Experiment 07

OBJECTIVE

Write programs to understand the usage of constant data member and member function, static data member and member function in a class.

PROGRAM

Const member functions in C++: The const member functions are the functions which are declared as constant in the program. The object called by these functions cannot be modified. It is recommended to use **const** keyword so that accidental changes to object are avoided.

A const member function can be called by any type of object. Non-const functions can be called by non-const objects only.

Syntax: datatype function_name const();

Program:

```
#include<iostream>
using namespace std;
class Demo {
  int val;
  public:
  Demo(int x = 0) {
    val = x;
  }
  int getValue() const {
    return val;
  }
};
int main() {
  const Demo d(28);
  Demo d1(8);
  cout << "The value using object d : " << d.getValue();
  cout << "\nThe value using object d1 : " << d1.getValue();
  return 0;
}
```

Output: The value using object d: 28

The value using object d1: 8

Static Data Members in C++: Static data members are class members that are declared using the static keyword. There is only one copy of the static data member in the class, even

if there are many class objects. This is because all the objects share the static data member. The static data member is always initialized to zero when the first class object is created.

Syntax: static data_type data_member_name;

Program:

```
#include <iostream>
#include<string.h>
using namespace std;
class Student {
  private:
  int rollNo;
  char name[10];
  int marks;
  public:
  static int objectCount;
  Student() {
    objectCount++;
  }

  void getdata() {
    cout << "Enter roll number: "<<endl;
    cin >> rollNo;
    cout << "Enter name: "<<endl;
    cin >> name;
    cout << "Enter marks: "<<endl;
    cin >> marks;
  }

  void putdata() {
    cout<<"Roll Number = "<< rollNo <<endl;
    cout<<"Name = "<< name <<endl;
    cout<<"Marks = "<< marks <<endl;
    cout<<endl;
  }
};
int Student::objectCount = 0;
int main(void) {
  Student s1;
  s1.getdata();
  s1.putdata();
```

```
  Student s2;

  s2.getdata();
  s2.putdata();
  Student s3;

  s3.getdata();
  s3.putdata();
  cout << "Total objects created = " << Student::objectCount << endl;
  return 0;
}
```

Output:

Enter roll number: 1

Enter name: Mark

Enter marks: 78

Roll Number = 1

Name = Mark

Marks = 78

Enter roll number: 2

Enter name: Nancy

Enter marks: 55

Roll Number = 2

Name = Nancy

Marks = 55

Enter roll number: 3

Enter name: Susan

Enter marks: 90

Roll Number = 3

Name = Susan

Marks = 90

Total objects created = 3

Explanation: In the above program, the class student has three data members denoting the student roll number, name and marks. The object Count Data member is a static data member that contains the number of objects created of class Student. Student () is a constructor that increments object Count each time a new class object is created.