Indian Institute of Information Technology, Pune

Department	Computer Science and Engineering (CSE)		
Name:	Sai Manoj Etcherla	Enrolment No:	112015044
Year:	Second year	Semester:	4th
Subject Code:	JAVA	Subject Name	JAVA

Lab Assignment – 1

Q1	Explain Compilation flow Java Program.
Ans-1	Compilation flow of Java Program: First we write a source file, let it be named Simple.java, which is in Java language. This language isn't understood by Machine. So, we use a translator called compiler. This compiler converts source file into byte code which is named as Simple.class Then JVM(Java virtual Machine) which is an interpreter converts byte code into machine understandable language and it is executed and output is displayed. Basically, the whole process is: Class file → Class loader → Bytecode verified → Interpreter → Runtime → Hardware.
Q2	Explain types of Java Variable with proper examples.
Ans-2	Types of Variables in Java are: • Local variables • Static variables • Instance variables

Local variable:

A variable declared inside the body of the method is called local variable. You can use this variable only within that method and the other methods in the class cannot access this variable.

Static variable:

A variable that is declared as static is called a static variable. It cannot be local. Once a value is assigned to this variable it cannot be changed.

Instance variable:

A variable declared inside the class but outside the body of the method, is called an instance variable. It is not declared as static.

Example:

```
public class Main
{
   static int staticNum = 8;          //static variable
   void method()
   {
      int localNum = 80;              //local variable
   }
   public static void main(String args[])
   {
      int instanceNum = 50;        //instance variable
   }
}
```

Q3	Write a Java program to display Welcome.
Ans-3	

CODE:

Main.java

```java
// Name: E.Sai Manoj
// Mis.No: 112015044
// This program prints "Welcome"


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

OUTPUT:

```
Welcome


...Program finished with exit code 0
Press ENTER to exit console.
```

Q4	Write a Java Program to assign byte, int, long, float, double, char, string value to variables and also display the same value on screen.
Ans-4	**CODE:**

Main.java

```java
// Name: E.Sai Manoj
// Mis.No: 112015044
// This program assigns and displays different data types like:
//  byte, int, long, float, double, char and string

public class Main
{
    public static void main(String[] args) {
        byte byteNum = 100;
        short shortNum = 5000;
        int intNum = 1000000;
        long longNum = 100000000000l;
        float floatNum = 2.5f;
        double doubleNum = 4.6253d;
        char a = 'A';
        String str = "Hello";

        System.out.println("byte : " + byteNum);
        System.out.println("short : " + shortNum);
        System.out.println("int : " + intNum);
        System.out.println("long : " + longNum);
        System.out.println("float : " + floatNum);
        System.out.println("double : " + doubleNum);
        System.out.println("char : " + a);
        System.out.println("String : " + str);
    }
}

```

OUPTUT:

```
byte : 100
short : 5000
int : 1000000
long : 100000000000
float : 2.5
double : 4.6253
char : A
String : Hello


...Program finished with exit code 0
Press ENTER to exit console.
```

Q5	Write a Java Program to explain Java Operators – Unary Operator, Arithmetic Operator, Relational Operators, Logical Operators and Ternary Operator.
Ans-5	**CODE:**

Main.java

```java
// Name: E.Sai Manoj
// Mis.No: 112015044
// This progrm is about Unary, Arithmetic, Relational, Logical and Ternary operators.


public class Main
{
    public static void main(String[] args) {
        // Unary operators
        int a = 2;
        System.out.println(++a);        // 3
        System.out.println(a++ + ++a);  // 8

        // Arithmetic operators
        int b = 20;
        int c = 10;
        System.out.println("b+c : "+(b+c));     // 30
        System.out.println("b-c : "+(b-c));     // 10
        System.out.println("b*c : "+(b*c));     // 200
        System.out.println("b/c : "+(b/c));     // 2
        System.out.println("b%c : "+(b%c));     // 0

        // Relational operators
        System.out.println(1 < 2);      // true
        System.out.println(1 > 2);      // false
        System.out.println(1 == 2);     //false
        System.out.println(1 != 2);     // true

        // Logical operators
        System.out.println(2 < 3 && 4 < 5);     //true
        System.out.println(2 < 3 || 4 > 5);     // true

        // Ternary operators
        System.out.println(5 > 4 ? 1 : 0);      // 1
        System.out.println(5 < 4 ? 1 : 0);      // 0

    }
}
```

OUTPUT:

```
3
8
b+c : 30
b-c : 10
b*c : 200
b/c : 2
b%c : 0
true
false
false
true
true
true
1
0


...Program finished with exit code 0
Press ENTER to exit console.
```