

## Lab Assignment #5

*Instructor:* Dr. Lalatendu Behera

**Assignment Policy:** Read all the instructions below carefully before you start working on the assignment, and before you make a submission.

- Please include your name and roll number with the submission.
- This assignment is due at 5:00 PM.
- The Institute Academic Code of Conduct will be strictly enforced.

**Problem 1: Water Bill**

(8 points)

Write a program that computes a customers water bill. The bill includes a \$35 water demand charge plus a consumption (use) charge of \$1.10 for every thousand gallons used. Consumption is figured from meter readings (in thousands of gallons) taken recently and at the end of the previous month. If the customers unpaid balance is greater than zero, a \$2 late charge is assessed as well.

**EXPLANATION:**

The total water bill is the sum of the demand and use charges, the unpaid balance, and a possible late charge. The demand charge is a program constant (\$35), but the use charge must be computed. To do this, we must know the previous and current meter readings (the problem inputs). After obtaining these data, we can compute the use charge by multiplying the difference between the two meter readings by the charge for 1000 gallons, the problem constant \$1.10. Next, we can determine the applicable late charge, if any, and finally compute the water bill by adding the four components.

**Problem 2: Leap Year**

(7 points)

Write a program in C that finds whether a given year is a leap year or not.

**Problem 3: Circle or Square**

(5 points)

Write an interactive program that contains an if statement that may be used to compute the area of a square ( $area = side^2$ ) or a circle ( $area = \pi \times radius^2$ ) after prompting the user to type the first character of the figure name (S or C).