ASSIGNMENT 1

WEATHER REPORT

Problem Statement :- Create a class named weather report that holds a daily weather report with data members day\_of\_month, high\_temp, low\_temp, amount\_rain and amount\_snow. The constructor initializes the fields with default values: 99 for day\_of\_month, 999 for high\_temp,-999 for low temp and 0 for amount\_rain and amount\_snow. Include a function that prompts the user and sets values for each field so that you can override the default values. Write a C++/Java/Python program that creates a monthly report. a) Menu driven program with options to Enter data and display report b) Report Format Day Amt\_rain Amt\_snow High\_temp Low\_temp.

Average

Learning Objective :-

1. Concept of Object Oriented Programming
2. Features of OOP
3. Nested Class Etc.,

Theory :-

C++ Object Oriented Concepts :-

The Object Oriented Concepts

Object :-

Class

Abstraction :-

Encapsulation

Inheritance :-

Polymorphism :-

Class Access Modifiers :- Data hiding is one of the important features of Object Oriented Programming which allows preventing the functions of a program to access directly the internal representation of a class type. The access restriction to the class members is specified

by the labeled public, private, and protected sections within the class body. The keywords public, private, and protected are called access specifiers.

1] Public Members :- A public member is accessible from anywhere outside the class but within a program. You can set and get the value of public variables without any member function.

2] Private Members :- A private member variable or function cannot be accessed, or even viewed from outside the class. Only the class and friend functions can access private members. By default all the members of a class would be private.

3] Protected Members :- A protected member variable or function is very similar to a private member but it provided one additional benefit that they can be accessed in child classes, which are called derived classes.

Related Mathematics :-

//Input :- Di = { d, r, s, h, l } The set D represents day in which the parameters d, r, s, h, l suggests weather information, Where, d :- day of the month r :- amount of rain s :- amount of snow h :- high temperature l :- low temperature

//Output :- R = { D1 D2 D3 …….. Dn }The set R represents report of the weather forecast and D represents day of which weather information is taken.

Definition of Algebra :- A system consisting of a set and one or more n-ary operations on the set is called algebra. An algebraic system is denoted by, (S, f1, f2, f3,……..) where S is a set of elements and f1, f2, f3,…. represents operations performed on S.

In the above program, Average = ( R, fr, fs, fh, fl ) Where, Average is an algebraic system, R is a set of report and fr, fs, fh, fl are the operations performed on set R.

fr :- Average of rain amount.

fs :- Average of snow amount.

fh :- Average of high temperature.

fl :- Average of low temperature.

D1 D2 D3

D4 Dn-1 Dn

**R**

Conclusion :- Using the concept of the class and objects , we have created weather report in C++.