Day2_Java_Assignment1

1. Primitive Data Types

Task: Create a program that accepts age, height, and weight of a person and prints them with appropriate data types.

Sample Input:
Age: 25
Height: 5.9
Weight: 68.5

Sample Output:

```
Age: 25

Height: 5.9
Weight: 68.5
```

```
package Javaassign;
import java.util.Scanner;

public class Persondata {

    public static void main(String[] args) {
         Scanner sc = new Scanner(System.in);
         System.out.println("age: ");
         int age = sc.nextInt();
         System.out.print("Height: ");
         double height = sc.nextDouble();

         System.out.print("Weight: ");
        double weight = sc.nextDouble();

         System.out.println("Age: " + age);
         System.out.println("Height: " + height);
         System.out.println("Weight: " + weight);

         sc.close();

    }

}
```

2. Variables

Task: Declare and initialize different types of variables to store a student's information: ID, name, marks, and grade. Print them.

Sample Input:

ID: 101
Name: Arun
Marks: 89.5
Grade: A

Sample Output:

```
Student ID: 101

Name: Arun
Marks: 89.5
Grade: A
```

```
package Javaassign;
import java.util.Scanner;

public class StudentInfo {

    public static void main(String[] args) {

Scanner sc = new Scanner(System.in);


        System.out.print("ID: ");
        int id = sc.nextInt();
        sc.nextLine();

        System.out.print("Name: ");
        String name = sc.nextLine();

        System.out.print("Marks: ");
        double marks = sc.nextDouble();
        sc.nextLine();

        System.out.print("Grade: ");
        char grade = sc.nextLine().charAt(0);

        System.out.println("\nStudent ID: " + id);
        System.out.println("Name: " + name);
        System.out.println("Marks: " + marks);
        System.out.println("Grade: " + grade);

        sc.close();
    }

}
```

3. Operators

Task: Accept two numbers and perform arithmetic, relational, and logical operations on them.

Sample Input:
Number1: 10
Number2: 20

Sample Output:
Addition: 30

```
package Javaassign;
import java.util.Scanner;

public class NumberOperations {

	public static void main(String[] args) {
		// TODO Auto-generated method stub
		Scanner scanner = new Scanner(System.in);

		System.out.print("Number1: ");
		int num1 = scanner.nextInt();

		System.out.print("Number2: ");
		int num2 = scanner.nextInt();


		int addition = num1 + num2;
		int subtraction = num1 - num2;
		int multiplication = num1 * num2;
		double division = (double)num1 / num2;
		int modulus = num1 % num2;


		boolean isGreater = num2 > num1;
		boolean isEqual = num1 == num2;
		boolean isLessOrEqual = num1 <= num2;


		boolean bothPositive = num1 > 0 && num2 > 0;
		boolean atLeastOneEven = num1 % 2 == 0 || num2 % 2 ==
0;
		boolean notEqual = !(num1 == num2);


		System.out.println("\nArithmetic Operations:");
		System.out.println("Addition: " + addition);
		System.out.println("Subtraction: " + subtraction);
		System.out.println("Multiplication: " +
multiplication);
		System.out.println("Division: " + division);
		System.out.println("Modulus: " + modulus);

		System.out.println("\nRelational Operations:");
		System.out.println(num2 + " is greater than " + num1
```

```
+ ": " + isGreater);
        System.out.println("Numbers are equal: " + isEqual);
        System.out.println(num1 + " is less than or equal to
" + num2 + ": " + isLessOrEqual);

        System.out.println("\nLogical Operations:");
        System.out.println("Are both positive? " +
bothPositive);
        System.out.println("Is at least one even? " +
atLeastOneEven);
        System.out.println("Are numbers not equal? " +
notEqual);

        scanner.close();




    }

}
```

```
Greater number: 20
Are both positive? true
```

4. String Concatenation

Task: Create a greeting message using first name and last name entered by the user.

Sample Input:
First Name: Ravi
Last Name: Kumar

Sample Output:

```
Hello, Ravi Kumar! Welcome to the system.
```

```
package Javaassign;
import java.util.Scanner;


public class GreetingMessage {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);


        System.out.print("First Name: ");
        String firstName = scanner.nextLine();

        System.out.print("Last Name: ");
        String lastName = scanner.nextLine();


        String greeting = "Hello, " + firstName + " " +
lastName + "! Welcome to the system";


        System.out.println(greeting);

        scanner.close();
    }

}
```

5. StringBuilder

Task: Accept a sentence and reverse it using `StringBuilder`.

Sample Input:
Input: Hello Java Learners

```
package Javaassign;

import java.util.Scanner;


public class Reverse {

    public static void
main(String[] args) {


        Scanner scanner = new
Scanner(System.in);




System.out.print("Input: ");
        String
originalSentence =
scanner.nextLine();



        StringBuilder
stringBuilder = new
StringBuilder(originalSentenc
e);



        StringBuilder
reversedSentence =
```

```
stringBuilder.reverse();



        String
finalReversedSentence =
reversedSentence.toString();




System.out.println("Reversed:
" + finalReversedSentence);



        scanner.close();
    }
```

6. String API

Task: Count how many times a specific character appears in a string.

Sample Input:
String: banana
Character: a

Sample Output:

```
Character 'a' appears 3 times.
```

```
package Javaassign;
import java.util.Scanner;


public class CharacterCounter {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
```

```
        System.out.print("String: ");
        String inputString = scanner.nextLine();


        System.out.print("Character: ");
        char targetChar = scanner.nextLine().charAt(0);


        int count = 0;

        for (int i = 0; i < inputString.length(); i++) {
            if (inputString.charAt(i) == targetChar) {
                count++;
            }
        }


        System.out.printf("Character '%c' appears %d
times%n", targetChar, count);

        scanner.close();
    }



}
```

7. Date, Time, and Numeric Objects

Task: Display the current date and format it as DD-MM-YYYY. Also, show a formatted currency value.

Sample Input:
Date: [current system date]
Amount: 12345.678

Sample Output:

```
Current Date: 20-07-2025

Formatted Amount: ₹12,345.68
```

```
package Javaassign;

import java.time.LocalDate;
```

```
import
java.time.format.DateTimeForm
atter;
import
java.text.NumberFormat;
import java.util.Locale;
import java.util.Scanner;

public class
DateTimeCurrencyFormat {
    public static void
main(String[] args) {

        LocalDate currentDate
= LocalDate.now();
        DateTimeFormatter
dateFormatter =
DateTimeFormatter.ofPattern("
dd-MM-yyyy");
        String formattedDate
=
currentDate.format(dateFormat
ter);


        Scanner scanner = new
Scanner(System.in);
```

```
System.out.print("Amount: ");
        double amount =
scanner.nextDouble();

        NumberFormat
currencyFormat =
NumberFormat.getCurrencyInsta
nce(new Locale("en", "IN"));
        String
formattedAmount =
currencyFormat.format(amount)
;




System.out.println("Current
Date: " + formattedDate);

System.out.println("Formatted
Amount: " + formattedAmount);

        scanner.close();
    }

}
```

8. Flow Control

Task: Based on a number entered, print whether it's positive, negative, or zero.

Sample Input:
Number: -5

Sample Output:

```
The number is negative.
```

```
package Javaassign;
import java.util.Scanner;

public class NumberChecker {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);


        System.out.print("Number: ");
        double number = scanner.nextDouble();


        if (number > 0) {
            System.out.println("The number is positive");
        }
        else if (number < 0) {
            System.out.println("The number is negative");
        }
        else {
            System.out.println("The number is zero");
        }

        scanner.close();
    }

}
```

9. Conditions

Task: Accept marks and display the grade using `if-else`.

Sample Input:
Marks: 76

Sample Output:

```
Grade: B
```

```
package Javaassign;
import java.util.Scanner;


public class GradeCalculator {
```

```
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Marks: ");
        int marks = scanner.nextInt();

        String grade;

        if (marks >= 90 && marks <= 100) {
            grade = "A ";
        }
        else if (marks >= 80) {
            grade = "B ";
        }
        else if (marks >= 70) {
            grade = "C ";
        }
        else if (marks >= 60) {
            grade = "D ";
        }
        else if (marks >= 50) {
            grade = "E ";
        }
        else if (marks >= 0) {
            grade = "F ";
        }
        else {
            grade = "Invalid Marks cannot be negative";
        }

        System.out.println("Grade: " + grade);

        scanner.close();
    }

}
```

10. Switch

Task: Build a simple calculator using `switch` to perform operations (+, -, *, /).

Sample Input:
Number1: 10
Number2: 5
Operation: *

Sample Output:

```
Result: 50
```

```
package Javaassign;
import java.util.Scanner;

public class SimpleCalculator {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);


        System.out.print("Enter first number: ");
        double a = sc.nextDouble();

        System.out.print("Enter second number: ");
        double b = sc.nextDouble();


        System.out.print("Choose operation (+, -, *, /): ");
        char op = sc.next().charAt(0);

        double result;

        switch(op) {
            case '+':
                result = a + b;
                System.out.println("Result: " + result);
                break;

            case '-':
                result = a - b;
                System.out.println("Result: " + result);
                break;

            case '*':
                result = a * b;
                System.out.println("Result: " + result);
                break;

            case '/':
                if(b != 0) {
                    result = a / b;
                    System.out.println("Result: " + result);

                } else {
```

```
                    System.out.println("Cannot divide by
zero!");
                }
                break;

            default:
                System.out.println("Invalid operation!");
        }

        sc.close();
    }

}
```

11. Loops and Branching

Task: Print the first N even numbers using a loop.

Sample Input:
N = 5

Sample Output:

```
0 2 4 6 8
```

12. Arrays

Task: Accept 5 numbers, store them in an array, and display their average.

Sample Input:
Numbers: 10, 20, 30, 40, 50

Sample Output:

```
Average: 30.0
```

```
package Javaassign;
import java.util.Scanner;

public class ArrayAverage {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        double[] numbers = new double[5];
        double sum = 0;


        System.out.print("Numbers: ");
        for (int i = 0; i < 5; i++) {
            numbers[i] = scanner.nextDouble();
            sum += numbers[i];
```

```
        }


        double average = sum / 5;
        System.out.println("Average: " + average);

        scanner.close();
    }

}
```

13. Enum

Task: Create an enum for days of the week. Print a message depending on the day.

Sample Input:
Day: MONDAY

Sample Output:
```
Start of the work week!
```

```
package Javaassign;
import java.util.Scanner;


enum DayOfWeek {
 MONDAY, TUESDAY, WEDNESDAY, THURSDAY, FRIDAY, SATURDAY,
SUNDAY
}


public class SimpleWeekDay {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);


        System.out.print("Day: ");
        String dayInput = scanner.nextLine().toUpperCase();

        try {

            DayOfWeek day = DayOfWeek.valueOf(dayInput);


            switch(day) {
                case MONDAY:
                    System.out.println("Start of the work
week!");
                    break;
                case TUESDAY:
                case WEDNESDAY:
                case THURSDAY:
                  System.out.println("Midweek days - keep
going!");
                    break;
                case FRIDAY:
                    System.out.println("Almost weekend!");
```

```
                    break;
                case SATURDAY:
                case SUNDAY:
                    System.out.println("Weekend - time to
relax!");
                    break;
            }
        } catch (IllegalArgumentException e) {
            System.out.println("Invalid day entered!");
        }

        scanner.close();
    }


}
```

14. OOPs Concepts

Task: Create a `Student` class with fields for name and marks. Create an object and display its data.

Sample Input:
Name: Riya
Marks: 87

Sample Output:

```
Student Name: Riya

Marks: 87
```

```
package Javaassign;

import

java.util.Scanner;




class Student {



 String name;
```

```
 int marks;



 public
Student(String name,
int marks) {
      this.name =
name;
      this.marks =
marks;
 }



 public void
displayData() {

System.out.println("S
tudent Name: " +
name);

System.out.println("M
arks: " + marks);
 }
}

public class
```

```
StudentDemo {
    public static void
main(String[] args) {
        Scanner
scanner = new
Scanner(System.in);



System.out.print("Nam
e: ");
        String name =
scanner.nextLine();


System.out.print("Mar
ks: ");
        int marks =
scanner.nextInt();


        Student
student = new
Student(name, marks);
```

```
System.out.println("\
nStudent Details:");


student.displayData()
;




scanner.close();
    }


}
```

15. Inheritance

Task: Create a class `Employee` and a subclass `Manager` that extends `Employee` and adds department information.

Sample Input:
Name: Raj
Salary: 50000
Department: Sales

Sample Output:

```
Name: Raj

Salary: 50000
Department: Sales
```

```
package Javaassign;

import
java.util.Scanner;


class Employee {
```

```
    private String
name;

    private double
salary;



    public
Employee(String name,
double salary) {

        this.name =
name;

        this.salary =
salary;

    }



    public void
displayInfo() {


System.out.println("N
ame: " + name);


System.out.println("S
alary: " + salary);

    }

}



class Manager extends
Employee {

    private String
department;



    public
Manager(String name,
double salary, String
```

```
department) {

        super(name,
salary);


this.department =
department;

    }



    @Override

    public void
displayInfo() {


super.displayInfo();


System.out.println("D
epartment: " +
department);

    }

}



public class Main {



    public static void
main(String[] args) {



        Scanner
scanner = new
Scanner(System.in);




System.out.print("Nam
e: ");
```

```
        String name =
scanner.nextLine();



System.out.print("Sal
ary: ");
        double salary
=
scanner.nextDouble();


scanner.nextLine();



System.out.print("Dep
artment: ");
        String
department =
scanner.nextLine();



        Manager
manager = new
Manager(name, salary,
department);


manager.displayInfo()
;



scanner.close();


    }


}
```