

C++ Lab Activity: Class and Object

Objective

To understand classes and objects in C++ by creating a Student class with simple data members and member functions, without using a constructor.

Instructions

- Use the header file `#include <iostream>`.
- Use `using namespace std;`
- Create a class named Student.
- Data members: name, rollNo, and studentClass.
- Member functions: `getData()` and `showData()`.

Program 1: Member Function Inside the Class

Create the Student class and define `getData()` and `showData()` inside the class.

```
#include <iostream>
using namespace std;

class Student
{
    string name;
    int rollNo;
    string studentClass;

public:
    void getData()
    {
        cout << "Enter Student Name: ";
        cin >> name;

        cout << "Enter Roll Number: ";
        cin >> rollNo;

        cout << "Enter Class: ";
        cin >> studentClass;
    }

    void showData()
    {
        cout << "\n--- Student Details ---" << endl;
```

```
        cout << "Name: " << name << endl;
        cout << "Roll Number: " << rollNo << endl;
        cout << "Class: " << studentClass << endl;
    }
};

int main()
{
    Student s1;
    s1.getData();
    s1.showData();

    return 0;
}
```

Program 2: Member Functions Outside the Class

Declare `getData()` and `showData()` inside the class, but define them outside the class using the scope resolution operator `::`.

```
#include <iostream>
using namespace std;

class Student
{
    string name;
    int rollNo;
    string studentClass;

public:
    void getData();
    void showData();
};

void Student::getData()
{
    cout << "Enter Student Name: ";
    cin >> name;

    cout << "Enter Roll Number: ";
    cin >> rollNo;

    cout << "Enter Class: ";
    cin >> studentClass;
}

void Student::showData()
{
    cout << "\n--- Student Details ---" << endl;
    cout << "Name: " << name << endl;
    cout << "Roll Number: " << rollNo << endl;
    cout << "Class: " << studentClass << endl;
}

int main()
{
    Student s1;
    s1.getData();
    s1.showData();

    return 0;
}
```

Program 3: Object Declaration Inside main()

Declare Student objects inside the main() function and use them to call getData() and showData().

```
#include <iostream>
using namespace std;

class Student
{
    string name;
    int rollNo;
    string studentClass;

public:
    void getData();
    void showData();
};

void Student::getData()
{
    cout << "Enter Student Name: ";
    cin >> name;

    cout << "Enter Roll Number: ";
    cin >> rollNo;

    cout << "Enter Class: ";
    cin >> studentClass;
}

void Student::showData()
{
    cout << "\n--- Student Details ---" << endl;
    cout << "Name: " << name << endl;
    cout << "Roll Number: " << rollNo << endl;
    cout << "Class: " << studentClass << endl;
}

int main()
{
    Student student1;
    Student student2;

    cout << "\nEnter details of Student 1\n";
    student1.getData();

    cout << "\nEnter details of Student 2\n";
    student2.getData();

    cout << "\nStudent 1 Details:";
    student1.showData();
}
```

```
    cout << "\nStudent 2 Details:";
    student2.showData();

    return 0;
}
```