

1. Reading Assignment: A Short History of Java

- **Task:** Read about the history and development of Java.
- **Link:** <http://sunsite.uakom.sk/sunworldonline/swol-07-1995/swol-07-java.html>

2. Reading Assignment: Java Language Features

- **Task:** Learn about the main features of Java.
- **Link:** <https://javaalmanac.io/features/>

3. Reading Assignment: Which Version of JDK Should I Use?

- **Task:** Find out which JDK version is right for you.
- **Link:** <https://whichjdk.com/>

4. Reading Assignment: JDK Installation Directory Structure

- **Task:** Understand the folder structure and files in the JDK installation.
- **Link:** <https://docs.oracle.com/javase/8/docs/technotes/tools/windows/jdkfiles.html>

5. Reading Assignment: About Java Technology

- **Task:** Read about the basics of Java technology and its components.
- **Link:** <https://docs.oracle.com/javase/tutorial/getStarted/intro/definition.html>

6. Coding Assignments

1. **Hello World Program:** Write a Java program that prints "Hello World!!" to the console.

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

2. **Compile with Verbose Option:** Compile your Java file using the `-verbose` option with `javac`. Check the output.

Ans. The -verbose option displays the additional information about the files being loaded during the compilation process, such as the classes and resources being used.

```
C:\Windows\System32\cmd.exe
C:\Users\Harshali\Downloads\CDAC Aug'24\OOPJ\LAB>javac -verbose hello.java
[parsing started SimpleFileObject[C:\Users\Harshali\Downloads\CDAC Aug'24\OOPJ\LAB\hello.java]]
[parsing completed 44ms]
[loading /modules/jdk.crypto.cryptoki/module-info.class]
[loading /modules/jdk.nio.mapmode/module-info.class]
[loading /modules/java.rmi/module-info.class]
[loading /modules/java.xml/module-info.class]
[loading /modules/jdk.jcmd/module-info.class]
[loading /modules/java.logging/module-info.class]
[loading /modules/jdk.accessibility/module-info.class]
[loading /modules/jdk.javadoc/module-info.class]
[loading /modules/jdk.httpserver/module-info.class]
[loading /modules/jdk.internal.vm.compiler/module-info.class]
[loading /modules/jdk.jstatd/module-info.class]
```

3. **Inspect Bytecode:** Use the `javap` tool to examine the bytecode of the compiled `.class` file. Observe the output.

Ans. This output shows the JVM instructions for each method in the HelloWorld class. For example, it shows how the main method loads the `System.out` object and calls the `println` method with the "Hello World!!" string.

```
C:\Users\Harshali\Downloads\CDAC Aug'24\OOPJ\LAB>javap -c hello
Compiled from "hello.java"
class hello {
  hello();
  Code:
    0: aload_0
    1: invokespecial #1           // Method java/lang/Object."<init>":()V
    4: return

  public static void main(java.lang.String[]);
  Code:
    0: getstatic     #7           // Field java/lang/System.out:Ljava/io/PrintStream;
    3: ldc          #13           // String Hello, World!!
    5: invokevirtual #15         // Method java/io/PrintStream.println:(Ljava/lang/String;)V
    8: return
}
```

7. Reading Assignment: The JVM Architecture Explained

- **Task:** Learn about how the Java Virtual Machine (JVM) works.
- **Link:** <https://dzone.com/articles/jvm-architecture-explained>

8. Reading Assignment: The Java Language Environment: Contents

- **Task:** Explore the content and features of the Java language environment.
- **Link:** <https://www.oracle.com/java/technologies/language-environment.html>