BSc (Hons) in Information Technology
Year 2

Lab Exercise 1

IT2030 – Object Oriented Programming — Semester 1, 2019

Objectives:

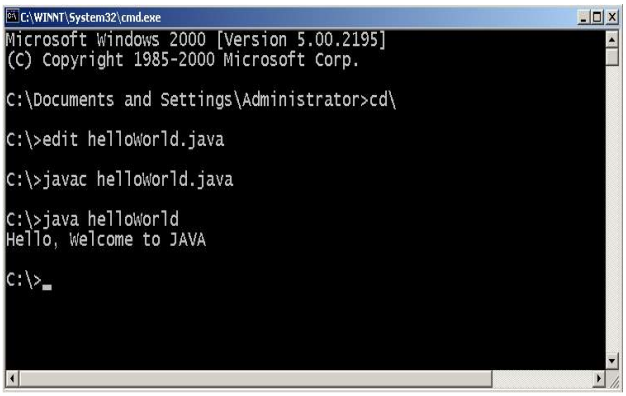
- Write and compile simple Java programs that makes use of the output statement, using simpl e variables, control structures such as if, switch, while, for statements.

❑ We will use Java 8, Oracle's latest version of Java language

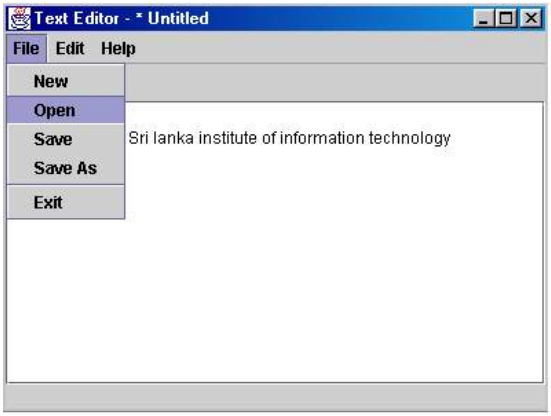
❑ Categories of Java programs.

- ❖ Standalone Applications
  - Java Console Applications
  - Java GUI Applications (AWT/Swing)
- ❖ Web Based Applications
  - JSP / Servlets
  - Java Applets

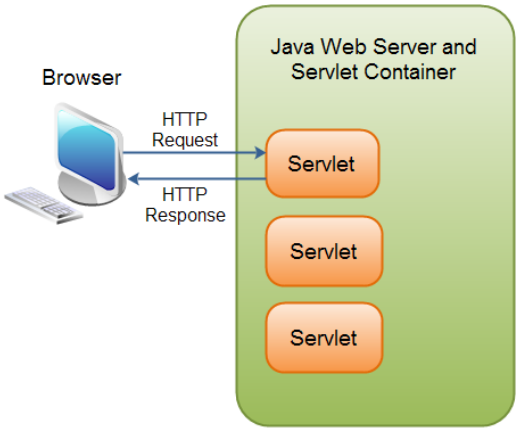
Console Applications



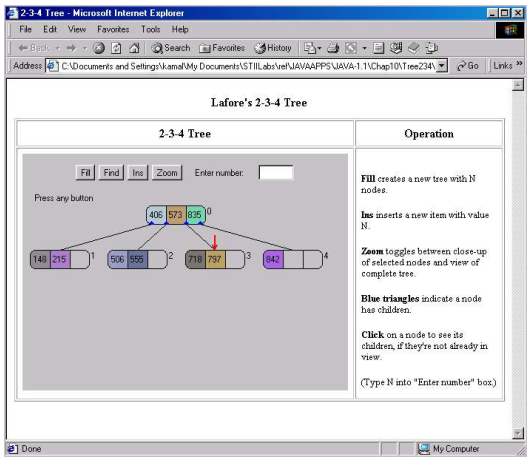
GUI Applications



Servlet



Applets



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Example 1

Write a program to print:

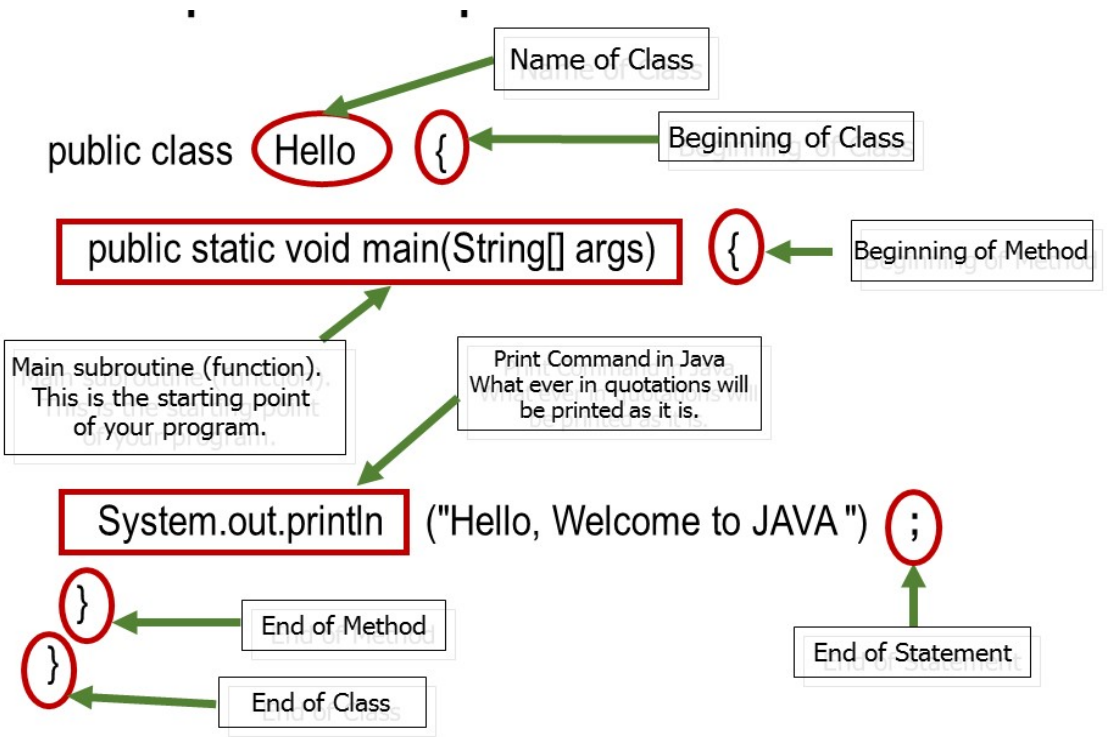
Hello, Welcome to JAVA.

This program demonstrates how to write a simple java program.

```
public class Hello {
    public static void main(String[] args) {
     System.out.println("Hello, Welcome to JAVA");
  }
}
```

- Use Notepad to type this program
- Save the program in your Z: drive as "Hello.java"

Important: Use the name for the .java file and for the class



Java like C and C++ is case sensitive i.e. if you type the first part of the as
Public static void
Your program will not work

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Compiling a Java Program

- Open a command prompt and type following commands. If JDK is properly installed, you should get error messages.

  Z:\OOP>***java***
  Z:\OOP>***javac***

- If you do not get an error message set the "PATH" environment variable as follows. (Find the path to JDK installation in your machine & use it here)

  Z:\OOP>*set path="c:\Program Files\Java\jdk1.8.0\bin"*

- Type the following command. You should get the given output.

  Z:\OOP> path
  Output→PATH="c:\Program Files\Java\jdk1.8.0\bin"

- When you type ***JAVA*** and ***JAVAC*** commands, now you should not get an error message.

- To Compile your Java Program use the JDK's javac tool.
  *Z:\OOP>***javac** Hello.java

- The compiler would create java byte code. These files have an extension of .class

You must have saved the *Hello.java* program inside Z:\OOP folder

Running a Java Program

- To run your Java Programs you need to call the Java Interpreter.

  Z:\OOP>**java** Hello

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Exercise 1 (Time: 5 minutes) Compulsory

Write a program that produces the following output:

```
Hello World!
It's been nice knowing you.
Goodbye world!
```

Try this program using
- System.out.println()
- \n

Exercise 2 (Time: 10 minutes) Compulsory

Write a program to get the following output.

```
==================================
=        Student Information       =
==================================
= Name          : ARDP Ranasignhe  =
= Reg No        : DIS\08\M4\1234   =
= Address       : Malabe           =
==================================
```

Try this program using \t

Exercise 3 (Time: 5 minutes) Compulsory

Write a program to validate a given age of a person using **if-else** statements.

If age is greater than 18 it should print "Adult" otherwise print "Child".

Exercise 4 (Time: 5 minutes) Compulsory

Write a program to display the day of the week when you provide the value.

Expected Output

```
Value of the day : 4
Day of the week : Thursday
Good Bye!
```

You must use "**switch – case**" statement.
Display "*Invalid Day*" when some invalid value is provided.

Message “Good Bye” must appear at last.

Exercise 5 (Time: 10 minutes) Compulsory

Write a program that draws the following figures one above the other.

Using **while** loop

```
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
```

Using **for** loop

```
*
* *
* * *
* * * *
* * * * *
```

Exercise 6 (Time: 10 minutes)

Now modify the previous program to draw stars next to each other.

```
* * * * *
* * * * *
* * * * *
* * * * *
* * * * *
```

```
*
* *
* * *
* * * *
* * * * *
```

Exercise 7 (Time: 5 minutes)

Write a Java program to add two integers and display the sum and the average of two Integers. Declare two integer variables to store the numbers to be added.