Project 2 Report:

One of the main obstacles I overcame was understanding that I had to use nested if-loops to solve the problem in order to attain the correct answer for the water bill. Initially, I was unsure of how I would go about solving this problem, and I finally realized that I would have to run an if-else loop with an if-else loop nested within in order to derive the proper answer. Another issue I had was when I was running certain test-cases, my double would round a number like 54.20 to 54.2. Due to the fact that I’m representing dollar values, I needed the zero to be kept in the code, and I finally realised that I needed to use the:

cout.setf(ios::fixed);

cout.precision(2);

lines at the top of my code in order to ensure that my double was kept to 2 decimal places at all times. Finally, I also had to remember to use the:

cin.ignore(10000, ‘\n');

line in order to make sure that my code would let me answer the user input prompts such as my customer name by forcing it to ignore the first newline symbol and thus allow me to enter my name into the program.

Test Cases:

Initial Meter Reading (-1, 100, 100, 100, 150, 150, 150, 150, 100000000000)

Final Meter Reading (NA, 90, 150, 150, 200, 180, 200, 160, NA)

Customer Name (NA, NA, (empty string), Vishal, Vishal, Vishal, Vishal, Vishal, NA)

Month (NA, NA, NA, 100, 4, 5, 11, 1, NA)

The first four test-cases all test to make sure that my program exits when the initial meter reading is negative, the final meter reading is less than the initial, an empty string was provided in the name, and the month number isn’t in the 1-12 range. Afterwards, I had 4 test cases which were 2 in the high season with greater than 43 units of usage and less than 43 units of usage respectively and 2 in the low season with greater than 29 units of usage and less than 29 units of usage respectively. The last test case crashes my code, as the value of the initial meter reading is larger than the value that can be stored in an int. It can be easily corrected by setting a cap for the maximum size of the initial meter reading.