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

Department of Artificial Intelligence and Multimedia Gaming

Object Oriented Programming (Spring-2024)

LAB NO 01

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Objective of Lab No. 1:

After Completion of tasks performed in lab1, students will be able to:

- Create Basic Program Run Hello World Program, save, compile(javac), then run
- Use System.out.println() and System.out.print() for various outputs
- Use different variables with their built-in data types
- Use Arithmetic Operators in java
- Use Comments in the Java Program
- Use of Naming Convention for program and variables
- Use Scanner class to take input from the user in java with different data types
- Develop the program to solve real life problem.
- Basic If else Strucutre in Java

Part – A : Note down the below for information.

Arithmetic Operators

Arithmetic operators are used to perform common mathematical operations.

Operator	Name	Description	Example
+	Addition	Adds together two values	x + y
-	Subtraction	Subtracts one value from another	x - y
*	Multiplication	Multiplies two values	x * y
/	Division	Divides one value by another	x / y
%	Modulus	Returns the division remainder	x % y
++	Increment	Increases the value of a variable by 1	++x
--	Decrement	Decreases the value of a variable by 1	--x

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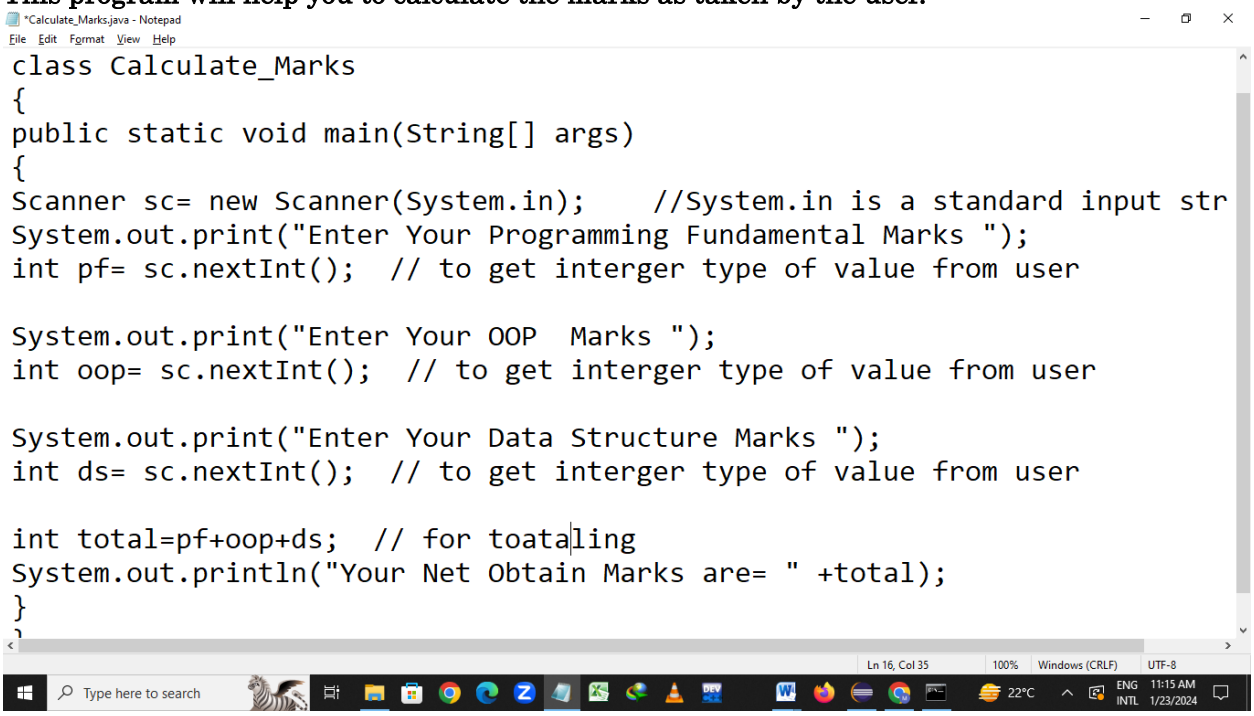
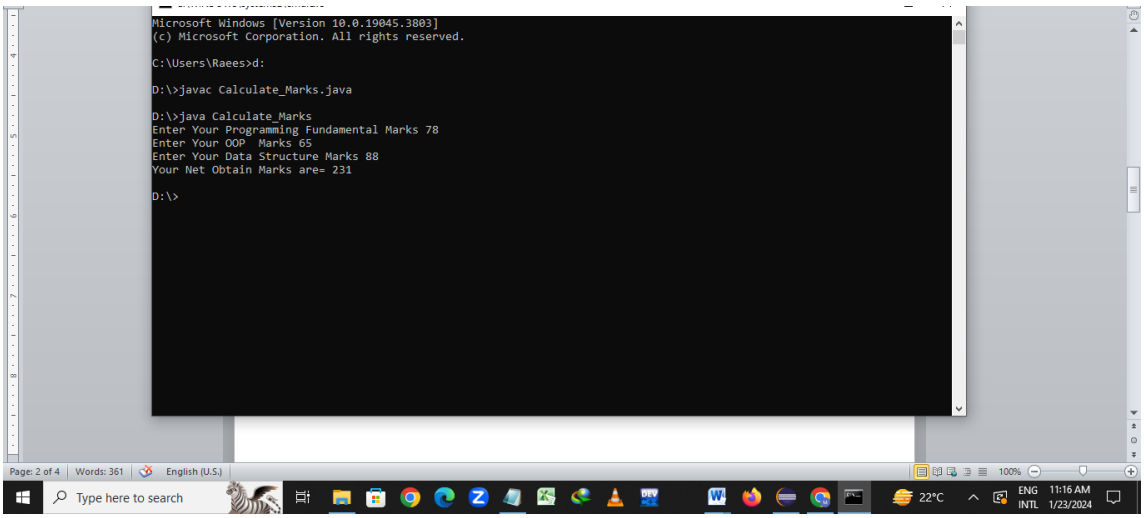
This program will help you to calculate the marks as taken by the user.



See the output.



Method	Description
int nextInt()	It is used to scan the next token of the input as an integer.
float nextFloat()	It is used to scan the next token of the input as a float.
double nextDouble()	It is used to scan the next token of the input as a double.
byte nextByte()	It is used to scan the next token of the input as a byte.
String nextLine()	Advances this scanner past the current line.
boolean nextBoolean()	It is used to scan the next token of the input into a boolean value.
long nextLong()	It is used to scan the next token of the input as a long.
short nextShort()	It is used to scan the next token of the input as a Short.
BigInteger nextBigInteger()	It is used to scan the next token of the input as a BigInteger.
BigDecimal nextBigDecimal()	It is used to scan the next token of the input as a BigDecimal.

Part B - Lab Tasks:

1. Create a java file called MyLab.java, which should print/outputs the data on console as shown below:

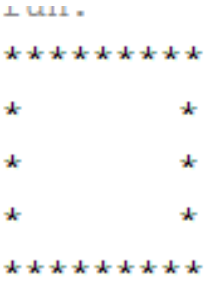
```
******************************
******************************
Welcome to AI B Section
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Your Name:          ABC
Program:            Artificial Intelligence
Section:            B
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
********End of Program*********
```

2. Write a program named sum. Your program should take 2 variables of int data types and prints its sum. Using Sysyem.out.println();

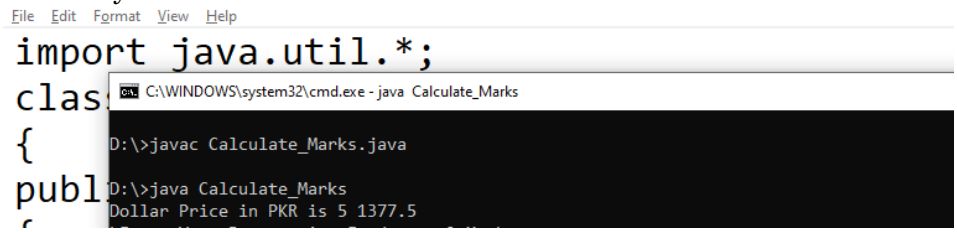
3. Write a program to calculate the percentage of a student, Assume it is of int data type. Your program should calculate the percentage of student as per below formula.

   P= obtain/total*100
   [hint: Use floating variable for results]

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



5. Currency Converter: Write down a java program which does the following:
   Assume Rate of Dollar is 275.5; [Use double then float (if error occurs then ask)]
   Assume you have entered 5 dollars



6. 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.

$$V = \pi r^2 h$$

7. 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. [hint 1km = 0.6miles]

8. Develop a program to take user to input temperature in Celsius. Your program should convert it into Fahrenheit and Display to the user.

9. Write a program in which use Modulus Operator. Allow user to enter any value your program should display Even if modulus result is zero, Odd if its result is equals to 1 and rest of cases it should print invalid.

[Use simple If else Condition]