* **What is java?**
* Java is a Programming Language, Java is a High – Level, Strong, Object Oriented and secure Programming Language.
* Java was Developed by sun microsystem in the Year 1995.James Gosling is known as the father of Java.
* **Features Of Java: -**
* Platform Independent
* Secured
* Dynamic
* High – Performance
* Object – Oriented Programming
* Robust
* Portable
* Simple
* **Platform Independent: -**
* Java is platform independent because it is different from other languages

Like c, c++, etc. which are compiled into platform specific machines while java is a write once, run anywhere language. A platform is the hardware or

Software environment in which a program runs.

* There are two types of platforms software – based and hardware or java provides a software – based platform.
* **Secured:**
* Java is best known for its security. With java, we can develop virus-free system.java is secured because:
* No explicit pointer
* Java programs run inside a virtual machine sand box.
* **Dynamic:**
* Java is a dynamic language.it supports the dynamic loading of classes.it means

Classes loaded on demand.it also supports functions from its native languagelike., c and c++.

* **High – Performance**:
* Java is faster than other traditional interpreted programming languages because java byte code is close to native code.it is still a little bit slower than a complied language.
* **Object** – **Oriented programming:**
* Java is an object – oriented programming language Everything in java is an object.

Object – oriented means we organize our software as a combination of different types of objects that incorporate both data and behaviour.

* **Robust:**
* The English mining of Robust is strong .java is robust because.
* It uses strong memory management.
* There is a lack of pointers that avoids security problems.
* **Portable**:
* Java is portable because it facilitates you to carry the java bytecode to any platform.it does not require any implementation.
* **Simple:**
* Java is very easy to learn, and its syntax is simple, clean, and easy to understand. According to sun microsystem, java language is a simple programming language because:
* Java syntax is based on c++.
* **JDK: -**
* Jdk is an acronym for java development kit. The java development kit (JDK) is a software development environment which is used to develop.java application and applets it physically exists. It contains JRE + development tools.
* Jdk is an implementation of any one of the below given java platforms released by oracle corporation.
* **JRE: -**
* JRE is an acroyn for java Runtime environment.it is also written as java RTE. The java Runtime environment is a set of software tools which are used for developing java applications.
* It is the implementation of JVM. It physically exits. It contains a set of libraries + other files that JVM uses at runtime.
* **JVM: -**
* JVM (Java Virtual Machine) is an abstract machine it is called a virtual machine because it does not physical exit.it is a specification that provides a runtime environment in which java bytecode can be executed.
* It can also run those programs which are written in other programs which compiled to java bytecode.
* **What is oops?**
* Object oriented programming system.
* Oops stands for object-oriented programming language. The main purpose of oops is to to deal with real world (life problem) entity using programming language.
* **Features OOPS: -**
* Class
* Object
* Inheritance
* Polymorphism
* Data Encapsulation
* Data Abstraction
* **Class: -**
* Class is a collection of objects and it does not take any space on memory, class is also called as blue print / logical entity.
* Two parts to device class
* Pre – defined
* User – defined
* **Object: -**
* Object is an instance of a class; object is allocated memory space whenever they are created.
* **Inheritance: -**
* Java inheritance is an important pillar of oops. It is the mechanism in java by which one class is allowed to inherit the features of another class. In java, inheritance means creating new classes based on existing ones.
* **Polymorphism: -**
* Polymorphism is considered one of the important features of object – oriented Programming. Polymorphism allows us to perform a single action in different ways.in other words, polymorphism allows you to define one interface and have multiple implementations.
* **Data Encapsulation**: -
* Encapsulation in java is a fundamental concept in object - oriented programming that refers to the bundling of data and methods that operate on that data within a single unit which is called a class in java.
* **Data Abstraction: -**
* In java abstraction is achieved by interfaces and abstract classes. We can achieve 100% abstraction using interfaces.
* Data abstraction may also be defined as the process of identifying only the required characteristics of an object ignoring the irrelevant details.