Assignment No 1

Q1. What Is Java?

- Java is object oriented high level programming language develop by James Gosling in 1995.

Q2. Explain all the java features in one or two lines.

1. Platform Independent - Platform independent means that a program can run on any operating system. Java programs can run on any system for which a java virtual machine has been installed.
2. Multithreaded – Java is multithreading programming language. Multithreading means a single program having different threads executing independently at the same time.
3. Simple: It is simple language because it doesn't not have pointers, Multiple Inheritance, Operator Overloading, Explicit memory allocation.
4. Object Oriented Programming - It is a way of organising the programs.
code into byte code and JVM executes the byte code produced by the compiler.
5. Java is Distributed: The java programs can be distributed on more than one system that are connected to each other using internet connection.
6. Secure: We don't have pointers and we cannot access out of bound arrays in java.
7. Robust Language: java is designed to find the errors that are not easy to detect. The main feature of java that makes java robust is Garbage Collection.
8. Multithreading: It allows to execute one or more parts of program at a same time.

Q3. In which folder can we find the javac, java, javah, javarmi commands?

- We find the javac, java, javah, javarmi commands in "C:\Program Files\Java\jdk-17.0.5\bin" folder.

Q4. What all the environment variables to set to run the java programs through command prompt?

- JAVA_HOME = C:\Programs Files\Java\ jdk-17.0.5
- PATH = PATH + C:\Program Files\Java\jdk-17.0.5\bin

Q5. What are the rules of naming the class?

- Rules of naming the class:
  a. Class names should be nouns, in mixed case with the first letter of each internal word capitalized.
  b. Try to keep your class names simple and descriptive.

Q6. Which is the main entry point of java program?

- The Java main method is the entry point for executing a Java program. The main method can contain code to execute or call other methods, and it can be placed in any class that's part of a program.

Q7. Components of java program are?

- components of java program are –
    a. Package
    b. Class
    c. Object
    d. Variable
    e. Statement
    f. Method
    g. Constructor

Q8. What is jvm, jre, jdk?

- JVM – JVM stands for Java Virtual Machine. A Java virtual machine (JVM) is a virtual machine that enables a computer to run Java programs.
- JRE - JRE stands for Java Runtime Environment. It is software that includes JVM and class libraries to run java programs independently.
- JDK - JDK stands for Java Development Kit (JDK) is a complete software environment for building applications and applets using the Java programming language. It is platform-dependent. Therefore, it has different OS platform versions for Windows, Linux, Mac, etc.

Q9. Explain the components of compile time environments and run time environments.

- Components of Runtime environment:

    a. Source code.
    b. Interpreter.
    c. Byte code.

- Components of Compile-time environment:

    a. JVM.
    b. API
    c. Operating system.
    d. File system.

10. What is JIT?

- JIT is Just In Time compiler. Used to speed up the process of compiling.

Q11. Is java case sensitive?

- Yes, java is case sensitive.

Q12. Why java is platform independent explain?

- Java is platform independent because it follows the principle WORA(write once read anywhere)

Q13. Why do we call as java simple?

- Java is simple because it does not have pointers, structures and unions. Java does not support multiple inheritances.

Q14. Is java complete object Oriented programming language?

- Yes, java is completely object oriented programming language which supports or have features which treats everything inside program as objects.

Q15. Is jvm platform dependent?

- Yes, JVM is platform dependent.

Q16. In which area object are stored?

- Heap.

Q17. In which area .class is stored?

- Method.

Q18. Different types of memory in jvm.

- Types of memory in jvm ->
  - Method
  - Stack
  - Heap
  - Native method stack