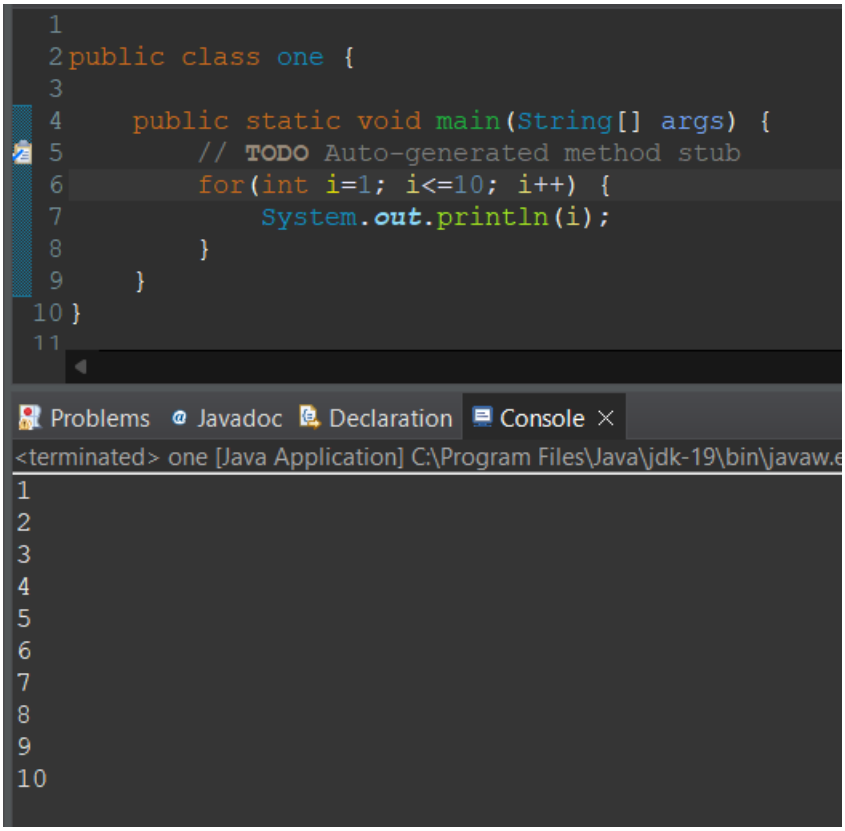
Looping:

1. Write a Java program that uses a "for" loop to print the numbers from 1 to 10.



2. Implement a Java program that utilizes a "while" loop to find the factorial of a given number.

```java
import java.util.*;

public class Whilee {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter a number to find its factorial: ");
        int a= sc.nextInt();
        int i=1;
        int facto=1;
        while(i<=a) {
            facto *=i;
            i++;
        }
        System.out.println("Factorial of "+a +" is " +facto);
    }

}
```

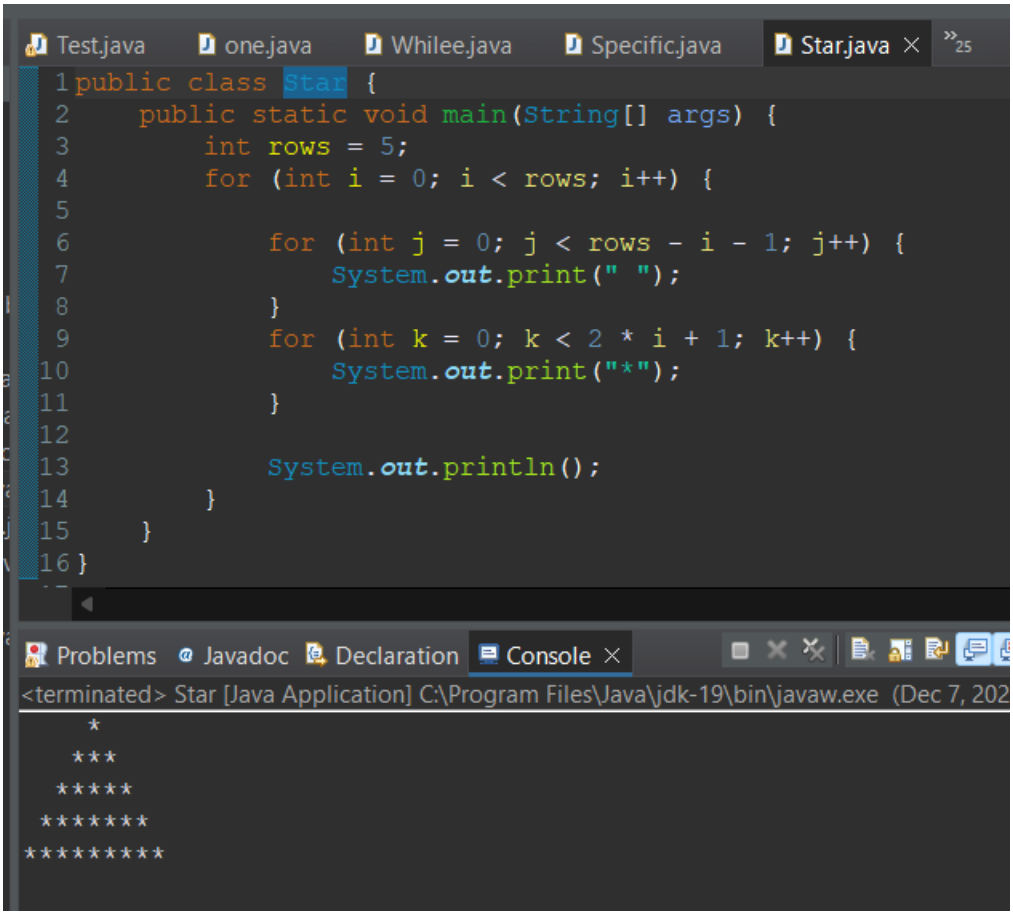
```
Enter a number to find its factorial:
5
Factorial of 5 is 120
```

3. Create a Java program using a "do-while" loop to repeatedly ask the user for input until they enter a specific value (e.g., 0).

```java
import java.util.Scanner;

public class Specific {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        Scanner sc= new Scanner(System.in);
        int a;
        do {
            System.out.println("Enter a number (0 to exit): ");
            a= sc.nextInt();
        }
        while(a!=0);
        System.out.println("Exiting the program.");
        sc.close();
    }


}
```

```
<terminated> Specific [Java Application] C:\Program Files\Java\jdk-19\bin\javaw.exe (Dec 7, 2023, 12
Enter a number (0 to exit):
5
Enter a number (0 to exit):
4
Enter a number (0 to exit):
7
Enter a number (0 to exit):
0
Exiting the program.
```

4. Write a Java program that demonstrates the use of nested loops to print a pattern, such as a pyramid of stars.



Arrays:

5. Develop a Java program that declares and initializes an array of integers. Print the elements of the array in reverse order.

```java
public class Reverse {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        int arr[] = {1,2,3,4,5,6};
        int l= arr.length;

        System.out.println("Array in reverse order: ");
        for(int i=l-1 ;i>=0; i--) {
            System.out.print(arr[i]+" ");
        }

    }

}
```

```
Problems  Javadoc  Declaration  Console
<terminated> Reverse [Java Application] C:\Program Files\Java\jdk-19\bin\javaw.exe (Dec 7
Array in reverse order:
6 5 4 3 2 1
```

6. Implement a Java program that finds the sum and average of elements in an array of floating-point numbers.

```java
public class sumAndAverage {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        float arr[]= {1,2,3,4,5};
        float sum=0;
        for(int i=0; i<=arr.length; i++) {
            sum= sum+ arr[1];
        }
        System.out.println("Sum: "+sum);

        double avg= sum/arr.length;
        System.out.println("Average: "+avg);
    }

}
```

```
Problems  Javadoc  Declaration  Console
<terminated> sumAndAverage [Java Application] C:\Program Files\Java\jdk-19\bin\javaw.exe
Sum: 12.0
Average: 2.4000000953674316
```

7. Write a Java program that checks if a given element is present in an array of strings. If present, print its index; otherwise, print a message indicating its absence.

```java
import java.util.Scanner;

public class elementPresent {

    public static void main(String[] args) {
        String array[]= {"apple","banana","mango"};
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter any fruit: ");
        String searchElement= sc.next();
         boolean found = false;

            // Loop through the array to find the element
            for (int i = 0; i < array.length; i++) {
                if (array[i].equals(searchElement)) {
                    System.out.println("Element '" + searchElement + "' found at index: " + i);
                    found = true;
                    break; // Exit the loop once the element is found
                }
            }

            // If the element is not found, print a message
            if (!found) {
                System.out.println("Element '" + searchElement + "' not found in the array.");
            }
        }
    }
```

```
<terminated> elementPresent [Java Application] C:\Program Files\Java\jdk-19\bin\javaw.exe  (Dec 7, 2023, 1:29:38 PM – 1:29:47 PM) [pid: 9616]
Enter any fruit:
apple
Element 'apple' found at index: 0
```

8. Create a Java program that sorts an array of integers in ascending order using the bubble sort algorithm.

```java

public class Bubblesort {

    public static void bubbleSortAlgorithm(int[] arr) {
        int size = arr.length;

        for (int i = 0; i < size - 1; i++) {
            for (int j = 0; j < size - i - 1; j++) {
                if (arr[j] > arr[j + 1]) {
                    int temp = arr[j];
                    arr[j] = arr[j + 1];
                    arr[j + 1] = temp;
                }
            }
        }
    }

    public static void main(String[] args) {
        int[] array = {100, 87, 56, 12, 10};

        // Call the bubbleSortAlgorithm method to sort the array
        bubbleSortAlgorithm(array);

        // Print the sorted array
        System.out.print("The array after performing the bubble sort algorithm is: ");
        System.out.println(Arrays.toString(array));
    }
}
```

```
Problems  Javadoc  Declaration  Console ×
<terminated> Bubblesort [Java Application] C:\Program Files\Java\jdk-19\bin\javaw.exe  (Dec 7, 2023, 1:35:15 PM – 1:35:15 PM) [pid: 17184]
The array after performing the bubble sort algorithm is: [10, 12, 56, 87, 100]
```

Enhanced For Loop:

9. Develop a Java program that uses the enhanced for loop to iterate through an array of characters and count the number of vowels.

```java
public class Characters {
    public static void main(String[] args) {
        char[] characters = {'a', 'e', 'q', 't', 'i', 'o', 'p'};
        int count = 0;
        for (char c : characters) {
            if ('a' == c || 'e' == c || 'i' == c || 'o' == c || 'u' == c ||
                'A' == c || 'E' == c || 'I' == c || 'O' == c || 'U' == c) {
                count++;
            }
        }
        System.out.println("The number of vowels in the array is: " + count);
    }
}
```

```
Problems  Javadoc  Declaration  Console
<terminated> Characters [Java Application] C:\Program Files\Java\jdk-19\bin\javaw.exe (Dec 7, 2023, 1:46:48 PM – 1:46:48 PM)
The number of vowels in the array is: 4
```

10. Write a Java program that uses the enhanced for loop to find the maximum value in an array of doubles.

```java
public class maxinarr {
    public static void main(String[] args) {
        double[] numbers = {3.5, 2.1, 8.9, 4.7, 1.2};
        double max = numbers[0];
        for (double num : numbers) {
            if (num > max) {
                max = num;
            }
        }
        System.out.println("The maximum value in the array is: " + max);
    }
}
```

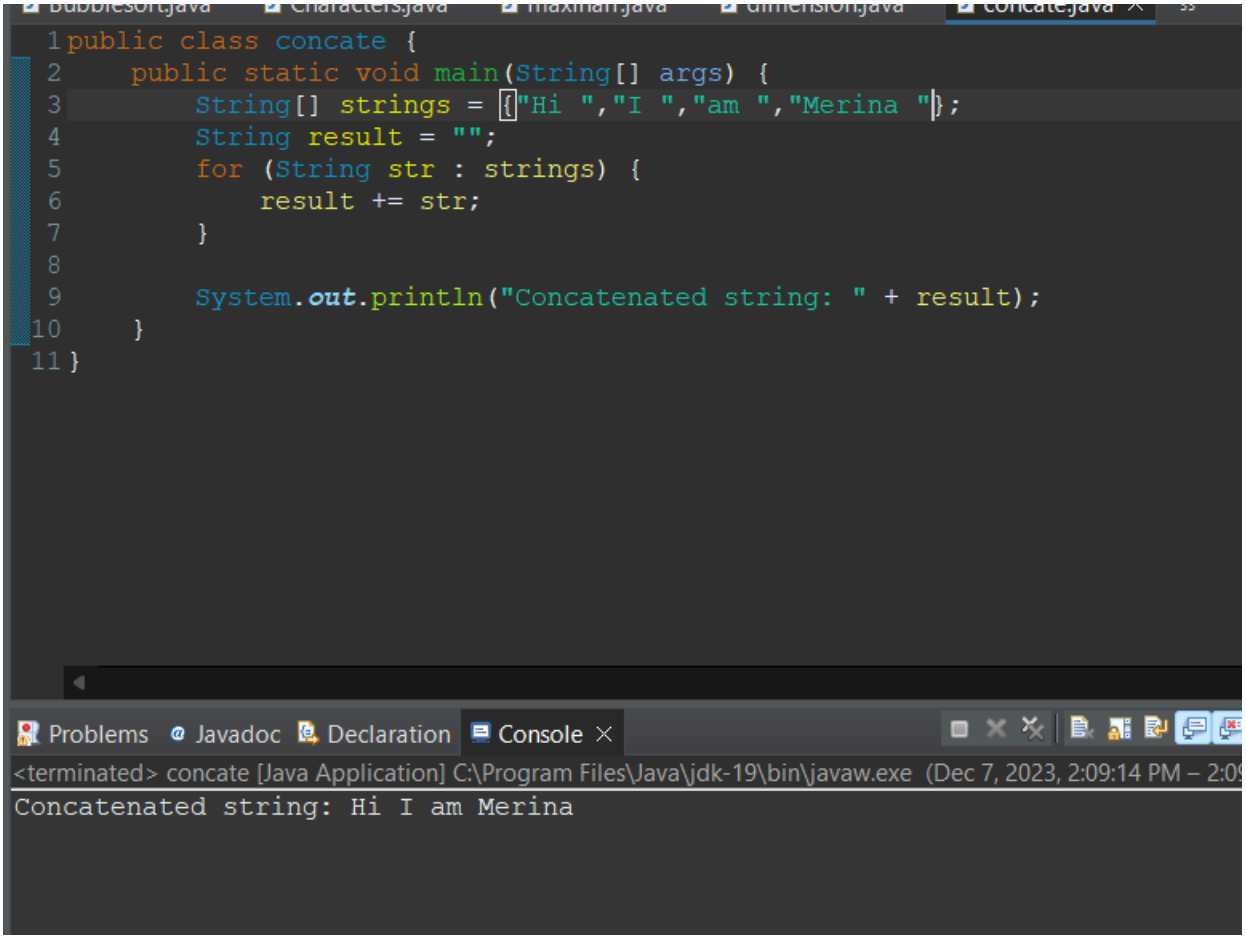
```
Problems  Javadoc  Declaration  Console
<terminated> maxinarr [Java Application] C:\Program Files\Java\jdk-19\bin\javaw.exe (Dec 7, 2023, 1:56:31 PM – 1:56:31 PM)
The maximum value in the array is: 8.9
```

11. Implement a Java program that initializes a 2D array and uses an enhanced for loop to calculate the sum of all elements.

```java

public class dimension {

    public static void main(String[] args) {
        // TODO Auto-generated method stub
        int arr[][]= {{2,3},{4,5}};
        int sum = 0;

        for (int[] row : arr) {
            for (int element : row) {
                sum += element;
            }
        }
        System.out.println("The sum of all elements in the 2D array is: " + s
    }

}

```

```
Problems  Javadoc  Declaration  Console
<terminated> dimension [Java Application] C:\Program Files\Java\jdk-19\bin\javaw.exe  (Dec 7, 2023, 2:07:21 PM – 2:07:21 P
The sum of all elements in the 2D array is: 14
```

12. Create a Java program that utilizes the enhanced for loop to concatenate all strings in an array and print the result.


public class concate {
public static void main(String[] args) {
String[] strings = {"Hi ","I ","am ","Merina "};
String result = "";
for (String str : strings) {
result += str;
}
System.out.println("Concatenated string: " + result);
}
}
Problems
Javadoc
Declaration
Console
<terminated> concate [Java Application] C:\Program Files\Java\jdk-19\bin\javaw.exe (Dec 7, 2023, 2:09:14 PM – 2:0
Concatenated string: Hi I am Merina