

Lab#1, Fall 21

CSI 204, Object-Oriented Programming Lab

Basics for Today's Lab

Structure/Format of Class

```
<modifier> class <class name>{
    // Declare attributes
    <modifier> <data type> <attribute name>;
    <modifier> <data type> <attribute name> [=<value >] ;

    // Constructor
    <modifier> <class name> (<argument>){
        <statements>;
    }

    // Method
    <modifier> <return type > <method name>(<argument>){
        <statements>;
    }
} // end of class
```

Application Class - with main method

```
public class Test{
    public static void main(String[] args) {
        //Statements;
        int a=3;
        int b = 4;
        int c = a+b;
        System.out.println(c);
    }
}
```

Input and Output

Standard Java Output

System.out is standard out in Java

System.err is error out in Java

Example:

```
public class TestMain {
    public static void main(String[] args) {
        System.out.println("Welcome to Java!");
    }
}
```

Standard Java Input

- Scanner class is in jdk 1.5

Problems/Assignments

Problem1: Write a program that will print/display “Hello World!” in the screen.

Steps:

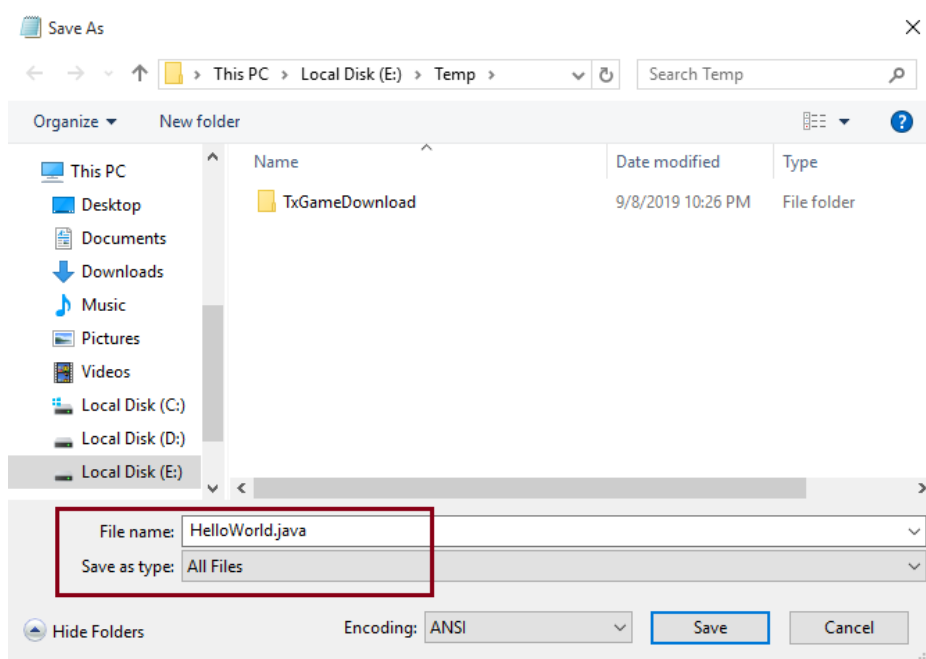
1. Create a java class that will have the main method and display the “Hello World!”. See below for steps.
 - a. Open NotePad or TextPad and create a blank document from File Menu.
 - b. Now in the document create a class named “HelloWorld”.

```
public class HelloWorld{  
}
```
 - c. Add the main method.

```
public static void main(String[] args){  
}
```
 - d. Add the following statement inside the main method to print/display the text “Hello World!”

```
System.out.println(“Hello World!”);
```
 - e. Save the file as **HelloWorld.java**. Choose “All Files” option from “Save as type” drop down as shown below. Save the file in any location or you can choose “C:\Temp” folder.

Note: The file name should be exactly the same as class name. For this case it would be “HelloWorld”



2. Now compile the file. See below for steps.

- a. Open command prompt.
- b. If you need to change directory, change it using cd command [Example command show below]

`cd "C:\Temp"`

The screenshot shows a Windows Command Prompt window titled "C:\Windows\System32\cmd.exe". The text inside the window is as follows:

```
Microsoft Windows [Version 10.0.10240]
(c) 2015 Microsoft Corporation. All rights reserved.

E:\Temp>javac HelloWorld.java
E:\Temp>java HelloWorld
Hello World!
```

Annotations on the screenshot:

- A red box highlights the command `E:\Temp>javac HelloWorld.java` with the label "Compile Java File" in yellow text.
- A red box highlights the command `E:\Temp>java HelloWorld` with the label "Run class file" in yellow text.
- A red box highlights the output `Hello World!` with the label "Output" in yellow text.

- c. Now compile the file using following command.

`javac HelloWorld.java`

Note: Compiling the .java file will create file with same name as the java file with extension .class. So for this case it will generate a file named **HelloWorld.class**. Open Windows explorer and check if the .class file is created or not.

3. Now run the class file using the command below.

`java HelloWorld`

Note: Do not use the .class extension.

Problem 2: Write a Java program to find the max and min of 3 values.

1. Repeat steps of problem#1 to find the max and min of 3 numbers.
 - a. Inside main, declare 3 integer variables and assign 3 different values.
 - b. Implement the logic to find the max and min of those 3 values and print the values.

<u>Sample Input</u>	<u>Sample Output</u>
6, 9, 4	Max: 9 Min: 4

Problem 3: Write a Java program to find the summation and average of 3 integer values.

<u>Sample Input</u>	<u>Sample Output</u>
6, 6, 7	Sum: 19 Avg: 6.33