Write a Java program to perform basic Calculator operations.

Answer:

```java
package Edureka;
import java.util.Scanner;
public class Calculator {
public static void main(String[] args) {
Scanner reader = new Scanner(System.in);
System.out.print("Enter two numbers: ");
// nextDouble() reads the next double from the keyboard
double first = reader.nextDouble();
double second = reader.nextDouble();
System.out.print("Enter an operator (+, -, *, /): ");
char operator = reader.next().charAt(0);
double result;
//switch case for each of the operations
switch(operator)
{
case '+':
result = first + second;
break;
case '-':
result = first - second;
break;
case '*':
result = first * second;
break;
case '/':
result = first / second;
break;
// operator doesn't match any case constant (+, -, *, /)


default:
System.out.printf("Error! operator is not correct");
return;
}
//printing the result of the operations
System.out.printf("%.1f %c %.1f = %.1f", first, operator, second, result);
}
}
```

Write a Java program to calculate a Factorial of a number.

Answer:

```java
package Edureka;
import java.util.Scanner;
public class Factorial {
public static void main(String args[]){
//Scanner object for capturing the user input
Scanner scanner = new Scanner(System.in);
System.out.println("Enter the number:");
//Stored the entered value in variable
int num = scanner.nextInt();
//Called the user defined function fact
int factorial = fact(num);
System.out.println("Factorial of entered number is: "+factorial);
}
static int fact(int n)
{
int output;
if(n==1){
return 1;
}
//Recursion: Function calling itself!!
output = fact(n-1)* n;
return output;
}
}
```

Write a Java program to calculate Fibonacci Series up to n numbers.

Answer:

```java
package Edureka;
public class Fibonacci {
public static void main(String[] args) {
//initializing the constants
int n = 100, t1 = 0, t2 = 1;
System.out.print("Upto " + n + ": ");
//while loop to calculate fibonacci series upto n numbers
while (t1<= n)
{
System.out.print(t1 + " + ");
int sum = t1 + t2;
t1 = t2;
t2 = sum;
}
}
}
```

Print Right Triangle Star Pattern

```
  *
  * *
  * * *
  * * * *
  * * * * *
```

Answer:

```java
// Java code to demonstrate star patterns
public class GeeksForGeeks
{
    // Function to demonstrate printing pattern
    public static void printStars(int n)
    {
        int i, j;

        // outer loop to handle number of rows
        //  n in this case
        for(i=0; i<n; i++)
        {

            //  inner loop to handle number of columns
            //  values changing acc. to outer loop
            for(j=0; j<=i; j++)
            {
                // printing stars
                System.out.print("* ");
            }

            // ending line after each row
            System.out.println();
        }
    }

    // Driver Function
    public static void main(String args[])
    {
        int n = 5;
        printStars(n);
    }
}
```

Display uppercased alphabet using for loop.

Answer:

```java
package javaapplication2;

public class JavaApplication2 {

    public static void main(String[] args) {

    char c;

    for(c = 'A'; c <= 'Z'; ++c)

      System.out.print(c + " ");

    }

}
```

Reverse a Number using a while loop in Java

Answer:

```java
class Main {
  public static void main(String[] args) {

    int num = 1234567, reversed = 0;

    for(;num != 0; num /= 10) {
      int digit = num % 10;
      reversed = reversed * 10 + digit;
    }

    System.out.println("Reversed Number: " + reversed);
  }
}
```

Calculate power of a number using a while loop

Answer

```java
class Main {
  public static void main(String[] args) {

    int base = 3, exponent = 4;

    long result = 1;

    while (exponent != 0) {
      result *= base;
      --exponent;
    }

    System.out.println("Answer = " + result);
  }
}
```

Program to Calculate Average Using Arrays

Answer

```java
public class Average {

    public static void main(String[] args) {
        double[] numArray = { 45.3, 67.5, -45.6, 20.34, 33.0, 45.6 };
        double sum = 0.0;

        for (double num: numArray) {
            sum += num;
        }

        double average = sum / numArray.length;
        System.out.format("The average is: %.2f", average);
    }
}
```

Program to Find Transpose of a Matrix

```
Matrix
a11    a12    a13
a21    a22    a23

Transposed Matrix
a11    a21
a12    a22
a13    a23
```

Answer

```java
public class Transpose {
    public static void main(String[] args) {
        int row = 2, column = 3;
        int[][] matrix = { {2, 3, 4}, {5, 6, 4} };

        // Display current matrix
        display(matrix);

        // Transpose the matrix
        int[][] transpose = new int[column][row];
        for(int i = 0; i < row; i++) {
            for (int j = 0; j < column; j++) {
                transpose[j][i] = matrix[i][j];
            }
        }

        // Display transposed matrix
        display(transpose);
    }
    public static void display(int[][] matrix) {
        System.out.println("The matrix is: ");
        for(int[] row : matrix) {
            for (int column : row) {
                System.out.print(column + "    ");
            }
            System.out.println();
        }
    }
}
```

Compute Sum and Average of Array Elements

Answer

```java
class Main {
 public static void main(String[] args) {

   int[] numbers = {2, -9, 0, 5, 12, -25, 22, 9, 8, 12};
   int sum = 0;
   Double average;

   // access all elements using for each loop
   // add each element in sum
   for (int number: numbers) {
     sum += number;
   }

   // get the total number of elements
   int arrayLength = numbers.length;

   // calculate the average
   // convert the average from int to double
   average =  ((double)sum / (double)arrayLength);

   System.out.println("Sum = " + sum);
   System.out.println("Average = " + average);
 }
}
```

Java Methods for add

Answer

```java
class Main {

  // create a method
  public int addNumbers(int a, int b) {
    int sum = a + b;
    // return value
    return sum;
  }

  public static void main(String[] args) {

    int num1 = 25;
    int num2 = 15;

    // create an object of Main
    Main obj = new Main();
    // calling method
    int result = obj.addNumbers(num1, num2);
    System.out.println("Sum is: " + result);
  }
}
```