Introduction to JAVA

- Java is a high level, robust, object-oriented and a secure and stable programming language but it is not a pure object-oriented language because it supports primitive data types like int, char etc.
- Java is a platform-independent language because it has runtime environment i.e. JRE and API. Here platform means a hardware or software environment in which an application runs.
- Java codes are compiled into byte code or machine-independent code. This byte code is run on JVM (Java Virtual Machine).
- The syntax of Java is almost the same as C/C++. But java does not support low-level programming functions like pointers. The codes in Java are always written in the form of Classes and objects.
- As of 2020, Java is one of the most popular programming languages in use, especially for client-server web applications.

 # History of Java

- Java was started with the Green Team. The Green Team started a project to develop a language for digital devices such as television. But it worked best for internet programming. After sometime Java technology was joined by Netscape.
- The objective to create Java Programming Language was it should be "Simple, Robust, Portable, Platform-independent, Secured, High Performance, Multithreaded, Object-Oriented, Interpreted, and Dynamic".
- Java was developed in Sun Microsystem by James Gosling, Patrick Naughton, Mike Sheridan in 1991. It took 18 months to develop the first working version. James Gosling is also known as the Father of Java.
- Initially, Java was called "Greentalk" by James Gosling and at that time the file extension was .gt.
- Later on, Oak was developed as a part of the Green Team project. Oak is a symbol for strength and Oak is also a national tree in many countries like the USA, Romania etc.

- Oak was renamed as Java in 1995 because Oak was already a trademark by Oak Technologies. Before selecting the Java word, the team suggested many names like dynamic, revolutionary, Silk, jolt, DNA, etc.
- Java is an island in Indonesia, here the first coffee was produced or we call Java coffee. Java coffee is a type of espresso bean. James Gosling chose this name while having coffee near his office.
- The word JAVA does not have an acronym. It is just a name.
- In 1995 Java was one of the best products by the Time magazine.

 # Application of Java

Java is widely used in every corner of world and of human life. Java is not only used in software but is also widely used in designing hardware controlling software components. There are more than 930 million JRE downloads each year and 3 billion mobile phones run java.

Following are some other usages of Java:

- Developing Desktop Applications
- Web Applications like Linkedin.com, Snapdeal.com etc
- Mobile Operating System like Android
- Embedded Systems
- Robotics and games etc.

 # Types of Java Application

- Following are different types of applications that we can develop using Java:

1. Standalone Applications

- Standalone applications are the application which runs on separate computer process without adding any file processes. The standalone application is also known as Java GUI Applications or Desktop Applications which uses some standard GUI components such as AWT(Abstract Windowing Toolkit), swing and JavaFX and this component are deployed to the desktop. These components have buttons, menu, tables, GUI widget toolkit, 3D graphics etc. using this component a traditional software is developed which can be installed in every machine.
- Example: Media player, antivirus, Paint, POS Billing software, etc.

2. Web Applications

- Web Applications are the client-server software application which is run by the client. Servlets, struts, JSP, Spring, hibernate etc. are used for the development of a client-server application. eCommerce application is also developed in java using eCommerce platform i.e Broadleaf.
- Example: mail, e-commerce website, bank website etc.

3. Enterprise Application

- Enterprise application is middleware application. To use software and hardware systems technologies and services across the enterprises. It is designed for the corporate area such as banking business systems.
- Example: e-commerce, accounting, banking information systems etc.

4. Mobile Application

- For mobile applications, Java uses ME or J2ME framework. This framework is the cross platform that runs applications across phones and smartphones. Java provides a platform for application development in Android too.
- Example: WhatsApp, Xender etc.