Aror University of Art, Architecture, Design & Heritage Sukkur.

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_ Department of Artificial Intelligence and Multimedia Gaming

Object-Oriented Programming(Spring 2025)

LAB No. 1

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Objective of Lab No. 1:
After performing lab1, students will be able to:
- o Create and Run Hello World Program
- o Use System.out.println() and System.out.print() for various outputs
- o Use different variables and data types in java
- o Use Arithmetic Operators in java
- o Use Scanner class to take input from the user in java
- o Use Comments in the Java Program
- o Solve Real World Problems using all the above concepts

Lab Exercises:
1. Create a java file called outputs.java, which outputs the data on console as shown below:

```
///////////\\\\\\\\\\\\\\\\\\\\\
   Student Points            ==
\\\\\\\\\///////////////////////

Lab        Bonus    Total
---        -----    -----
43         7        50
50         8        58
39         10       49
```

2. Observe the behavior of + operator in java and record the results of each of the statements shown below:

```
System.out.println ("This is a long string that is the " +
                    "concatenation of two shorter strings.");

System.out.println ("The first computer was invented about" + 55 +
                    "years ago.");

System.out.println ("8 plus 5 is " + 8 + 5);

System.out.println ("8 plus 5 is " + (8 + 5));

System.out.println (8 + 5 + " equals 8 plus 5.");
```

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3. You are creating a student database for a school. Each student has a name, age, grade point average (GPA), Gender(M or F),foreigner(yes or No)and student ID. Create Variables for each of the attributes of a student and assign it with appropriate data types.

4. Write down a java program which displays the result of following mathematical expression using System.out.println():

   (10+5)*(4-6)/4

5. Print out the following pattern using a single System.out.println(), with the help of escape sequences:

```
Full:

* * * * * * * *

*              *

*              *

*              *

* * * * * * * *
```

6. Currency Converter: Write down a java program which does the following:

```
Enter the value in Dollars:
3
Value in Rupees: 842.1299999999999
BUILD SUCCESSFUL (total time: 4 seconds)
```

7. Develop a Java program that calculates the volume of a cylinder. Prompt the user to input the radius and height, and then calculate and display the volume. $V = \pi r^2 h$

8. Write a Java program that converts a speed in miles per hour to kilometers per hour. Prompt the user to input a speed in miles per hour and then display the equivalent speed in kilometers per hour.

9. Develop a calculator program which takes, two numbers and an operation as input from the user and then performs the desired operations on both numbers and displays the output.