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Course: Object Oriented Programming.

Q1 What is Class and role of Object in a Class, explain in detail with the help of a suitable program?

ANSWER:- Class is the fundamental component of all java programs. From a single class, many objects can be created. A class is composed of variables that hold data for each object and methods that provide functionality. A class defines a specific set of variables and methods and eventually objects are created from

OBJECT:- An object is a software module that has a state and behavior. An object's state is contained within its member variables and its behavior is implemented through its methods. Object is a combination of data and methods. An object is an instance of a class, and there could be multiple instances in a single class. All the instances share the same attributes and behavior of the class, but the values of those attributes that is the states are unique for each object.

ROLE OF OBJECTS IN A CLASS:- Objects in java represents real life things. When we do work

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in java, we use objects to get the job done we create objects modify them, move them around change their variables call their methods and combine them with other objects

EXAMPLE

```
Public Class Person
{
    String name = "Ahmad";
    int age = 18;
    void speak()
    {
        System.out.println("my name is " + name);
        System.out.println("i'm " + age + "years old");
    }
}

public static void main (String [] args)
{
    Person Ahmad = new Person();
    Ahmad.speak();
}
}
```

Output:

```
my name is Ahmad
i'm 18 years old.
```


EXPLANATION

In this example I created a class with the name "Person".

I declared and assigned values to the two variables. I created method with the return type void. System.out.println() is used to print an argument that is passed to it.

In the main class "Person" object named "Ahmad". In this program the class Person has an object Ahmad, data assigned to it (variables; name and age) and functionality (method; speak).

Q2 Write a program about table printing which takes input from the user on the basis of OOP and explain in detail.

PROGRAM

```
class Test Table {  
    public static void main (String [] args) {  
        table obj = new table();  
        obj.input ();  
        obj.tabl ();  
    }  
}  
  
class table {  
    int i, a;
```

```

Scanner tab = new Scanner(System.in);
void input()
{
    System.out.println("Enter a number:");
    a = tab.nextInt();
    System.out.println("the number you entered is:" + a);
}
void tab() {
    for (i = 1; i <= 10; i++)
    {
        System.out.println(a + "*" + i + " = " + a * i);
    }
}

```

Output

Enter a number
9

the number you entered is : 9

$$9 * 1 = 9$$

$$9 * 2 = 18$$

$$9 * 3 = 27$$

$$9 * 4 = 36$$

$$9 * 5 = 45$$


$$9 * 6 = 54$$

$$9 * 7 = 63$$

$$9 * 8 = 72$$

$$9 * 9 = 81$$

$$9 * 10 = 90$$

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Q3 Write a program about any 2 cars which can calculate the performance of both of them and explain in detail.

PROGRAM:-

```
Public class Car 2
```

```
{
```

```
Public Static void main (String [] args)
```

```
{
```

```
Car 1 car1 = new Car 2();
```

```
Scanner cr = new Scanner (System.in);
```

```
System.out.println ("Enter car brand:");
```

```
car1.brand = cr.nextLine();
```

```
System.out.println ("Enter car brand of second car:");
```

```
car1.brand 2 = cr.nextLine();
```

```
System.out.println ("Enter kilometers travelled by " + car1  
                    .brand );
```

```
car1.kilom = cr.nextDouble();
```

```
System.out.println ("Enter kilometers travelled by " + car1.brand);
```

```
car1.kilom = cr.nextDouble();
```

```
System.out.println ("Enter fuel consumed for " + car1.brand);
```

```
car1.fCon = cr.nextDouble();
```

```
System.out.println ("Enter fuel consumed for " + car1.brand);
```

```
car1.fCon 2 = cr.nextDouble();
```



```
System.out.println("performance of " + car1.brand + ":");  
System.out.println("fuel consumption: " + car1.consump());  
System.out.println("performance of " + car1.brand + ":");
```

```
System.out.println("performance of " + car1.brand2 + ":");  
System.out.println("fuel consumption: " + car1.consump2());
```

```
cr.close();
```

```
}
```

```
}
```

```
class car2 {
```

```
String brand brand2;
```

```
double kiloM, kiloM2, fCon, fCon2;
```

```
int m, m2;
```

```
double consump()
```

```
{
```

```
double p;
```

```
p = fCon/kiloM;
```

```
return p;
```

```
}
```


```
double consump2()
```

```
{
```

```
double t;
```

```
t = fCon2/kiloM2;
```

```
return t;
```

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OUTPUT:-

Enter Car brand:

Toyota

enter car brand of the 2nd car:

Honda

enter kilometer travelled by Toyota

79

enter kilometer travelled by Honda

89

enter fuel consumed for Toyota

799

enter fuel consumed for Honda

689

EXPLANATION:-

The program is to calculate the fuel consumption, km different car brands of the user's choice.

car1 is object and getting input from the user.