

ASSIGNMENT NO. 01

Coding Assignments

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

CODE:

```
class HelloWorld{  
  
    public static void main(String args[]){  
  
        System.out.println("Hello, World!");  
  
    }  
  
}
```

OUTPUT:

Hello, World!

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

OUTPUT:

D:\dac\OOPJ\Day1>javac -verbose HelloWorld.java

[parsing started
SimpleFileObject[C:\Users\91951\OneDrive\Desktop\dac\OOPJ\Day1\HelloWorld.java]]

[parsing completed 31ms]

[loading /modules/java.base/module-info.class]

[loading /modules/jdk.internal.vm.ci/module-info.class]

[loading /modules/jdk.internal.jvmstat/module-info.class]

[loading /modules/java.desktop/module-info.class]

[loading /modules/jdk.accessibility/module-info.class]

[loading /modules/jdk.dynalink/module-info.class]

[loading /modules/jdk.security.jgss/module-info.class]

[loading /modules/jdk.httpserver/module-info.class]

[loading /modules/jdk.security.auth/module-info.class]

[loading /modules/java.security.sasl/module-info.class]

[loading /modules/jdk.net/module-info.class]

[loading /modules/jdk.internal.opt/module-info.class]

[loading /modules/java.compiler/module-info.class]

[loading /modules/java.management/module-info.class]

[loading /modules/jdk.graal.compiler/module-info.class]

[loading /modules/java.sql/module-info.class]

[loading /modules/jdk.management/module-info.class]

[loading /modules/jdk.unsupported.desktop/module-info.class]

[loading /modules/jdk.jdwp.agent/module-info.class]

[loading /modules/java.scripting/module-info.class]

[loading /modules/jdk.internal.le/module-info.class]

[loading /modules/jdk.crypto.cryptoki/module-info.class]

[loading /modules/java.xml/module-info.class]

[loading /modules/java.xml.crypto/module-info.class]

[loading /modules/jdk.jshell/module-info.class]

[loading /modules/jdk.compiler/module-info.class]

[loading /modules/java.naming/module-info.class]

[loading /modules/java.instrument/module-info.class]

[loading /modules/jdk.charsets/module-info.class]

[loading /modules/java.management.rmi/module-info.class]

[loading /modules/java.rmi/module-info.class]

[loading /modules/jdk.internal.ed/module-info.class]

[loading /modules/java.sql.rowset/module-info.class]

[loading /modules/jdk.jpackage/module-info.class]

[loading /modules/jdk.jdeps/module-info.class]

[loading /modules/jdk.localedata/module-info.class]

[loading /modules/java.security.jgss/module-info.class]

[loading /modules/java.net.http/module-info.class]

[loading /modules/jdk.naming.dns/module-info.class]

[loading /modules/jdk.jdi/module-info.class]

[loading /modules/jdk.management.agent/module-info.class]

[loading /modules/jdk.attach/module-info.class]

[loading /modules/jdk.hotspot.agent/module-info.class]

[loading /modules/jdk.naming.rmi/module-info.class]

[loading /modules/java.se/module-info.class]

[loading /modules/jdk.incubator.vector/module-info.class]

[loading /modules/java.transaction.xa/module-info.class]

[loading /modules/jdk.jstatd/module-info.class]

[loading /modules/jdk.nio.mapmode/module-info.class]

[loading /modules/jdk.zipfs/module-info.class]

[loading /modules/java.logging/module-info.class]

[loading /modules/jdk.jconsole/module-info.class]

[loading /modules/jdk.javadoc/module-info.class]

[loading /modules/java.prefs/module-info.class]

[loading /modules/java.datatransfer/module-info.class]

[loading /modules/jdk.crypto.mscapi/module-info.class]

[loading /modules/jdk.sctp/module-info.class]

[loading /modules/jdk.jfr/module-info.class]

[loading /modules/jdk.jlink/module-info.class]

[loading /modules/jdk.management.jfr/module-info.class]

[loading /modules/jdk.jobject/module-info.class]

[loading /modules/jdk.unsupported/module-info.class]

[loading /modules/jdk.crypto.ec/module-info.class]

[loading /modules/jdk.jartool/module-info.class]

[loading /modules/jdk.random/module-info.class]

[loading /modules/jdk.jcmd/module-info.class]

[loading /modules/jdk.xml.dom/module-info.class]

[loading /modules/jdk.graal.compiler.management/module-info.class]

[loading /modules/java.smartcardio/module-info.class]

[loading /modules/jdk.editpad/module-info.class]

[search path for source files: .]

[search path for class files: C:\Program Files\Java\jdk-22\lib\modules,.]

[loading /modules/java.base/java/lang/Object.class]
[loading /modules/java.base/java/lang/String.class]
[loading /modules/java.base/java/lang/Deprecated.class]
[loading /modules/java.base/java/lang/annotation/Retention.class]
[loading /modules/java.base/java/lang/annotation/RetentionPolicy.class]
[loading /modules/java.base/java/lang/annotation/Target.class]
[loading /modules/java.base/java/lang/annotation/ElementType.class]
[checking HelloWorld]
[loading /modules/java.base/java/io/Serializable.class]
[loading /modules/java.base/java/lang/AutoCloseable.class]
[loading /modules/java.base/java/lang/System.class]
[loading /modules/java.base/java/io/PrintStream.class]
[loading /modules/java.base/java/lang/Appendable.class]
[loading /modules/java.base/java/io/Closeable.class]
[loading /modules/java.base/java/io/FilterOutputStream.class]
[loading /modules/java.base/java/io/OutputStream.class]
[loading /modules/java.base/java/io/Flushable.class]
[loading /modules/java.base/java/lang/Comparable.class]
[loading /modules/java.base/java/lang/CharSequence.class]
[loading /modules/java.base/java/lang/constant/Constable.class]
[loading /modules/java.base/java/lang/constant/ConstantDesc.class]
[wrote HelloWorld.class]
[total 424ms]

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

OUTPUT:

```
D:\dac\OOPJ\Day1>javap -c HelloWorld
```

```
Compiled from "HelloWorld.java"
```

```
class HelloWorld {
```

```
    HelloWorld();
```

```
    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
```

```
}
```