

Programming Fundamentals II

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Lab 1: Java - Environment Setup

Learning Objective1:

1. Install JDK.
2. Install IDE for Java Development (NetBeans – Eclipse).
3. Become familiar with developing Java programs using NetBeans.
4. Become familiar with developing Java programs using Eclipse.
5. Structure of a Java Program
6. To write a simple Java program (Print Hello World).
7. To create, compile, and run Java programs.
8. To display output on the console.

Requisite knowledge:

1. Chapter 1 from “Introduction to Java Programming Brief Version” Reference (See lms.uofk.edu).
2. Lecture 1 (See lms.uofk.edu).

Lab 1 Assignment:

1. Choose either NetBeans or Eclipse and install it on your system.
2. Write a Java application that outputs the following information:
 - a. Prints Your name.
 - b. Prints Your ID.
 - c. Prints Your Department.

***Pay attention to code clarity and readability.**

***Note: Your name and ID must be on the same line!, and Your Department on a separate line.**

● Setting up the environment in Java:

Here we will be proposing steps for the Windows operating system.

To install JDK: <https://www.oracle.com/ae/java/technologies/downloads/#java22>

To install Eclipse IDE: <https://eclipseide.org>

To install NetBeans IDE: <https://netbeans.apache.org/front/main/index.html>

codes:

Welcome.java

```
public class Welcome {  
    public static void main(String[] args) {  
        // Display message Welcome to Java! on the console  
        System.out.println("Welcome to Java!");  
    }  
}
```

Output : Welcome to Java!

Programming Errors :

1- ShowSyntaxErrors.java

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

Output :

1- Error: Main method not found in `class ShowSyntaxErrors`, please define the main method as:

```
public static void main(String[] args)  
or a JavaFX application class must extend javafx.application.Application
```

2- Exception in thread "main" java.lang.Error: Unresolved compilation problem:
String literal is not properly closed by a double-quote

2- Runtime Errors

```
public class ShowRuntimeErrors {  
    public static void main(String[] args) {  
        System.out.println(1 / 0);  
    }  
}
```

Output: Exception in thread "main" java.lang.ArithmeticException: / by zero at
ShowRuntimeErrors.main(ShowRuntimeErrors.java)

3- Logic Errors

```
public class ShowLogicErrors {  
    public static void main(String[] args) {  
  
        System.out.print("Celsius 35 is Fahrenheit degree ");  
        System.out.println((9 / 5) * 35 + 32);  
    }  
}
```

Output: Celsius 35 is Fahrenheit degree 67

Programming Style and Documentation :

1. ***Appropriate Comments***
2. ***Naming Conventions***
3. ***Proper Indentation and Spacing Lines***
4. ***Block Styles***

```
public class SimpleExample {  
  
    // This method calculates the sum of two numbers  
    public static int calculateSum(int a, int b) {  
        return a + b;  
    }  
  
    public static void main(String[] args) {  
        int num1 = 5;  
        int num2 = 10;  
  
        // Calculate and print the sum  
        int sum = calculateSum(num1, num2);  
        System.out.println("Sum: " + sum);  
    }  
}
```