**Design Document for Final Project**

*Classes:*

This project will use one class called **summerChoices** which provides the relevant choices for summer repairs. This class will contain one private variable, *double totalCost*, which will be initialized to 0. The following function is included:

* void crack(): This function will get the type of crack the user would like to repair (big crack or small crack) and will add the relevant cost to the totalCost variable ($100 for a small crack, $150 for a big crack).

This project will also use another class called **winterChoices** which provides the relevant choices for summer repairs. This class will contain one private variable, *double totalCost*, and the following functions:

* void wash(): This function will ask the user which wash he/she would like to perform, and will add the corresponding wash cost into totalCost (which is the private variable)

Each class will have a non-parameterized constructor that will reset the classes variable totalCost. As a constructor, this will be called immediately when the object is declared in int main().

*int main():*

The user will interact with the interface in this part of the program. The following variables are included:

* char season: This variable will either record ‘s’ for summer or ‘w’ for winter. Based on the user’s choice, the relevant object will be called
* char userID[2]: This variable will store the user’s 2-digit ID number in a character array
* summerChoices summerRepair: This is the object for summerChoices, and will only be used if the user is in summer
* winterChoices winterRepair: This is the object for winterChoices and will only be used if the user in in winter
* char redoDecision: This variable stores the decision of the user if he/she wants to continue running the program or wants to log out.
* bool prevCustomer: This variable will evaluate to true if the customer is a previous customer or will evaluate to false if the customer is new.

In this project, int main() is placed in a do-while loop so that it can get multiple user ID’s. It will call all the functions in a proper succession (explained in user manual). The only decision it will make is the season for the repairs.

*Additional functions:*

All functions declared in the class will be defined outside of the class below int main(). To review their functions, please refer to the top of this document. However, a few more functions will be created for effective modularity within this program:

* bool checkRecord(): This function will go through the record file. This file will be linked to the program using ifstream records If the function finds the ID number, it will return true. Otherwise, it will return false and write the ID into the record file using fstream outputRecord.
* int totalCost(bool prevCustomer): This function will be a friend function to both the **summerChoices** class and the **winterChoices** class. By being a friend function, it will add up the costs. If the customer is a previous customer (as indicated by the parameter), it will reduce the total cost by 20%.