CSCD 255
Lab 4

SPECIFICATIONS

1. The program will compute and display information for a utility company which supplies water to its customers. For a specified customer, the program will compute and display the amount of money which the customer will be billed for water usage during the current billing period.

2. The program will prompt the user to enter three values (in the following order):
   a. The customer's beginning meter reading (a positive integer value)
   b. The customer's ending meter reading (a positive integer value)
   c. The customer's code (a character)

   It will then process that customer information and display the results. NOTE: don't forget to clear the carriage return from the input buffer after you read the starting/ending value.

3. The program will compute the gallons of water used by the customer during the current billing period.

   The meter is read by a representative of the utility company at the start and at the end of the billing period, and the readings are taken from a meter which has nine digits and records tenths of a gallon.

   Example starting value 100 ending value 200 total tenths used 100 -> total gallons used 10

4. The program will compute the amount of money that the customer will be billed, based on the customer's code and water usage, using the following information. NOTE: you must handle both lower and uppercase letters for the code.

   Code 'r' (residential):
   - $15.00 base fee plus $0.0005 per gallon used

   Code 'c' (commercial):
   - $1000.00 base fee plus $0.00002 for each gallon used

   Code 'i' (industrial):
   - $1000.00 base fee if usage does not exceed 4 million gallons plus $0.00002 for each gallon used;
   - $2000.00 base fee if usage exceeds 4 million gallons but does not exceed 10 million gallons plus $0.00001 for each gallon used;
   - $2500.00 base fee plus $0.0025 for each additional gallon if usage exceeds 10 million gallons.

5. For each customer, the program will display a summary with the following information:
   a. The customer's code
   b. The customer's beginning meter reading
   c. The customer's ending meter reading
   d. The gallons of water used by the customer
   e. The amount of money billed to the customer

   All output will be appropriately labeled and formatted.

SAMPLE RUN

Please enter the beginning meter value 100
Please enter the ending meter value 200
Please enter the customer's code: r

The customer's code is r
The customer's meter reading at the beginning of the month was 100
The customer's meter reading at the end of the month was 200
The amount of water the customer used is 10.0 gallons
The customer is being billed for $15.01

NOTES

1. As stated above, the meter's dial has nine digits and records tenths of a gallon. For example, assuming that the beginning reading was 444400003 and the ending reading was 444400135, then the customer used 13.2 gallons of water during the billing period.

2. Since the meter's dial only has nine digits, the reading at the end of the billing period may be less than the reading at the beginning of the billing period. For example, assuming that the beginning reading was 999999997 and the ending reading was 000000005, then the customer used 0.8 gallons of water during the billing period.

3. The amount of money billed to a customer should be displayed as a monetary value. That is, it should be displayed with a dollar sign and two fractional digits (for example, $125.00 or $43.87).

4. I have provided main.c, lab4.h and lab4.c. You can't change my main write your prototypes in lab4.h and your functions in lab4.c.

5. Provide at least 9 runs of your program – ensure you are testing all cases including edge cases

TO TURN IN:

A zip file that contains Lab4

- The package code and the java file
- An output file named cscd255lab4out.txt with all of your sample runs

Name the zip file your last name first letter of your first name lab4.zip (Example: steinerslab4.zip)