

## Python Project – Water Bill

### Assignment 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 code (a character)
  - b. The customer's beginning meter reading (a positive integer value)
  - c. The customer's ending meter reading (a positive integer value)

It will then process that customer information and display the results. The program will continue to process customers until the user enters an invalid customer code.

3. The program will compute the gallons of water used by the customer during the current billing period. The inputs are from the meter readings: start and the end of the billing period, and the readings are taken from a meter which has nine digits and records tenths of a gallon.
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:
  - Code 'r' (residential):
    - \$5.00 plus \$0.0005 per gallon used
  - Code 'c' (commercial):
    - \$1000.00 for 4 million gallons or less, and \$0.00025 for each additional gallon used
  - Code 'i' (industrial):
    - \$1000.00 if usage does not exceed 4 million gallons;
    - \$2000.00 if usage exceeds 4 million gallons but does not exceed 10 million gallons; and \$2000.00 plus \$0.00025 for each additional gallon if usage exceeds 10 million gallons.
  - Code 'z' to end program
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

### 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. Use the book: Think Python – How to Think like a Computer Scientist for reference

### Sample Output

```
>>> ===== RESTART =====
>>>

Enter customer code: r
Enter beginning meter reading: 444400003
Enter ending meter reading:    444400135

Customer code: r
Beginning meter reading: 444400003
Ending meter reading:    444400135
Gallons of water used: 13.2
Amount billed: $5.01

Enter customer code: c
Enter beginning meter reading: 999999997
Enter ending meter reading:    000000005

Customer code: c
Beginning meter reading: 999999997
Ending meter reading:    5
Gallons of water used: 0.8
Amount billed: $1000.00

Enter customer code: z
>>>
```