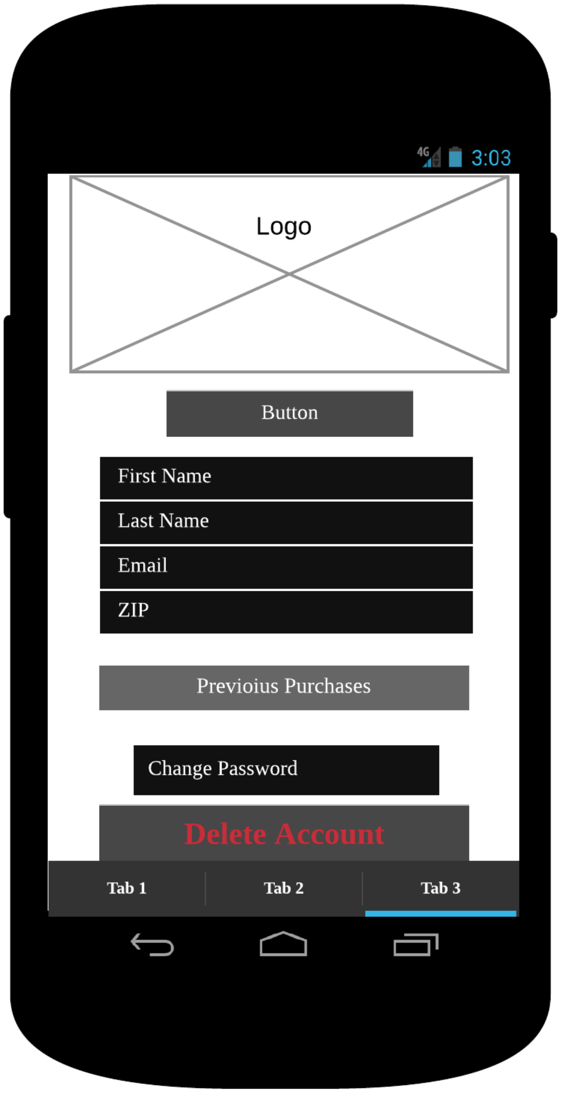
Your account has been deleted

Account Deletion Options

L7

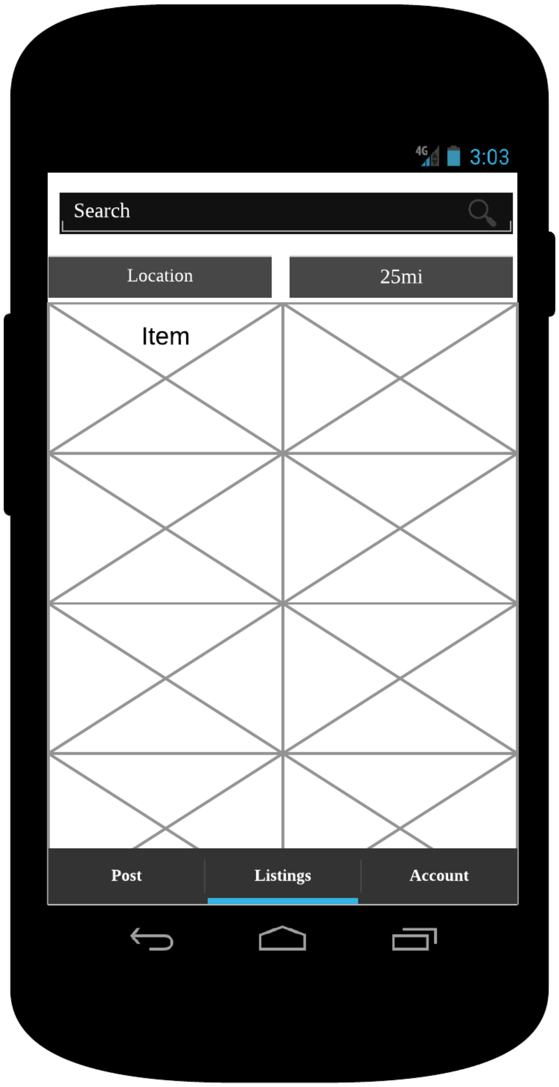


Edit Account Information

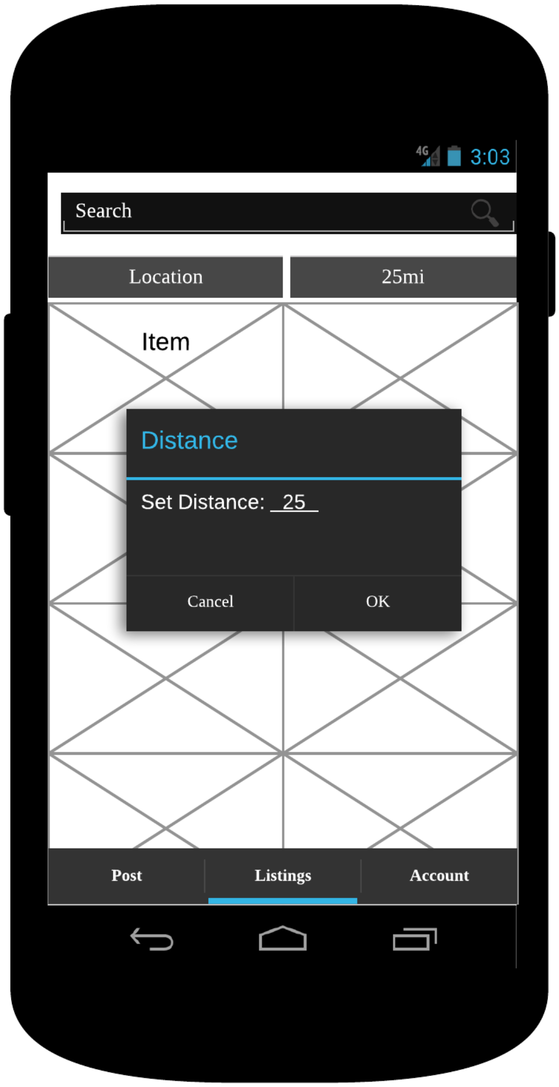


Account Information

L8

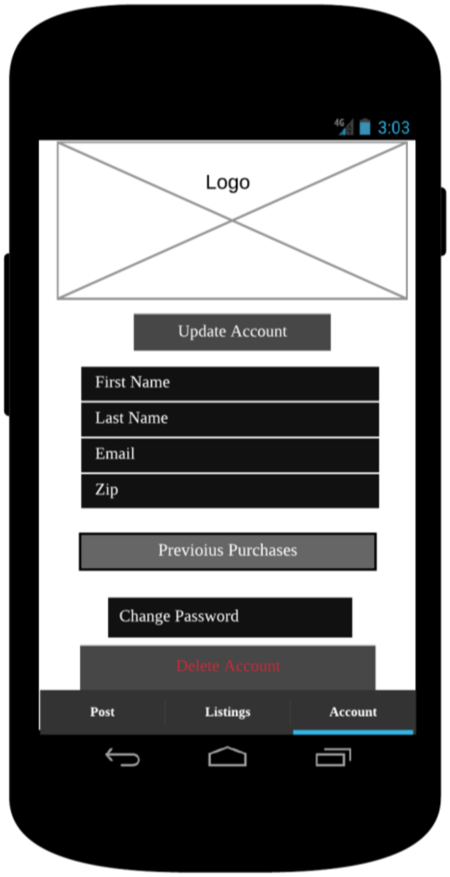


Landing Page for Users

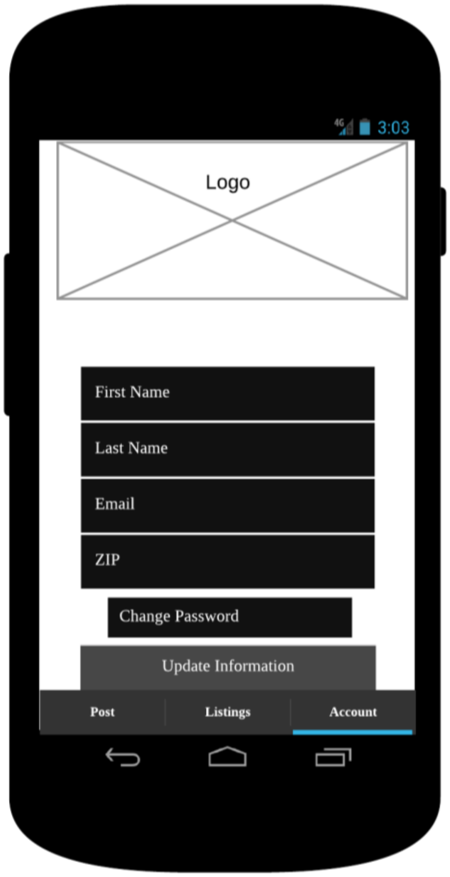


Pop Up for Distance

L9

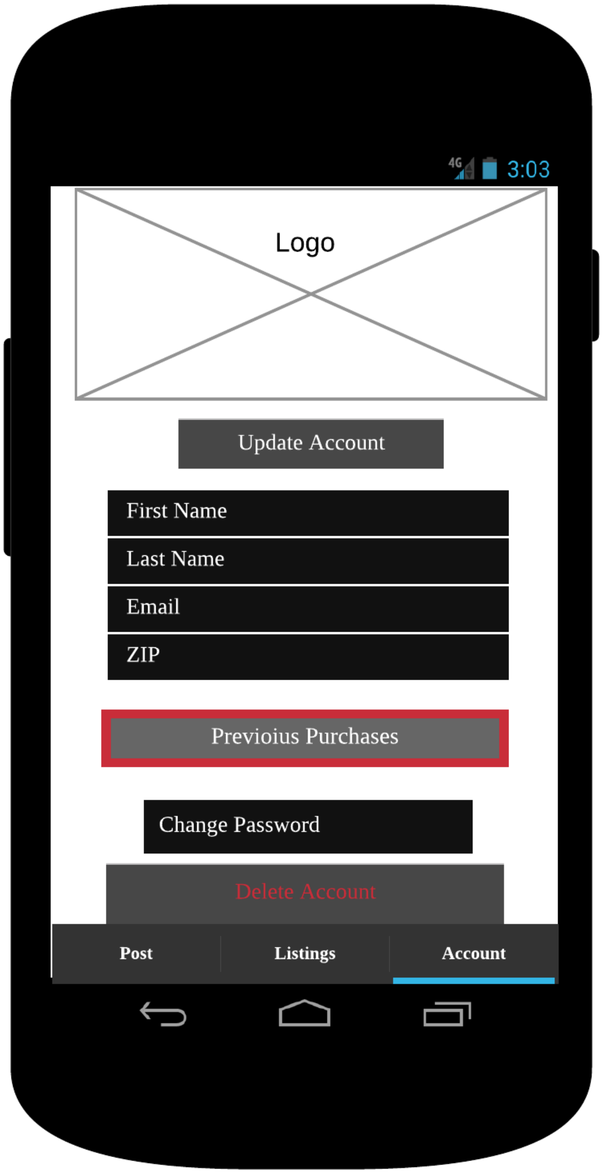


Account Information

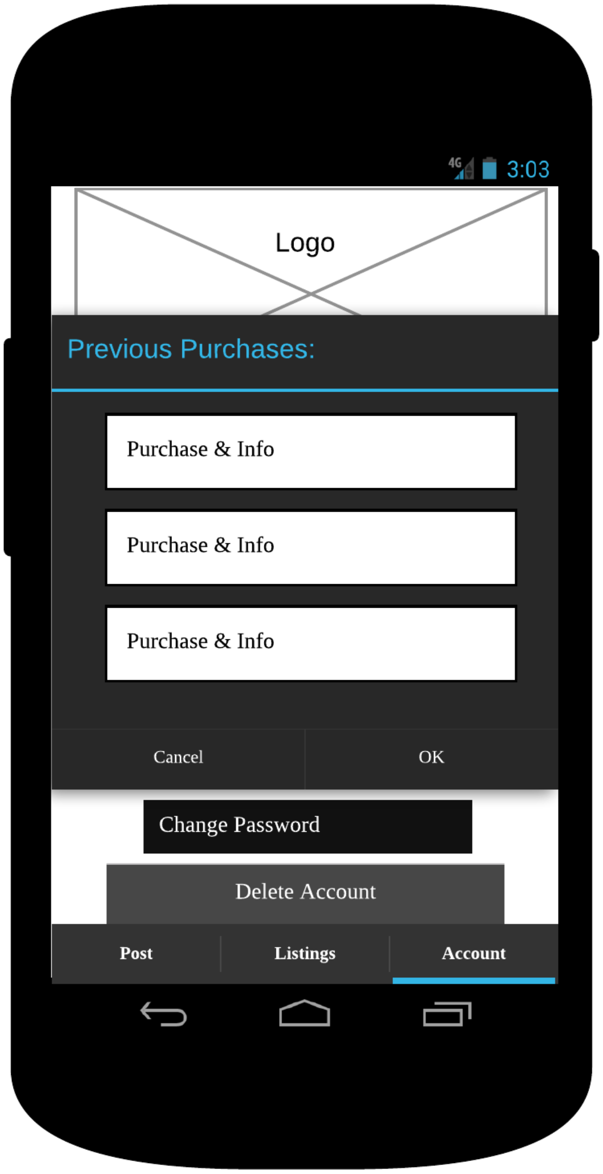


Edit Account Information
Form

L10

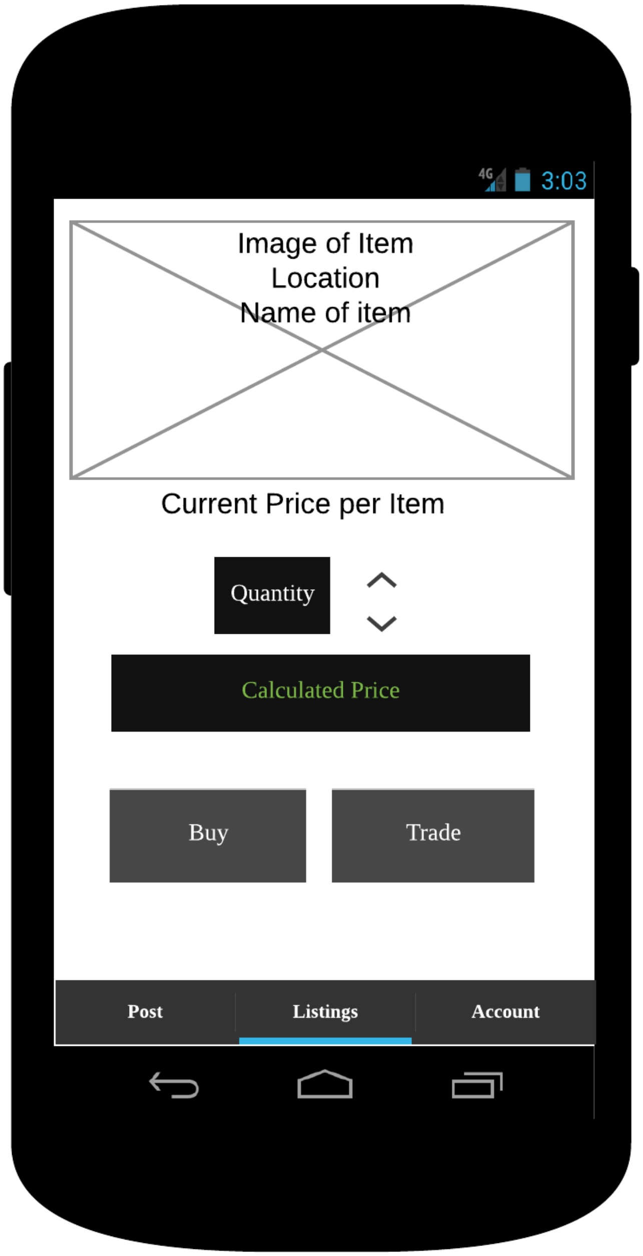


Account Information



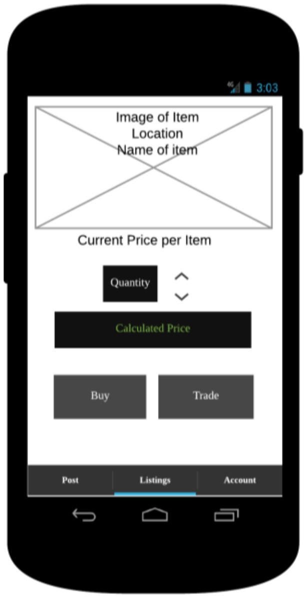
Viewing all the Previous Purchases

C1

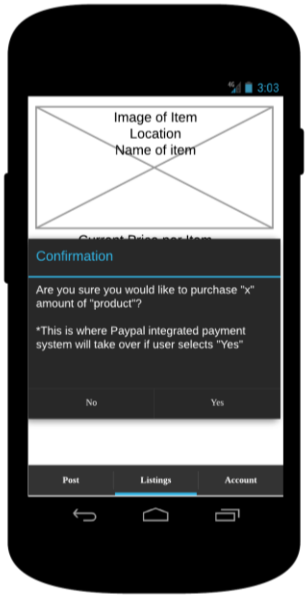


User enters quantity and
server responds with a
calculated price

C2



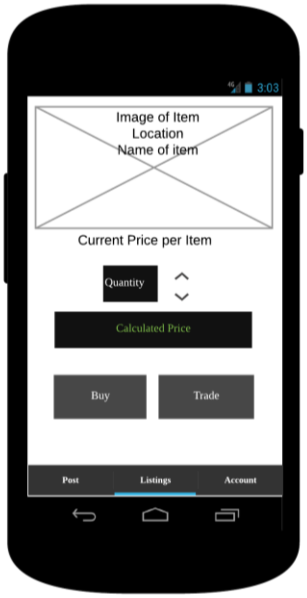
Customer Selects to buy
and item

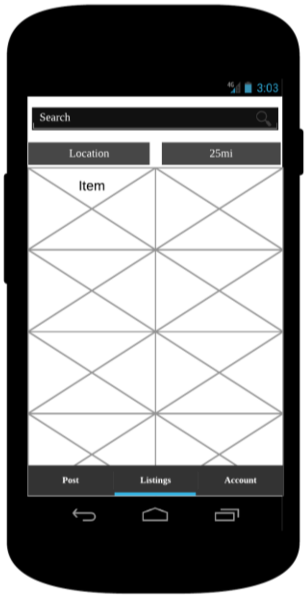


Are you sure you would like to purchase "x" amount of "product"?

*This is where Paypal integrated payment system will take over if user selects "Yes"

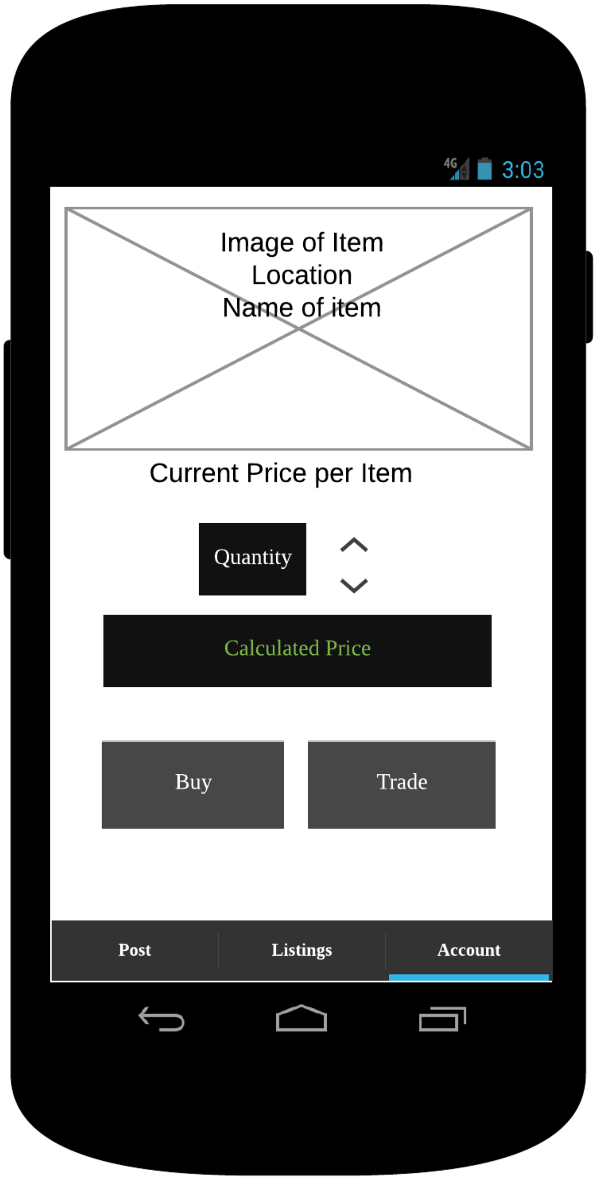
Customer Selects to buy
and item



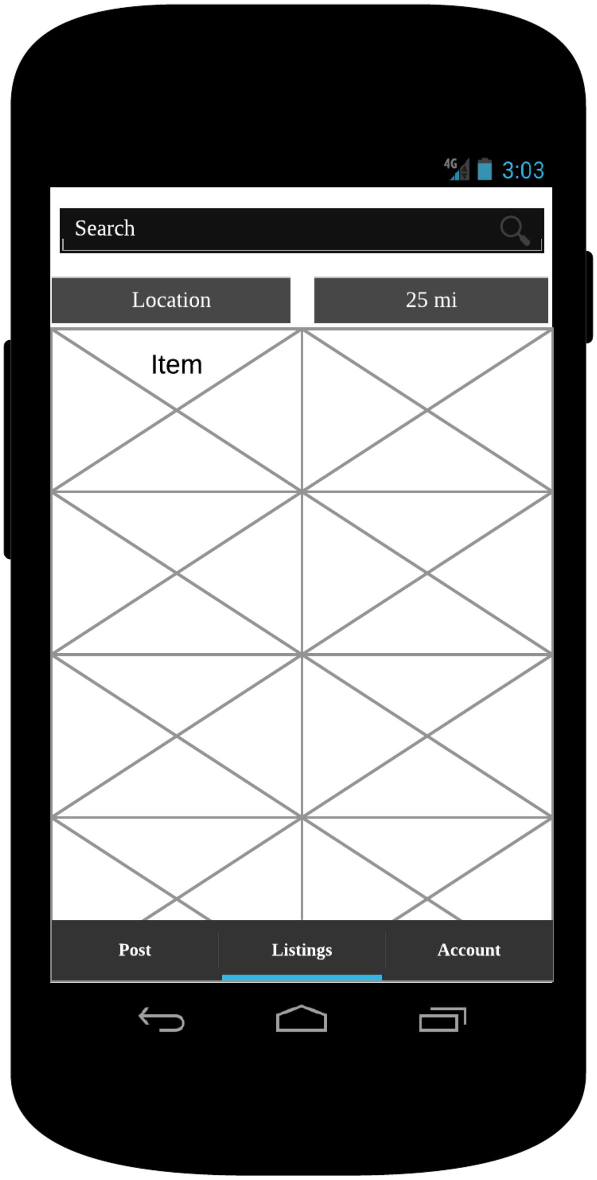


Customer is sent to the
Home Feed

C3

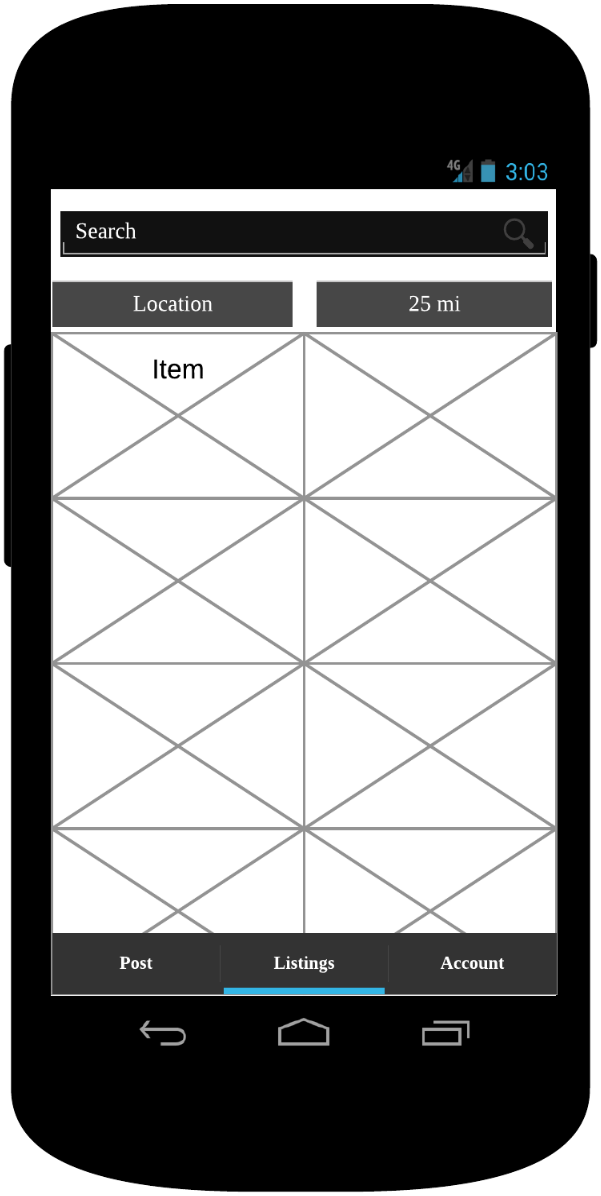


Customer Presses the Listings Tab

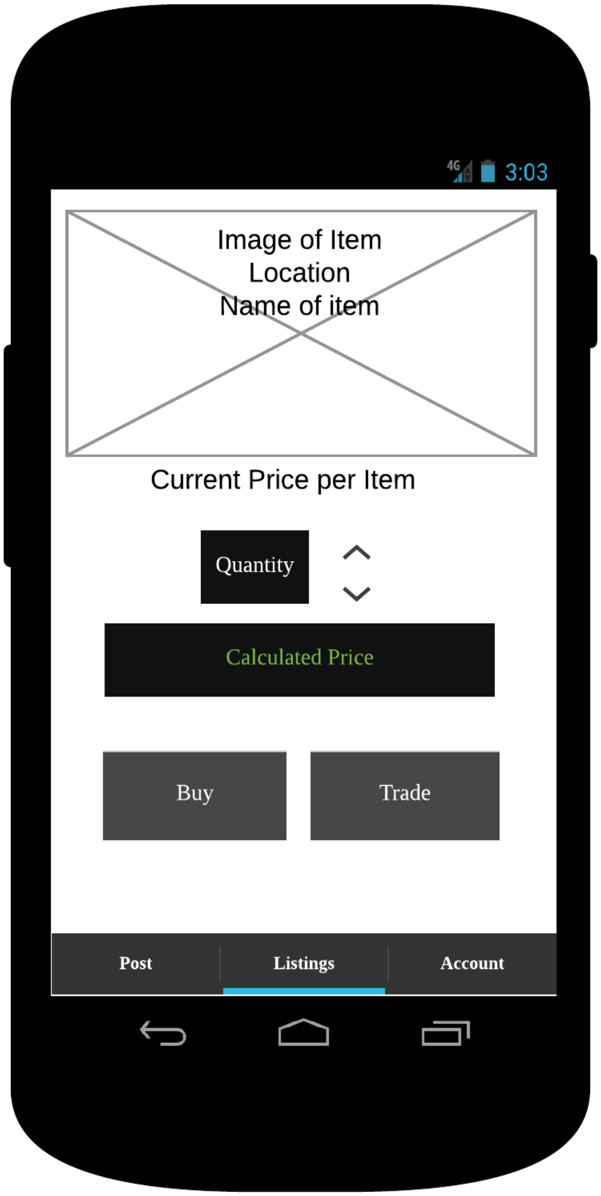


Customer is sent to the Home Feed

C4

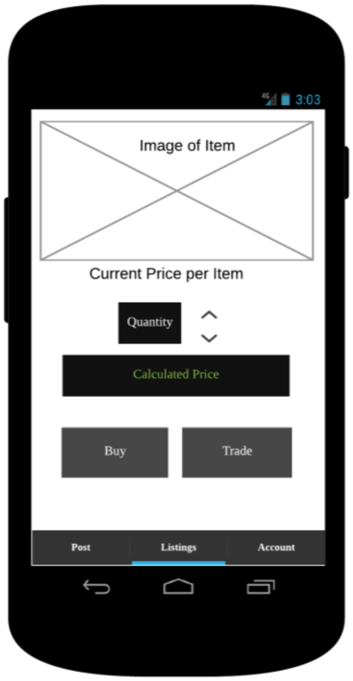


Customer Selects and Item
on the Listings Page

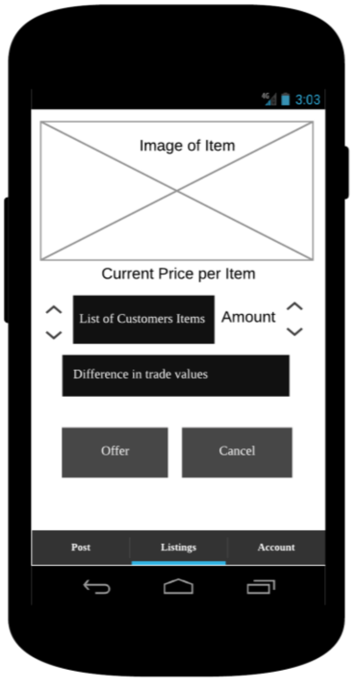


Customer is sent to a page
with more details about the
product and an option to Buy
or Trade

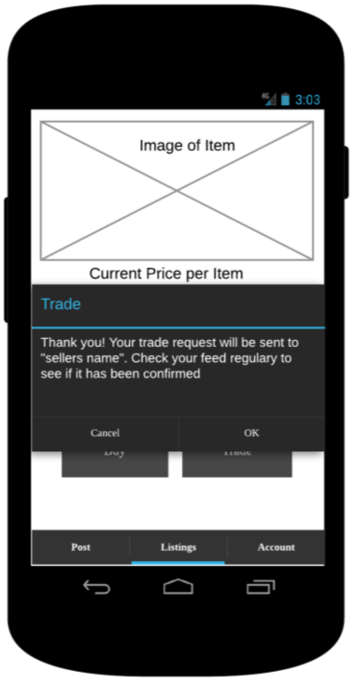
T1



Customer selects option to trade



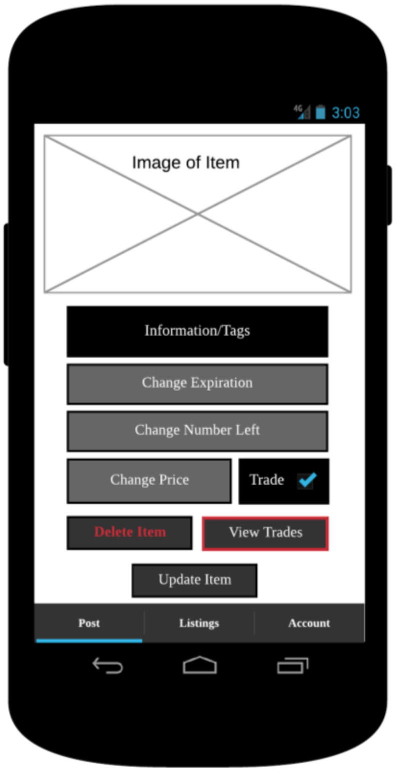
Trade Options



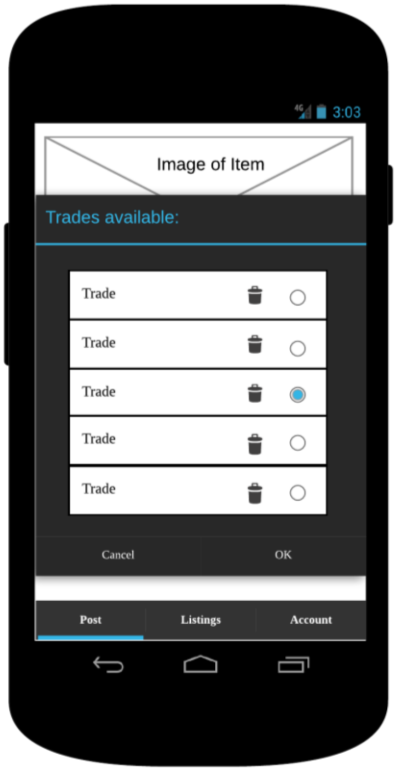
Thank you! Your trade request will be sent to "sellers name". Check your feed regulary to see if it has been confirmed

Trade is added to the database. Customer is reminded to check regularly for confirmation from the seller

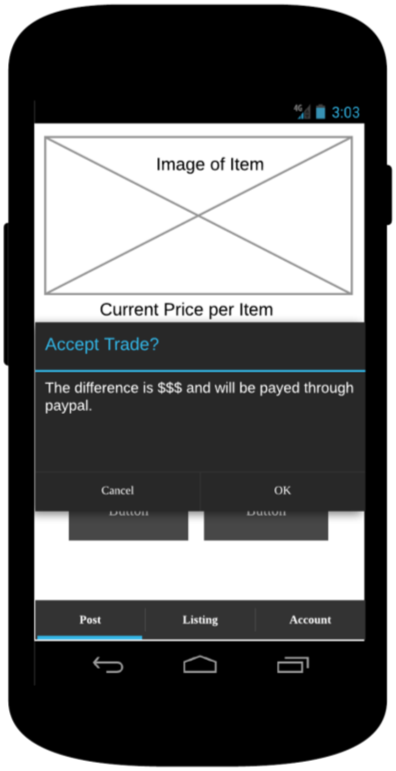
T2



Seller View of Exsisting Post

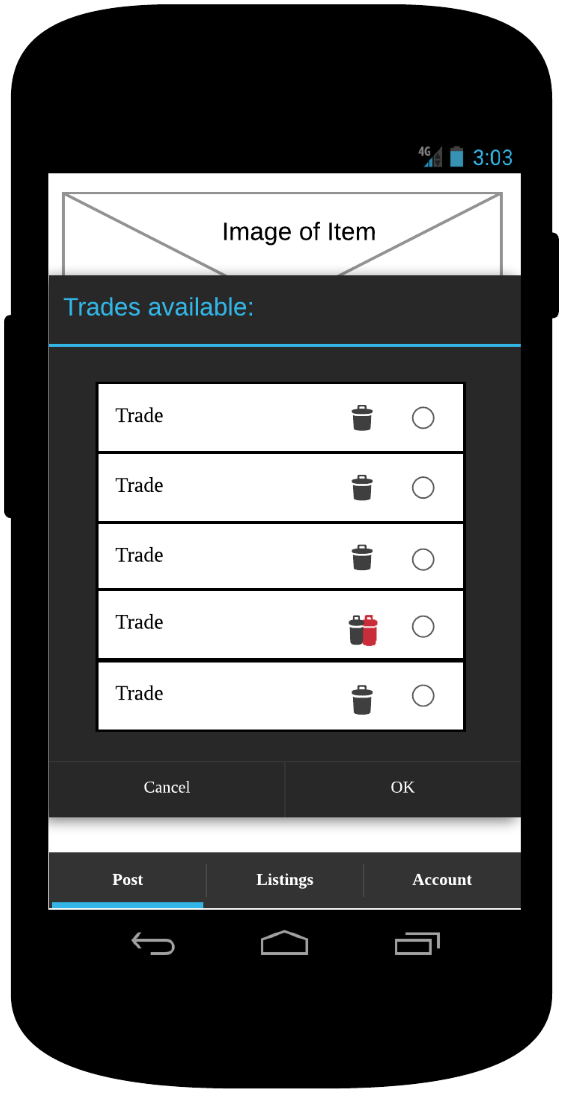


Trade selection

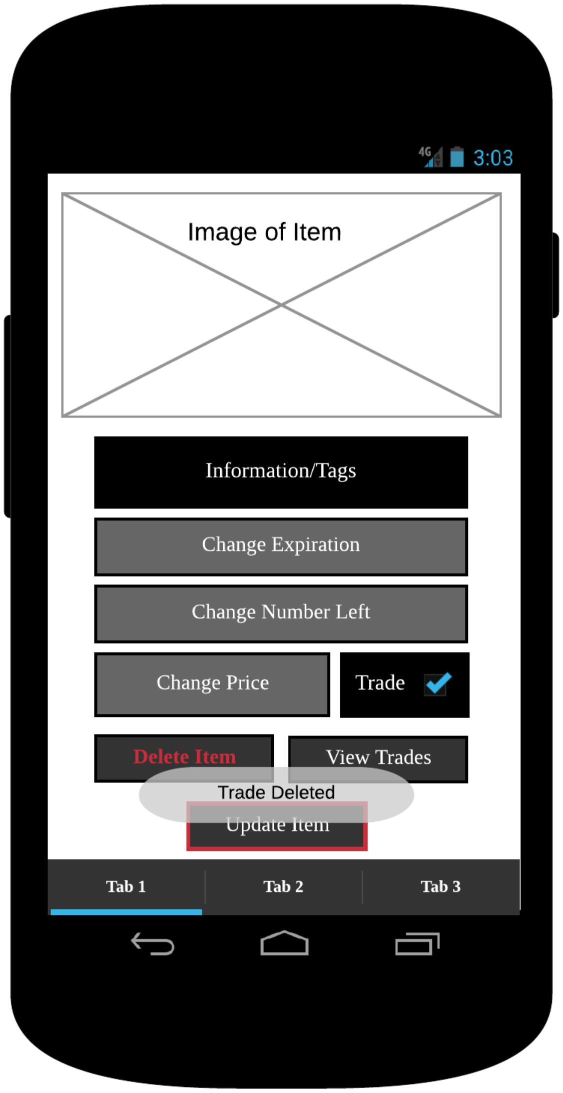


Trade confirmation

T3

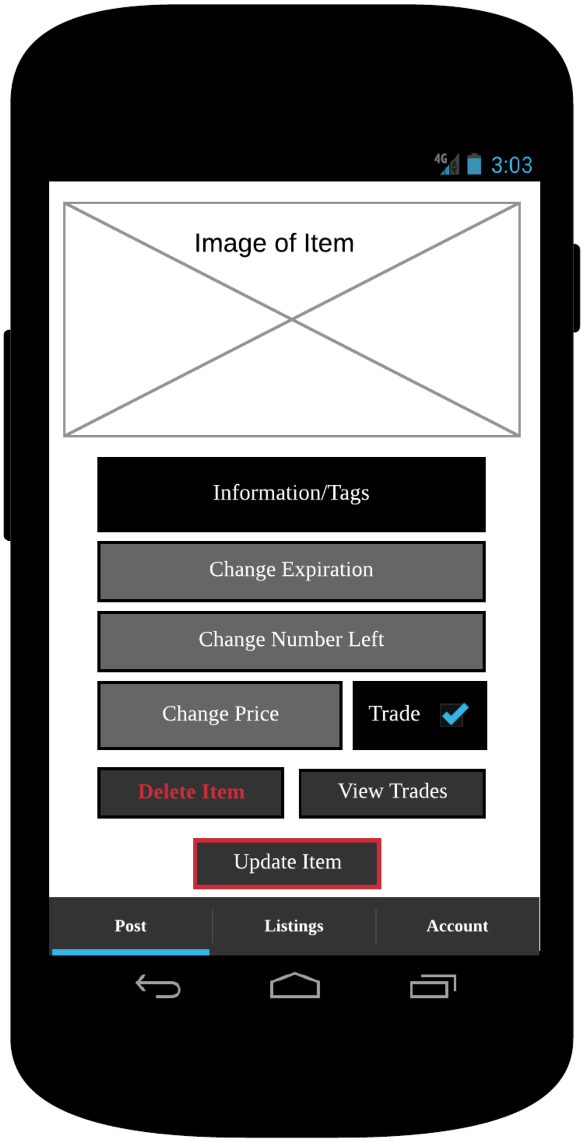


Trade Deletion

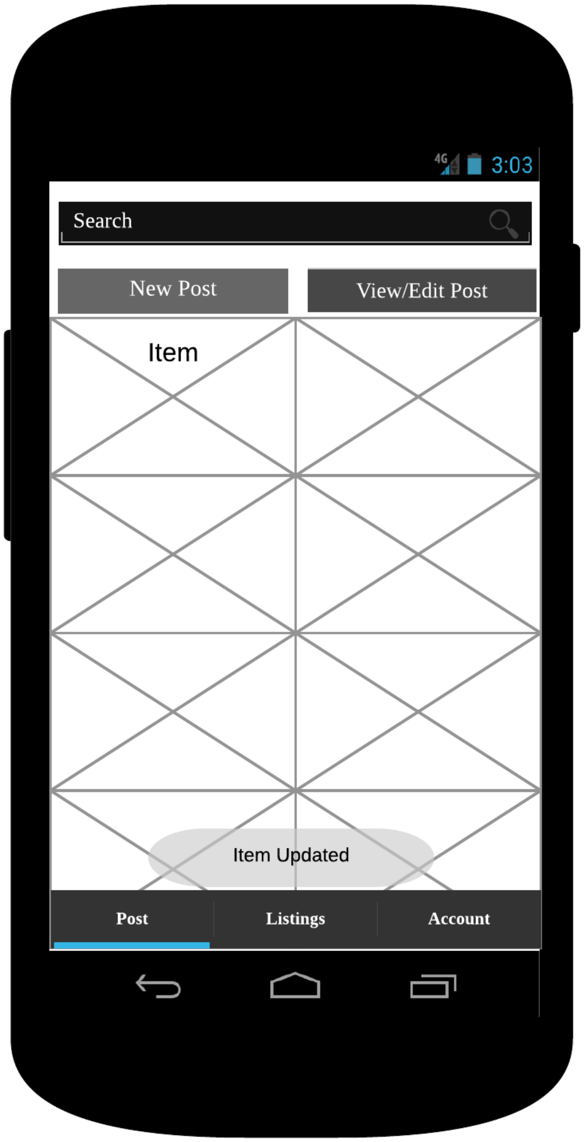


Seller View of Exsisting Post

S1

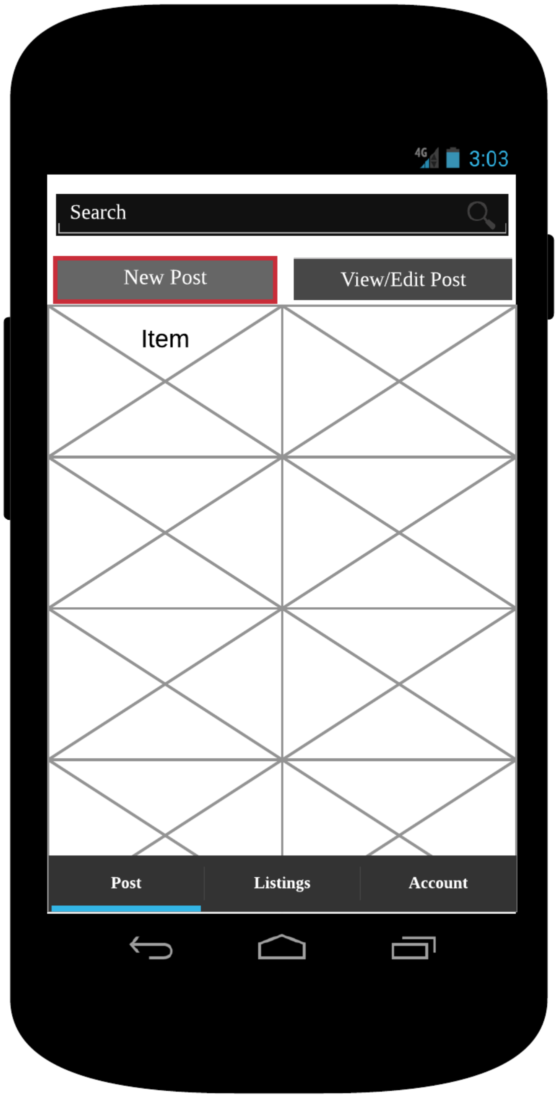


Seller View for new post

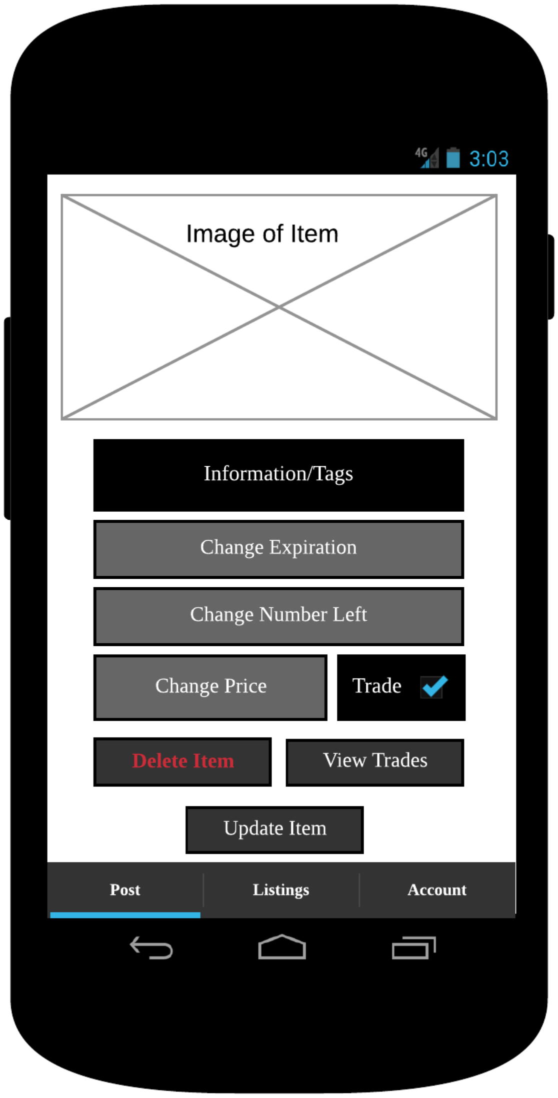


Item Updated

S2

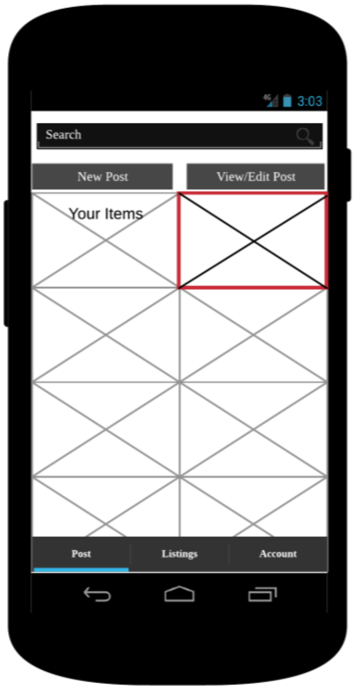


Clicks on new post

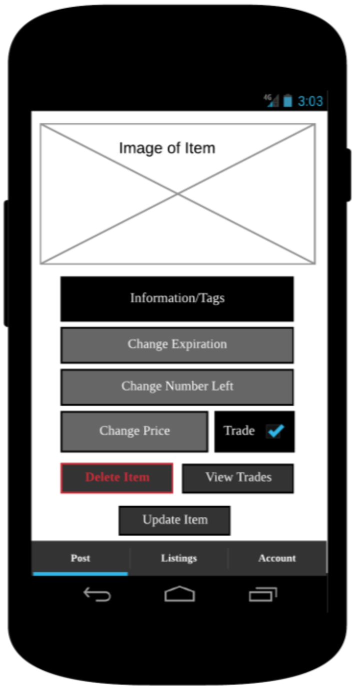


Seller View for new post

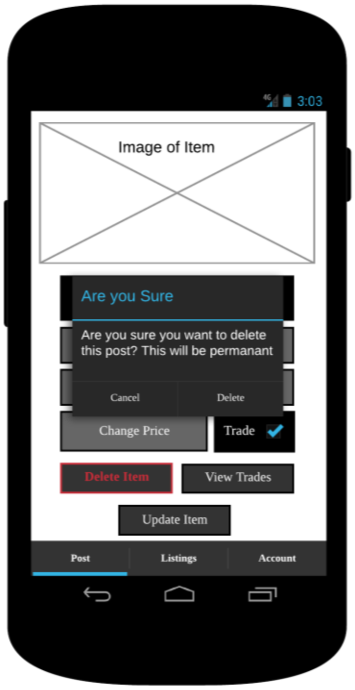
S3



Select Item



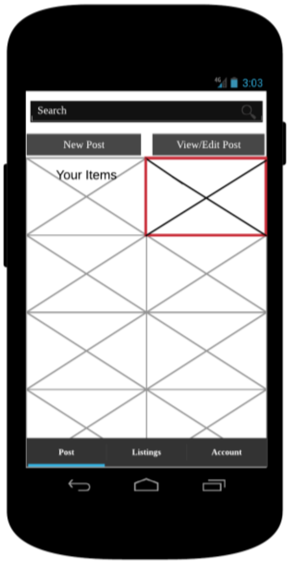
Seller presses delete item



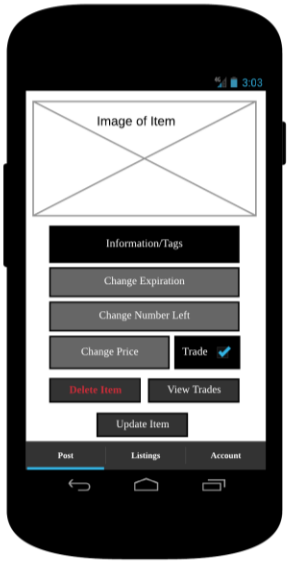
Are you sure you want to delete this post? This will be permanant

Deletion confirmation

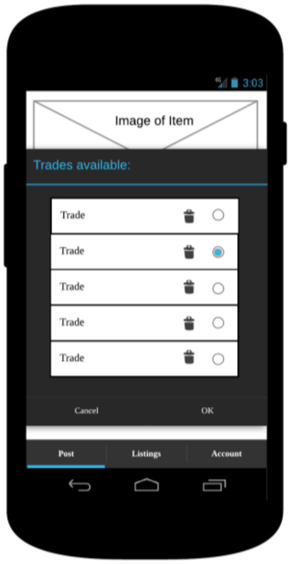
S4



Selecting Item to trade

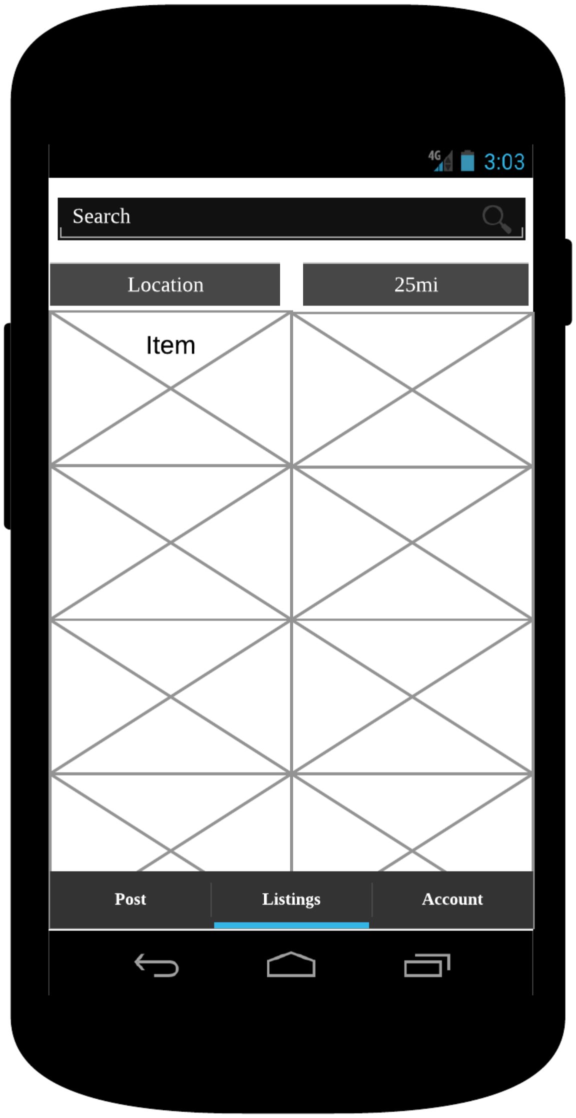


View/Edit Post Page

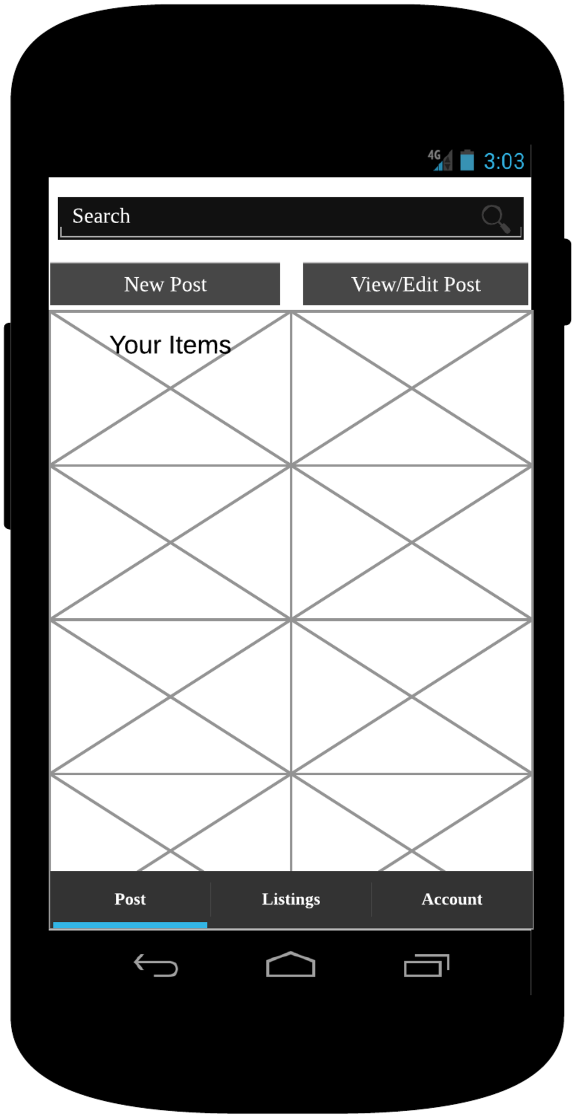


Select Trade

S5

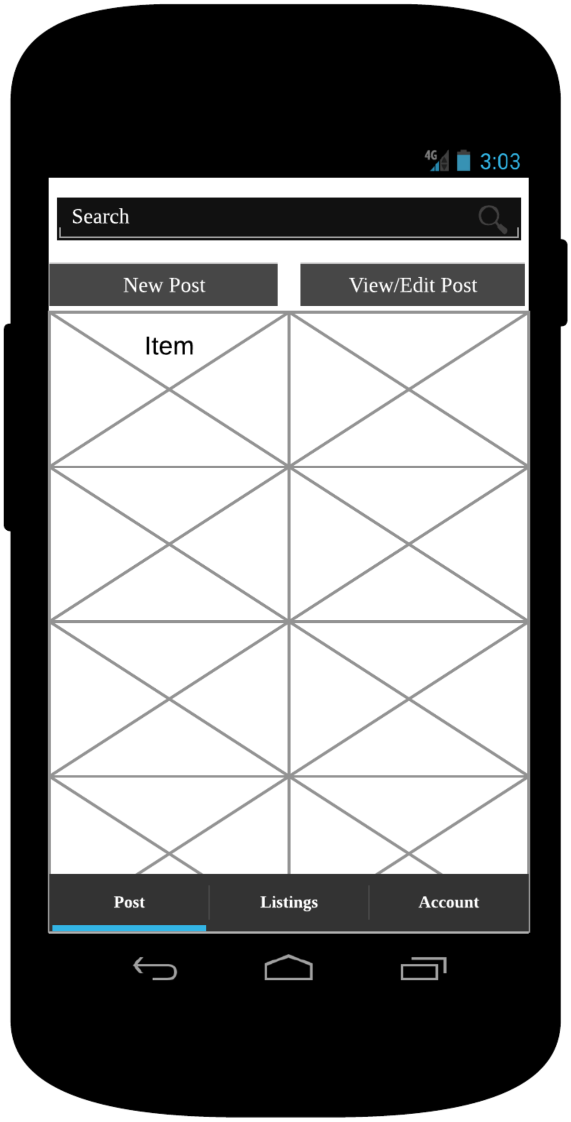


Home feed

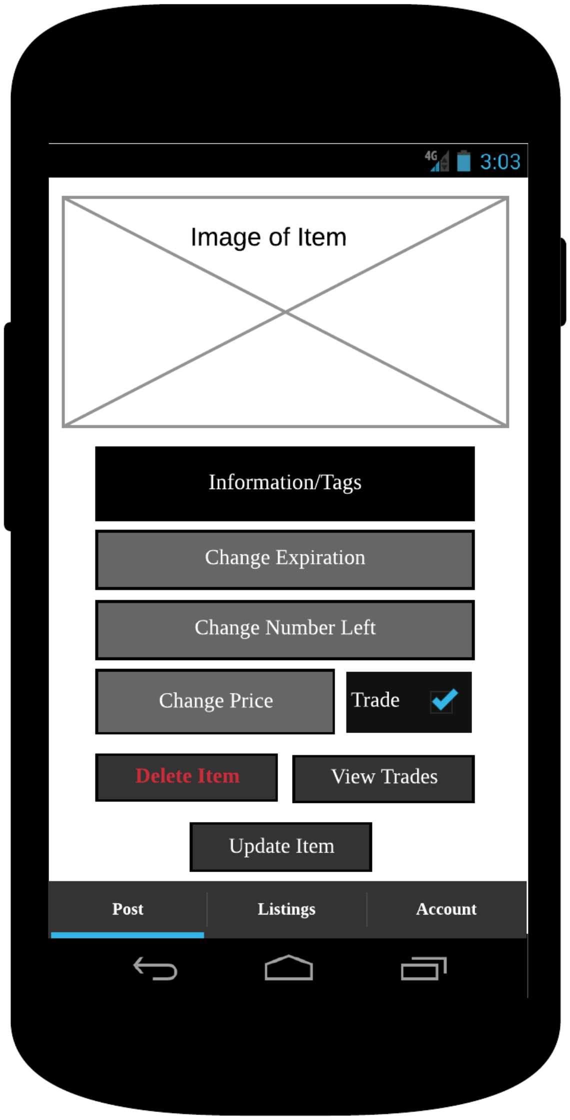


Post shows all the listings
you have posted

S6

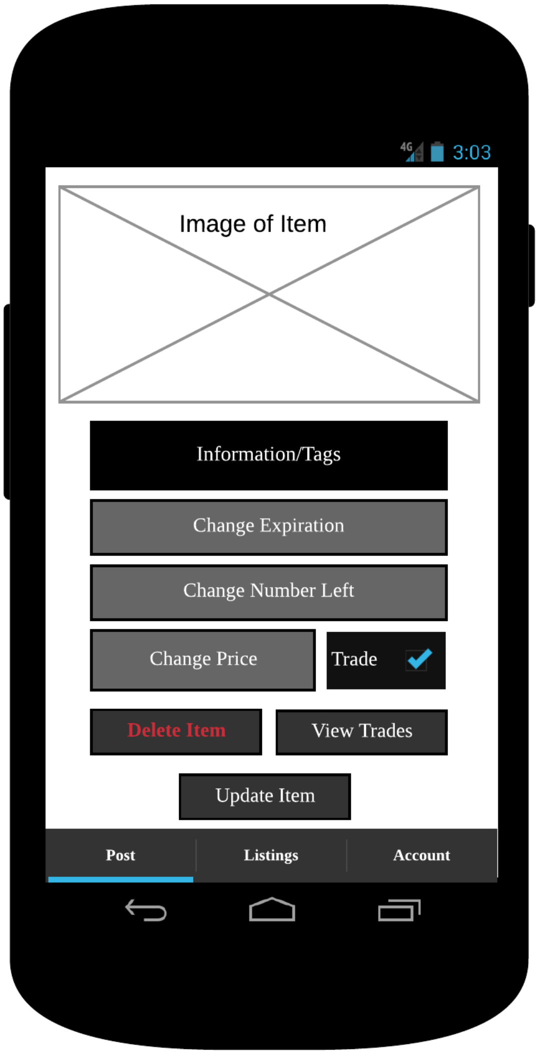


Clicks on one of the posts

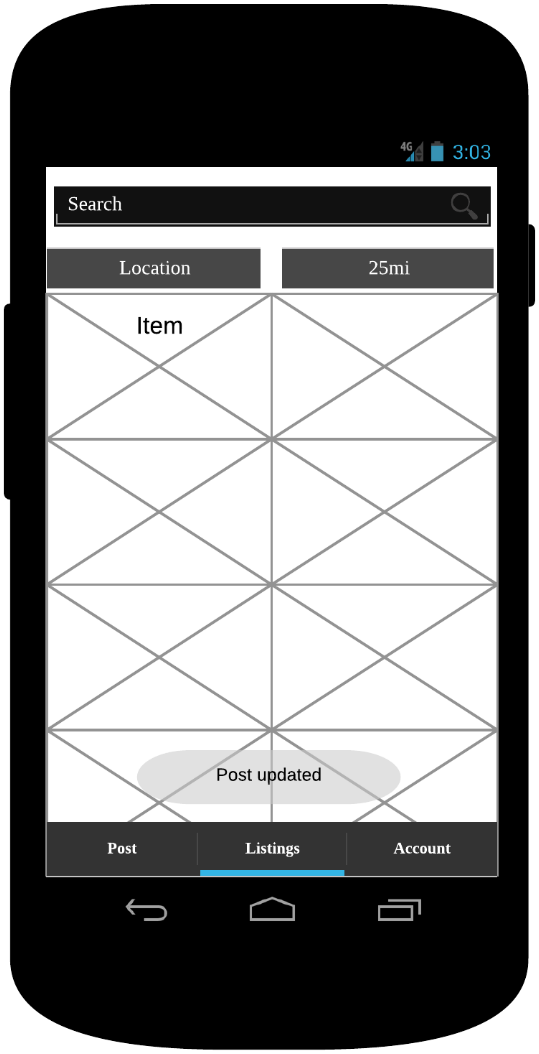


Seller View

S7



Seller View



Posting update confirmation

Non-Functional User Requirements

Usability

The important function of this application is simplicity. It is important that this application remains intuitive for Users:

- Buy items that other users post
- Sell items that the user will provide to the app
- Trade items that in a way that is simple for both parties
- Browse listings from an unregistered user enticing the users to register

Accessibility

Since the vision of this application is local, there is currently not a demand to develop the application in many languages and cultures.

- The system will support the English language
- The system will be usable for “non-technical” users
    - Ex. people that have degrees but are not exemplary in computer use
- The system will be user friendly to colorblind users

Availability

The application should be available at all times. The time in which an item is bought should not have any interference with the system because the system is not in charge of a delivery system. Users instead will meet at a location that is determined between the parties involved. If there are any errors that occur within the system, a notification email will be sent out to all users about maintenance repairs and an estimated time as to when the app will be up and running again. If non-users experience an error with the system, the page will alert them that the system is currently down and undergoing maintenance.

Documentation and Training

Documentation for this application will include a basic user manual with guides on how to do basic functions within the application, such as creating a new listing or updating a user’s account details. A copy of this SRS document will be provided to the client for future use as well.

There should be minimal training for the average person to use this application. It should follow intuitive smartphone application design choices. The only training necessary for this application will be the database administrator, who will need to have knowledge of SQL and a good understanding of the database itself.

Non-Functional System Requirements

Performance

This application is not intended to require a large amount of resources. In its core it designed to be a simple app that is very user friendly, therefore making it very resource intense would not make much sense. It should run smooth and be very responsive, not feeling sluggish or slow. It also should not use a lot of the battery since it is designed to be lightweight and fast.

Capacity

Due to the limited budget, we will not be able to start out with a large server, therefore our capacity will not be as large as we would want it to be. We will be using the free tier in Amazon Web Services (AWS). This means that our database is limited to 5GB of Standard storage. Standard storage for our application would include things like pictures of items, item data, user data, and transaction data. There would be a limit to the number of GET and PUT requests as well. You would be allowed 20,000 GET requests, and 2,000 PUT requests. Although this is not optimal, this is all we can afford until the application creates enough revenue to upgrade our servers.

Security

Access

A user must be logged in using an email and password to be able to view account information, edit listings, accept or decline trades, and buy and sell items. If they are not logged in, a user will only be able to view listings. A logged in session will begin upon being logged in and expire after a period of inactivity. The session will be validated upon every concerned action.

Passwords

Passwords will consist of any string of visible characters and must be at least 8 characters in length. The passwords will be hashed before being stored and each time a login is initiated, the input for the password will be hashed in the same way and compared to the stored hash in the database.

User Input

Any inputs into the system by a user will be sanitized before it is used in any query. This will prevent SQL Injection and any other unforeseen issues.

Other

Any data problems or issues with user behavior will be dealt with by a database administrator. This can include bugs in data entry on the part of the system, inappropriate content, or dishonest content. These can be removed or fixed directly with SQL.

Longevity

This application is intended to continue growing in the local area, and then from there hopefully it will grow much larger. For now, it does not have longevity because of our small budget and the price of large servers, but if the community around the application grows, then it will also develop longevity. However, the system can be subject to further development.