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Dep: BScs

Paper: OOP

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(Q: NO: 1)

class.

Class are a blueprint or a set of instruction to build a specific type of object. It is a basic concept of object oriented programming which revolve around the real life entities. Class in java determines how an object will behave and what the object will

contain

syntax:

```
class < class - name > {  
    field ;  
    method ;
```

```
}
```

Role of object.

Object is an instance of class. An object is nothing but a self-contained component which consists of methods and properties to make a particular type of data useful. e.g. color, name, table, bag barking. when you send a message to an object, you are

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asking the object to invoke or execute one of its methods as defined in the class.

From a programming point of view an object can include a data structure, a variable or a function. It has a memory location allocated. The object is designed as class hierarchies.

Syntax

```
class name Reference variable  
= new class name();
```

Program

```
// class Declaration
```

```
public class Dog {  
    // instance variables
```

```
    String breed;
```

```
    String size;
```

```
    int age;
```

```
    String color;
```

```
    // method 1
```

```
    public String getInfo()
```

```
{
```

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```
return (" Breed is :  
" + breed + " Size is : " + size + "  
Age is : " + age + " color is : +
```

}

```
public static void main
```

```
(String[] args) {
```

```
Dog maltese = new Dog( );
```

```
maltese.size = "Small";
```

```
maltese.age = 2;
```

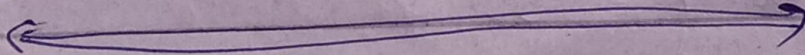
```
maltese.color = "white
```

```
};
```

```
System.out.println  
(maltese.getInfo( ));
```

```
}
```

```
}
```



Output

Breed is : maltese size is : Small  
age is : 2 color is : white.

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Q: NO: 2.

```
#table from (1 to 10) in python
# taking input from user
table = int(input("table of "))
# Program runs from 1 to 10
for i in range(1, 11):
    print(table, "*", i, "=", table*i)
```

Output

table of 5

$$5 * 1 = 5$$

$$5 * 2 = 10$$

$$5 * 3 = 15$$

$$5 * 4 = 20$$

$$5 * 5 = 25$$

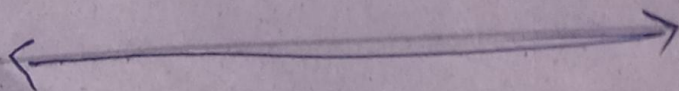
$$5 * 6 = 30$$

$$5 * 7 = 35$$

$$5 * 8 = 40$$

$$5 * 9 = 45$$

$$5 * 10 = 50$$



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Q: NO: 2. Basic oop

## Inheritance

When one object acquires all the properties and behaviours of a parent object. It is known as inheritance.

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## Polymorphism :-

In one task is performed in different ways. It is known as polymorphism. For example to convince the customer differently to draw something e.g. shape, triangle.

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## Abstraction

Hiding internal detail and showing functionality is known as abstraction. eg. phone call we use abstract ~~class~~ class and interface to achieve abstraction.

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## Encapsulation

Binding or wrapping code and data together into a single unit are known as

encapsulation. e.g. It is wrapped with different medicine.

A Java class is the example of encapsulation. Java bean is the fully encapsulated class because all the data members are private here.

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Q: NO: 3.

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Answer

```
import java.util.Scanner;
public class Exercise12 {
    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        System.out.print("input speed (KM/H) of first car:");
        int car1 = in.nextInt();
        System.out.print("input speed (KM/H) of second car:");
        int car2 = in.nextInt();
        System.out.println("Performance of two cars: " +
            (car1 + car2) / 2);
    }
}
```

Output

input speed (KM/H) of first car: 100

input speed (KM/H) of second car: 80

Average of five number is: 90

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