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Subject: OOP

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Q:- What is class and role of object in a class, explain in detail with the help of a suitable program?

Ans:

Class

In object-oriented programming, a class is an extensible program-code template for creating objects providing initial values for state (member variable) and implementation of a behaviour (member function or methods). In these languages, a class that creates classes is called metaclass. A class is written by a programmer in a defined structure to create an object (computer science) in an object oriented programming language. For example, a class could be a car, which could have a color field, four tire field and a drive method.

Role of object in a class.

An object is an element (or instance) of a class; objects have the behaviors of their class. The object is the actual components of programmes, while the class specifies how instances are created and how they behave.

In object-oriented programming, a class is a blueprint for creating objects (a particular data structure) providing initial values for state (members variables or attributes) and implementations of behavior (member function or methods). The user-defined objects are created using the class keyword.

A Suitable Programmes.

```
// sample function  
void sampleFunction() {  
    // create objects  
    Room room1, room2;  
}  
  
int main() {  
    // create objects  
    Room room3, room4;  
}
```

Here, two objects `room1` and `room2` of the `Room` class are created in `sampleFunction()`. Similarly, the objects `room3` and `room4` are created in `main()`.

As we can see, we can create objects of a class in any function of the program. We can also create objects of a class within the class itself, or in other classes.

Q9 = Write a Program about table printing
Which takes input from the user on
the basis of oop and explain in
detail.

Ans

```
#include <iostream>
```

```
using namespace std; // find something  
int main () // that is not clear,  
{ // program execution
```

```
int num; // taking variable num
```

```
cout << "Enter number to find multiplication  
table
```

```
<< endl; // Taking input from  
cin >> num; // user
```

```
for (int a=1; a<=10; a++)
```

```
{ // using for loop it will  
// go to 1 to 10
```

```
cout << num << "*" << a << " = " << endl;
```

```
<< num << a << endl;
```

```
// Display table: num * user input = Total  
}
```

```
return 0; // Exit successfully
```

```
}
```

Q3 Write a program about any 2 cars
→ Which can calculate the performance of both of them and explain in detail?

Ans

→ // simple oop program to count cars

```
#include <bits/stdc++.h>
using namespace std;
```

```
// Returns count of passing car
```

```
int getpassingcars (int A[], int n)
```

```
{
```

```
    int result = 0;
```

```
    for (int i = 0; i < n - 1; i++)
```

```
    {
```

```
        if (A[i] == 0)
```

```
        {
```

```
            for (int j = i + 1; j < n; j++)
```

```
                if (A[j])
```

```
                    result++;
```

```
        }
```

```
    }
```

```
    return result;
```

```
}
```

```
// Driver Program
```

```
int main ()
```

```
{
```

```
    int A[] = {0, 1, 0, 1, 1};
```

```
    int n = sizeof(A) / sizeof(A[0]);
```

```
    count << getpassingcars (A, n);
```

```
    return 0;
```

```
}
```

To create objects of a certain class

You use the new keyword. Here is an

example: `car car1 = new car(); car`

`car2 = new car(); car3 = new ();`

`car1.set color ("red");`

`car2.set color ("green");`

`car3.set color ("blue");`

• Before creating a program to read data from a file you need to understand what data is in the file. In the example it will use a file called cars.csv

	A	B
(1)	TTS Nom	96.85
(2)	TTS IRDA	63.24
(3)	ED35Pij	74.57
(4)	DM35Hony	91.46

In the file there are two pieces of data these are the car registration and the speed. When the data is split into a list they can be referred to as element 0 for the registration and element 1 for the speed.

Step 1 Saving the CSV file.

Step 2 Creating a connection to the file = `open ("cars.csv" "r")`

Step 3 Taking input for the user

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```
limit = int(input("Please enter speed limit"))
```

STEP 4 Reading through the file.
= got line is bike.

Now program

```
bound = False # new code
```

```
file = open("cars.csv", "r")
```

```
limit = int(input("Please enter speed  
limits"))
```

```
for line in file:
```

```
    details = line.split(",")
```

```
    speed = float(details[1])
```

```
    if speed > limit
```

```
        bound = True # new code
```

```
        print(details[0] + " " + details[1])
```

```
    if bound = False: # new code
```

```
        print("There are no speeding cars")
```