NAME	**SURAJ VASANTRAO WARBHE**
ROLL NO.	**231066**
GR NO.	**21910631**
SUBJECT	**OOP**
ASSIGNMENT NO.	**01**
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ASSIGNMENT NO. : 1

Create a class named weather report that holds a daily weather report with data members day_of_month, hightemp, lowtemp, amount_rain and amount_snow. Use different types of constructors to initialize the objects. Also include a function that prompts the user and sets values for each field so that you can override the default values. Write a menu driven program in C++ with options to enter data and generate monthly report that displays average of each attribute.

AIM : To create a class named weather report that holds a daily weather report with data members day_of_month, hightemp, lowtemp, amount_rain and amount_snow. Use different types of constructors to initialize the objects. Also include a function that prompts the user and sets values for each field so that you can override the default values. Write a menu driven program in C++ with options to enter data and generate monthly report that displays average of each attribute.

OBJECTIVE : To understand and implement the concept of

1. Functions
2. Array

THEORY :

1. ARRAY :

   An Array is a collection of data items of same types, accessed using common name. A one dimensional array is like a list. A two dimensional array is like a table. In 'C' programming language, there is no limit for initialize dimensions in array. Indexing of array always starting from zero(0).

For Ex. Array = {1, 2, 3, 4, 5}

NUMBERS	1	2	3	4	5
INDEX	0	1	2	3	4

2. FUNCTION :

A Function is a block of code that perform specific task and can be called multiple times in a same program. It tells the compiler about a function name, return type and parameters.
Function declaration can be done as-
SYNTAX : return type Function name (Parameters)

There are two types of functions (a) **Built-in** and (b) **User Defined**. In this experiment some User Defined Functions (accept, display, union, intersection, validate and difference) are used.

PROGRAM CODE :

```
#include <iostream>
#include <stdlib.h>
using namespace std;
class WEATHER
{
	int day_of_month;
	float hightemp, lowtemp, amount_rain, amount_snow;
public:
	WEATHER()
	{
		day_of_month = 100;
		hightemp = 100;
		lowtemp = -100;
		amount_rain = 0;
		amount_snow = 0;
	}
	void
	ACCEPT(int date)
	{
		day_of_month = date;
		cout << "Enter high temp of day : ";
		cin >> hightemp;
```

```
		cout << "Enter low temp of day : ";
		cin >> lowtemp;
		cout << "Enter amount of rain of day : ";
		cin >> amount_rain;
		cout << "Enter amount of snow of day : ";
		cin >> amount_snow;
		cout << "\n";
	}
	void DISPLAY()
	{
		cout << day_of_month << "\t\t" << hightemp << "\t\t" << lowtemp << "\t\t"
<< amount_rain << "\t\t" << amount_snow << "\n";
	}
	void AVERAGE(WEATHER w[31], int count)
	{
		int i;
		float total_hightemp = 0;
		float total_lowtemp = 0;
		float total_amount_rain = 0;
		float total_amount_snow = 0;
		float avg_hightemp = 0;
		float avg_lowtemp = 0;
		float avg_amount_rain = 0;
		float avg_amount_snow = 0;
```

```
            for (i = 0; i < 31; i++)
            {
                if (w[i].day_of_month != 100)
                {
                    total_hightemp += w[i].hightemp;
                    total_lowtemp += w[i].lowtemp;
                    total_amount_rain += w[i].amount_rain;
                    total_amount_snow += w[i].amount_snow;
                }
            }

            avg_hightemp = total_hightemp / count;
            avg_lowtemp = total_lowtemp / count;
            avg_amount_rain = total_amount_rain / count;
            avg_amount_snow = total_amount_snow / count;

            cout << "\nAverage High temp : " << avg_hightemp;
            cout << "\nAverage Low temp : " << avg_lowtemp;
            cout << "\nAverage amount of rain:" << avg_amount_rain;
            cout << "\nAverage amount of snow : " << avg_amount_snow;
        }
};

void main()
```

```
{
	WEATHER w[31], w1;
	int choice;
	int i, d, date, count;

	do
	{
		cout << "\n*****MENU*****\n\n1) ENTER DATA \n2) DISPLAY DATA\n3) AVERAGE\n4) EXIT\n***************\n\n";
		cout << "\nEnter your choice : ";
		cin >> choice;

		switch (choice)
		{
		case 1:
			int count, i;
			cout << "\nEnter number of days :";
			cin >> count;
			for (i = 1; i <= count; i++)
			{
				cout << "Enter date :";
				cin >> date;
				w[date].ACCEPT(date);
			}
			break;
```

```
                case 2:
                        cout << "day_of_month"<< "\t" << "htemp" << "\t" << "ltemp" <<
"\t"<< "amt_of_rain"<< "\t" << "amt_of_snow"<< "\n";
                        for (i = 0; i < 31; i++)
                        {
                                w[i].DISPLAY();
                        }
                        break;
                case 3:
                        w1.AVERAGE(w, count);
                        break;
                case 4:
                        exit(0);
                }
        } while (choice != 4);
}
```

OUTOUT :

*****MENU*****

1) ENTER DATA
2) DISPLAY DATA
3) AVERAGE
4) EXIT
****

Enter your choice : 1

Enter number of days :4
Enter date :1
Enter high temp of day : 40
Enter low temp of day : 29
Enter amount of rain of day : 30
Enter amount of snow of day : 12

Enter date :2
Enter high temp of day : 41
Enter low temp of day : 30
Enter amount of rain of day : 22
Enter amount of snow of day : 13

Enter date :3
Enter high temp of day : 39
Enter low temp of day : 27
Enter amount of rain of day : 25
Enter amount of snow of day : 12

Enter date :4
Enter high temp of day : 39
Enter low temp of day : 29
Enter amount of rain of day : 24
Enter amount of snow of day : 11

*****MENU*****

1) ENTER DATA
2) DISPLAY DATA
3) AVERAGE
4) EXIT
****

Enter your choice : 2

day_of_month	hightemp	lowtemp	amount_rain	amount_snow
1	40	29	30	12
2	41	30	22	13
3	39	27	25	12
4	39	29	24	11
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0
100	100	-100	0	0

```
*****MENU*****

1) ENTER DATA
2) DISPLAY DATA
3) AVERAGE
4) EXIT
*****************

Enter your choice : 3

Average High temp : 39.75
Average Low temp : 28.75
Average amount of rain:25.25
Average amount of snow : 12

*****MENU*****

1) ENTER DATA
2) DISPLAY DATA
3) AVERAGE
4) EXIT
*****************

Enter your choice : 4

[Program finished]
```

CONCLUSION : This Assignment helps us to learn basic concepts of class, objects, array, functions, scope resolution operator and data members in the 'C++' Programming language. We got an insight about how to declare function of class in program, accept and display it outside the main function using scope resolution operator.