Lab Assignment – 8

In this lab, you will write a C++ program to solve the following problem.

(1) The weather station of each city has the detail of rainfall in a year. Given the date and cm of rainfall recorded on that day, write a C++ program to determine the rainfall recorded in each month of the year and average monthly rainfall in the year. Use structures for defining variables.

Input	Output	Logic Involved
Details of rainfall recorded in the year (Date and cm of rainfall)	Rainfall recorded for each month and monthly average	Find sum of values for each month and then determine monthly average

(2) Define a class **Employee** with
- data members as

  - int **employee_id** – To store employee ID.
  - String **employee_name** – To store the name of the employee.
  - String **designation** – To store employee designation.
  - double **monthly_salary** – To store salary of the employee.
- Methods
  - void **display()** – To display details of employees whose earning is more than 20,000.

Input
  3
  123
  Ashish
  engineer
  40000
  124
  Amit
  Testing
  33000
  125
  White
  Trainee Engineer
  20000

where,

- First line represents the number of employees whose details are provided.
- Second line represents employee ID.
- Third line represents employee name.
- Fourth line represents designation of the employee.
- Fifth line represents employee salary per month.
- The remaining lines represent the details of the remaining employees in the same format as given above.

Output
    123 Ashish engineer 40000.0
    124 Amit Testing 33000.0

(3) Given a **Student** class, create a class with following characteristics

- The class name should be **ClassRoom**.
- Private variable **students** to maintain the list of **Student** objects.
- Function **addStudent** with input parameter name (string) and rollNo(int) adds a new student in "students" list.
- Method **getAllStudents** should return all the students in ClassRoom.

 Testcase:
Sample Input:
    Jack
    1
    Jones
    2
    Marry
    3

    where,

- First & Second line represent a student's name and roll number. And so on.

Sample Output:
    1 - Jack
    2 - Jones
    3 - Marry

Assume that,

- Maximum "students" count can be 10.

(4) Write a C++ program to store the customer details such as name and numbers as members and allocates the memory for the noofcustomers of the structure variable dynamically using new operator.

(Optional)

(5) Given an input string (s) and a pattern (p), implement wildcard pattern matching with support for '?' where:

- '?' Matches any single character.

The matching should cover the **entire** input string (not partial).

Testcase1:

Sample Input:

s = "aa", p = "a"

Sample Output:

false

Explanation: "a" does not match the entire string "aa".

Testcase 2:

Sample Input:

s = "cb", p = "?b"

Sample Output:

true

Explanation: '?' matches 'c', and the second letter is 'b', which does match 'b'.