**PF Lab 6**

You are required to write the C++ programs of the following questions. Please make sure to submit a zipped folder(.zip) named ***yourRollNumber (23xxxx).*** Please note that there is **NO** dash(-) and alphabet(i) in the folder name. The folder should contain only .cpp files.

Validate the input where necessary.

1. Write a program that determines whether a character entered by the user is Vowel or Consonant.
2. Write a c++ program that helps a library determine late fees

* for overdue books. The library charges fees based on the following rules:
* 1. If a book is 1-7 days overdue, the fee is $0.25 per day.
* 2. If a book is 8-14 days overdue, the fee is $0.50 per day.
* 3. If a book is 15-30 days overdue, the fee is $1.00 per day.
* 4. If a book is more than 30 days overdue, the fee is $2.00 per day.
* Example:
* If the book is 9 days overdue, late fee = (7\*0.25) + (2\*0.5)
* If the book is 18 days overdue, late fee = (7\*0.25) + (7\*0.5) + (4\*1)

These are just the examples, your program should be generic and give valid output on any input.

1. A university does not allow its student to sit in the exam if his/her attendance is less than 85% in any course/lab.

Write a program to ask a student about the total number of classes scheduled by instructor during the whole semester and total number of classes he/she attended during the whole semester. Now calculate the floating point number as a percentage of his/her attendance. Print the percentage and decision if he/she is allowed to sit in the exam.

Sample Output:

Enter total classes scheduled: 10

Enter total classes attended: 9

Your attendance is: 90%

You are allowed to sit in the exam

1. In a company, worker efficiency is determined on the basis of the time required for a worker to complete a particular job. If the time taken by the worker is between 1– 2 hours, then the worker is said to be highly efficient. If the time required by the worker is between 2 – 3 hours, then the worker is ordered to improve speed. If the time taken is between 3 – 4 hours, the worker is given training to improve his speed, if the time taken by the worker is between 4 - 5 hours, then a final warning letter should be issued and, if the time taken by a worker is more than 5 hours, then the worker has to leave the company. If the time taken by the worker is input through the keyboard, find the efficiency of the worker.
2. Create a program that determines whether a given year is a leap year. A year is a leap year if it is divisible by 4 but not divisible by 100, or if it is divisible by 400.
3. Implement a grading system that takes a student's score as input and assigns a letter grade (A, B, C, D, or F) based on the following criteria by using Switch Statement.

A: 90-100

B: 80-89

C: 70-79

D: 60-69

F: 0-59

1. Create a calculator in C++ which can perform addition, subtraction, multiplication, division. Ask the user to enter the operator (+,-./,\*) first , then ask the user to enter first and then second value. Then calculate & display the result by using Switch Statement.
2. Write a program that calculates the bill of electricity with following considerations:

**1)Prices per unit**

i)Rate of unit price is 9 if no of units is less than 100.

ii)Rate of unit price is 11 if no of units is less than 200 and greater than 100.

iii)Rate of unit price is 9 if no of units is less than 300 and greater than 200.

**1)Tax addition**

i)Tax is 5% if the total bill is less than 750.

ii) Tax is 7% if the total bill is greater than 750.