**CS18000 - Problem Solving and Object-Oriented Programming**

**Project 5 Report**

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# **CS180 - Project 5 ReportPart One: The Project and its Functionality**

For project 5 our team built upon the work that we had developed on project 4. We created a marketplace that allows sellers to create stores through which they can then list their products and customers to purchase them through the use of a cart system. The program is composed of three main components: a client, a server, and a database. The client side is then further divided into two different classes: Seller and Customer classes. The seller class is composed of a username, password, id, and name. This class is responsible for the creation and update of stores and products as well as signing into the server in order to identify which parts of the database can be manipulated. The implementation of the Seller class includes the display of the unique stores that belong to the seller, each store includes descriptions, quantities, and prices for all of the products that are sold. Through the implemented GUI, the seller has the ability to remove, update and add products, as well as view sales, and create a new store. The customer class which is composed of the same fields as the seller class. The customer through the GUI will be able to search for products, choose products, or view their cart. The cart is a list of all of the products that the user has searched for and wants to buy, this connects a customer to a product within a store which then will tell the seller if a purchase has been made and the quantity available will be reduced. On the server aspect we have the marketplace which is where all of the interactions of the client are received and then interprets what the user wants in order to retrieve, add or modify the information within the database. The marketplace could be considered a bridge between the client and the database as we don’t wish for each of the clients to be interacting with the database individually. The connection to the database is done through UCanAccess by giving the URL of the database. UCanAccess is an “open-source Java JDBC driver implementation that allows Java developers and JDBC client programs (e.g., DBeaver, NetBeans, SQLeo, OpenOffice Base, LibreOffice Base, Squirrel SQL) to read/write Microsoft Access databases.” (<https://ucanaccess.sourceforge.net/site.html>). With the connection established the server can then alter the database which is a set of tables that have specific fields of information as well as connections between the tables through the use of SQl which is a standardized programming language. Through the use of queries such as update, add and delete we can manipulate the information that is within the database which will then take care of making the connections and dependencies required in order to maintain the integrity of the program as well as simplifying the search of information as it will sort all of the data given and provide the desired results instead of having the server go through a file and read all the information extracting every desired piece of information.