

13-05-2020

Remembering from previous (yesterday's) topics,  
Let us continue with Basic Concepts of java as —

- Abstraction
  - Inheritance
  - Loops
- } with the help of examples.

**Abstraction** — Process of hiding the implementation details and showing only the functionality to the user.

- A class declared with abstract keyword is said to be an abstract class. ~~It has no~~
- If we have to declare an abstract method then it has no body.

Example: —

```

abstract class Animal {
    public abstract void animalSound(); //abstract method
    public void sleep() {
        System.out.println("sleeping");
    }
} //close of class Animal

```

```

class Pig extends Animal {
    public void animalSound() {
        System.out.println("The pig says: wee wee");
    }
} //close of class Pig

```

```

class demo {
    public static void main (String args []) {
        Pig mypig = new Pig(); mypig.animalSound();
        mypig.sleep();
    }
}

```

In above program - output will:-

The Pig says: wee wee  
sleeping

We are not printing anything from the Animal class which is not required but only printed the animalSound() implemented in the Pig class. Finally sleep method of the abstract class is called to know the status.

In abstraction, we will <sup>actually</sup> get all the necessary information and hides the unnecessary information that we do not need to know.

Inheritance -> It is mechanism in java that one object requires all the properties and behaviour of the parent object. And we use this method overriding so that run-time polymorphism can be achieved and also for code re-usability. So let us take an example of Employee class -

```

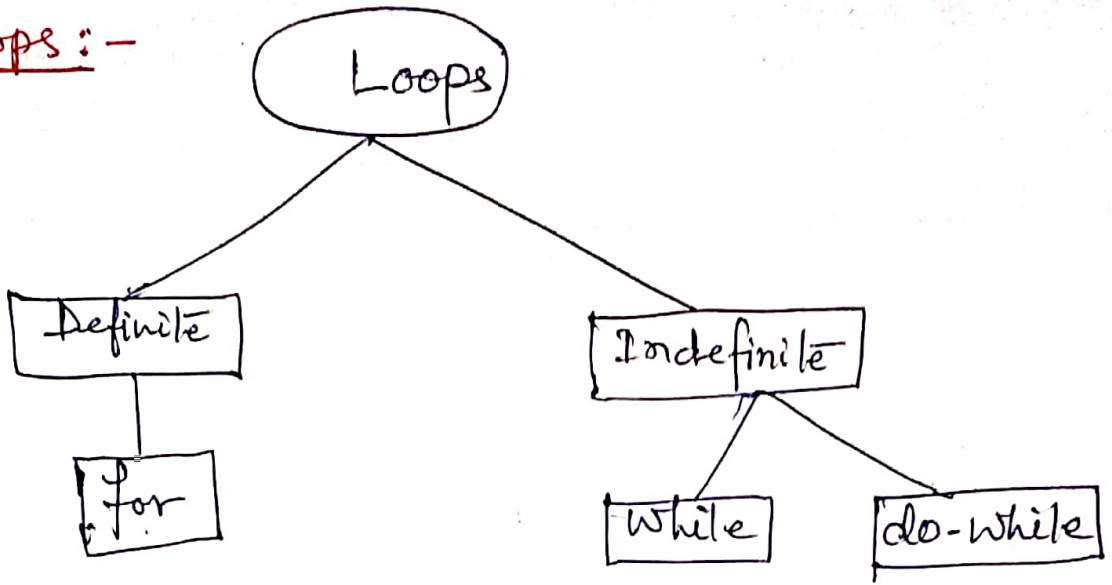
class Employee {
    float salary = 45000;
}
class demo extends Employee {
    int bonus = 12000;
    public static void main(String args[]) {
        demo obj = new demo();
        System.out.println("Programmer's salary: " + obj.salary);
        System.out.println("Programmer's Bonus: " + obj.bonus);
    }
}

```

O/P:- Programmer's salary: 45000  
Programmer's Bonus: 12000

Here, salary is inherited from its parent class so that we are able to print it by using object of demo class.

→ Loops :-



Example :-

```

class Demo {
public static void main (String args[])
{
  int i;
  for (i=0; i<=5; i++)
  {
    System.out.println(i);
  }
  int j=0;
  while (j<=5)
  {
    System.out.println(j);
    j++;
  }
  int k=0;
  do {
    System.out.println(k);
    k++;
  } while (k<=5); } // close of main
} // close of demo class
  
```

initialization  
 condition  
 increments/  
 decrements  
 of the loop.

while loop's condition  
 is true, it  
 is executed

Initially  
 at least  
 once  
 printed  
 even when  
 condition  
 false  
 also.

## Now let us know who uses java?

Java is currently used in developing web applications, android applications etc. There are multiple of companies using java. Few of them are — ABMB, Uber, Netflix, ~~Spotify~~, Spotify, Google, Instagram, Facebook etc.

Java is also used for big data analytics most of the popular Big Data frameworks such as Spark, Flink, Hive and Hadoop are written in java language. Java is also capable to work with AI (Artificial Intelligence). There are many misconceptions that only R and Python can be used for data science or artificial intelligence but it is not true, even java is capable to run algorithms of data science and Artificial Intelligence.

Database Connectivity — Java has also very strong database connectivity with Oracle database using JDBC connectivity.

There are collective JDBC classes that are capable to connect with database of Oracle. known as Open Java Database Connectivity.

This collection of Open Java Database Connectivity classes are available in the file format — ojdbc8.jar which is a compressed file or Jar file. which helps directly our program to connect and interact with Oracle database.

Cross Platform → Java enables cross-platform that means Write Once Run Anywhere principle. This feature of java makes it completely platform independent.

It also has capability to compile once and run anywhere (in any platform).

Besides that some special features of java are — Open Source. It is an open source software development tool. Hence any body can get it free of cost and develop software according to need.

Next important feature of this language is high performance. It is an interpreted language so it will never be as fast as C/C++ but java enables high performance with the use of the just-in-time compiler followed by a new feature of multi-threading — which make it possible to write program that can do many task simultaneously. The benefit of multithreading is that, it utilizes the same memory and other resources to execute multiple threads at the same time.

Next feature is Security — with java security feature, we are able to develop wireless secured applications that runs in internet network. Java Runtime Environment has almost the null interaction with system's OS, hence it is more secure.

Platform Independent — is the feature that is due to compiled Byte-Code of any Java program. Hence, these the causes of popularity of Java language.