Practical Lecture 5: Class and Object

Quick Recap

Let's take a quick recap of previous lecture –

A)

B)

C)

D)

E)

Today's Agenda

Today we are going to cover -

- Class

- Object

- Explaining class and object with example

- Creating class function inside the class.

- Creating Class function Outside the class

- Practice Questions

Let's Get Started-

Class and Object

A class in C++ is the building block, that leads to Object-Oriented programming. It is a user-defined data type, which holds its own data members and member functions, which can be accessed and used by creating an instance of that class. A C++ class is like a blueprint for an object.

An Object is an instance of a Class. When a class is defined, no memory is allocated but when it is instantiated (i.e. an object is created) memory is allocated

Class and Object Example

Class and Object example
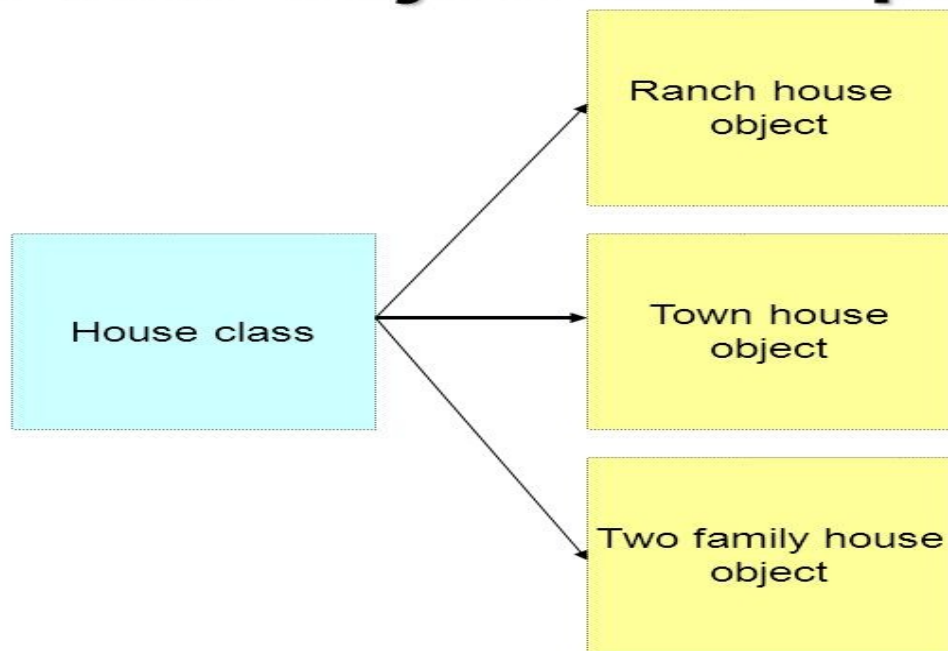
```cpp
#include <iostream>
#include<string>
using namespace std;


class Student{   // we are creating class with class keyword
    public:      //Access modifiers
    string studentName;   //Data members of the class
    int rollNumber;
    int tutionFess;
};
```

Class and Object example

```
int main() {

  Student studentOne;  // creating object of student class
  studentOne.studentName="Vikash";
  studentOne.rollNumber=55;
  studentOne.tutionFess=400000.00;



  cout<<"The student name is"<<" "<<studentOne.studentName<<endl;  // endl is used
 for the next line
  cout<<"The student roll number is"<<" "<<studentOne.rollNumber<<endl;
  cout<<"The student tution fees is"<<" "<<studentOne.tutionFess<<endl;

}
```

Class and Object example

Output

The student name is Vikash
The student roll number is 55
The student tution fees is 400000

Creating multiple object for the class

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


class Student{   // we are creating class with class keyword
    public:      //Access modifiers
    string studentName;   //Data members of the class
    int rollNumber;
    int tutionFees;
};
```

Creating multiple object for the class

```
int main() {

    Student studentOne;  // creating object of student class
    studentOne.studentName="Vikash";
    studentOne.rollNumber=55;
    studentOne.tutionFees=400000.00;



    cout<<"The student name is"<<" "<<studentOne.studentName<<endl;  // endl is used
for the next line
    cout<<"The student roll number is"<<" "<<studentOne.rollNumber<<endl;
    cout<<"The student tution fees is"<<" "<<studentOne.tutionFees<<endl;
```

Creating multiple object for the class

```
Student studentTwo;  // creating object of student class
    studentTwo.studentName="Mukesh";
    studentTwo.rollNumber=44;
    studentTwo.tutionFees=500000.00;


    cout<<"The student name is"<<" "<<studentTwo.studentName<<endl;  // endl is
used for the next line
    cout<<"The student roll number is"<<" "<<studentTwo.rollNumber<<endl;
    cout<<"The student tution fees is"<<" "<<studentTwo.tutionFees<<endl;


}
```

Output

The student name is Vikash
The student roll number is 55
The student tution fees is 400000

The student name is Mukesh
The student roll number is 44
The student tution fees is 500000

Creating Function Inside the class

```cpp
class Student{   // we are creating class with class keyword
    public:      //Access modifiers
    string studentName;   //Data members of the class
    int rollNumber;
    int tutionFees;


    void studentInfoDisplay(){
        cout<<"The student name is"<<" "<<studentName<<endl;  // endl is used for the next line
        cout<<"The student roll number is"<<" "<<rollNumber<<endl;
        cout<<"The student tution fees is"<<" "<<tutionFees<<endl;

    }
};
```

Creating Function inside the class

```
int main() {

    Student studentOne;  // creating object of student class


    studentOne.studentName="Vikash";
    studentOne.rollNumber=55;
    studentOne.tutionFees=400000.00;



 studentOne.studentInfoDisplay();


}
```

Creating function outside the class

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



class Student{   // we are creating class with class keyword
    public:      //Access modifiers
    string studentName;    //Data members of the class
    int rollNumber;
    int tutionFees;


    void studentInfoDisplay();
};
```

Creating function outside the class

```
void Student :: studentInfoDisplay(){  // methods defined outside  the class


        cout<<"The student name is"<<" "<<studentName<<endl;  // endl is used for the
next line
        cout<<"The student roll number is"<<" "<<rollNumber<<endl;
        cout<<"The student tution fees is"<<" "<<tutionFees<<endl;



    }
```

Creating function outside the class

```
int main() {

    Student studentOne;  // creating object of student class


    studentOne.studentName="Vikash";
    studentOne.rollNumber=55;
    studentOne.tutionFees=400000.00;


  studentOne.studentInfoDisplay();

}
```

Practice Questions

1. Write a C++ Program to find Factorial of a number using class. Here's simple C++ Program to   find Factorial of a number using class in C++ Programming Language.

2. Write a C++ Program to find Sum of odd numbers between 1 and 100 using class

3.Write a C++ Program To Calculate Electricity Bill Of Person using Class. Here's a
 Simple Program To Calculate Electricity Bill Of Person using Class in C++ Programming
 Language

To Calculate Electricity Bill Of Person using Class,first we have to create and call get() function
to take input details of the customer.
After get( ) , we create and call a new function i.e calc_bill( ) to calculate the total bill of
the customer on the behalf of units consumed by the customer .
At last , we call the put( ) function to print or display customer or person electricity bill on
the screen.

100 RS. 1.20 per unit
200 RS. 2 per unit
300 RS. 3 per unit

QNA Time

Any Questions ??

Any Questions??

Thank You!

See you guys in next class.