CORE JAVA

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2. Explore JIT (Just-In-Time compiler)

The Execution Engine first uses the interpreter to execute the byte code, but when it finds some repeated code, it uses the JIT compiler.
JIT always try to perform optimization by using the various techniques that are:

- Generate intermediate code
- Optimize intermediate code for better performance
- Find hotspots (repeated data at every time).

3. Explore the class file of any existing code and check it.

HelloWorld.java

```
1   class HelloWorld{
2       public static void main(String args[]){
3       System.out.println("Hello World");
4       }
5   }
6
```

Command Prompt

```
C:\Users\coditas\Desktop>javac HelloWorld.java

C:\Users\coditas\Desktop>java HelloWorld
Hello World

C:\Users\coditas\Desktop>javap HelloWorld
Compiled from "HelloWorld.java"
class HelloWorld {
  HelloWorld();
  public static void main(java.lang.String[]);
}

C:\Users\coditas\Desktop>
```

When we run a .class file using javap then it will disassemble class files and show the actual code of a program and in the above code it is also displaying default constructor.

4. Difference between access specifier and access modifier ?

There is no term like access specifier in but Java provides four types of access modifiers i.e. default, public, private, and protected.
Non-access modifiers in java are final, static, abstract, strictfp, native, volatile, transient and synchronized

5. Can we have multiple main methods in class ?

Yes, Java can have multiple main methods but with the concept of method overloading. It is mandatory to have one main method with the arguments 'String args[]'.

Code

```
public class Main_Class {
    public static void main() {
        System.out.println("Hello main class 1");
    }
    public static void main(int n) {
        System.out.println("calling 2nd main method "+n*n);
    }
    public static void main(String args[]) {
        System.out.println("main method");
        main();
        main(5);
    }
}
```

Output:

```
main method
Hello main class 1
calling 2nd main method 25

Process finished with exit code 0
```

6. Can we overload and override the main method ?

We can only overload main method and cannot override main methods because method overriding is based on dynamic binding at runtime and the static methods are bonded using static binding at compile time. So, we cannot override static methods.

7. Can I write the main method as private, protected and default ?

No, we cannot use private, protected and default in the main method because at the time of execution JVM does not consider this as the entry point of the program. It searches for the main method which is public, static, with return type void, and a String array as an argument.

8. Without a main method can we execute our code ? How ?

Yes, we can execute code without the main method but it requires JDK version 1.6 or older. After the 1.6 version it doesn't work.

9. Can we change the return type of the main() method from void to any other data type like int return ?

Java main method does not return anything that is why its return type is void. If we try to return anything from the main method, it will give an unexpected value error because it is predefined signature in JVM.

10. Explore keyword strictfp ?

Strictfp is a modifier that stands for strict floating-point which was not introduced in the base version of java as it was introduced in Java version 1.2. It is used in java for restricting floating-point calculations and ensuring the same result on every platform while performing operations in the floating-point variable.