

# Lab#1, Fall 23

## CSE 202: 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.

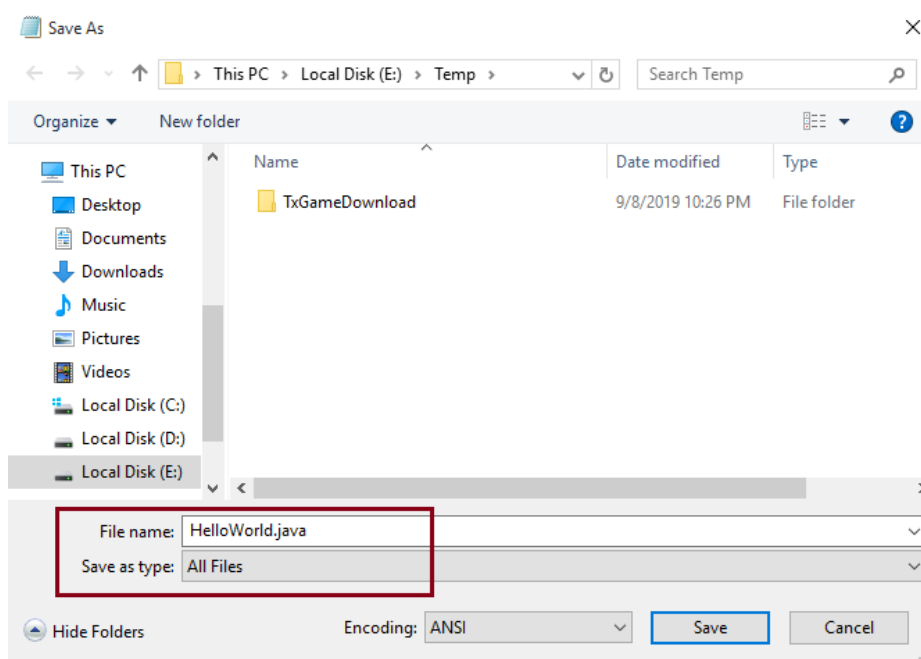
```
public static void main(String[] args){  
}
```

- 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 with the title bar '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.
- A red box highlights the command `E:\Temp>java HelloWorld` with the label **Run class file** in yellow.
- A red box highlights the output `Hello World!` with the label **Output** in yellow.

- 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<br>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<br>Avg: 6.33 |