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Final Project Report

We decided on a marketplace system consisting of five classes: Item, Buyer, Seller, Order, and Marketplace. The marketplace itself handles the user interface, account creation and login, uploading inventory, purchasing inventory, search functions, reading/writing from files, etc. The data necessary for these methods are stored in ArrayLists as instance variables: lists of items, orders, sellers, buyers, and categories. Marketplace therefore aggregates all the other classes. Data will be written to text files for state persistence at the end of each session, and read in at the beginning.

Item contains a name, ID number, description, seller ID, price, quantity, and category as attributes. Buyer and Seller have unique IDs, names, emails and passwords, in addition to a buy method for the Buyer. Order has a buyer, seller, item, boolean shipping status, and an ID. All of these classes contain methods to get and set their attributes. These methods will be called as necessary as the user interacts with Marketplace.

While details about buyers, sellers, items, and orders will be stored in those classes, those objects will be aggregated within the marketplace not only for searching by the users, but also for methods that will validate information: for example, upon login, the marketplace will execute checkOutOfStock() in order to notify the seller of any of his or her items that are out of stock. In addition, this central storage prevents the need to copy information to multiple places. For example, for a user to see his or her order history, the marketplace can simply search and filter the whole ArrayList of orders by ID, requiring only one copy of each order instead of two (one each for the buyer and seller).

Inventory is accounted for not only by item, but by the count of each item. Upon purchase of an item, the count of that item is decremented. (If the count is already at 0, the item cannot be purchased,

and upon the seller's login a notification will be printed). Each item and each order indicates the seller ID, so that multiple buyers and sellers can all do business within the marketplace easily.

User interaction will be handled through the command line in the form of numbered menus. Login will be handled by the marketplace class, using usernames and passwords for each buyer and seller, as well as an admin ID and password. The user's numeric ID will be stored as a field in the Marketplace, and this will be used to determine the appropriate menu options to present to each user. The administrator will be given access to the same functionality as a buyer or seller, for all users: he or she can view the histories of each user, the shipping status of all orders, etc, as well as updating any account information.

The system state information is included with our project, so testers can log in with example usernames; in addition, sample inventory files are provided to test uploading functionality. Templates, javadoc documentation, and a readme file are also included.