1.Create one employee class and in that class create instance variable, local variable and static variable.

Program:

```
class Student
{
	String name;
	static int rollno=123;
	String sec;
	void section(String sec)
	{
		this.sec = sec;
	       System.out.println("Section: " + sec);
	}
}
public class Assign_1
{
	public static void main(String[] args)
	{
		Student std = new Student();
		std.name="Jayanth";
		System.out.println(std.name);
		System.out.println(std.rollno);
		std.section("A section");
		//System.out.println("Stored Section: " + std.sec);



		}
	}
```

Output:

Jayanth

123

Section: A section

2.Create addition of two numbers using variables.

Program:

```
class Add
    {
        int Addition(int a, int b)
        {
            int c=a+b;
            return c;
          }
    }
    public class Assign_2
    {
        public static void main(String[] args)
        {
            Add a=new Add();
            int b= a.Addition(200,3);
            System.out.println("Sum is : "+b);

            }

        }
```

Output:

Sum is: 203

---

3. Swap two numbers using third variable

Program:

```
class Swap
{
        void swaps(int a,int b)
        {
                int temp=0;
```

```
            System.out.println("Before swapping : "+a+" "+b);
            temp=a;
            a=b;
            b=temp;
            System.out.println("After swapping : "+a+" "+b);
        }
}
public class Assign_3
{

        public static void main(String[] args)
        {
            Swap s= new Swap();
            s.swaps(3,9);

        }

}
```

Output:

```
        Before swapping : 3 9
        After swapping : 9 3
```

4.Calculate area of rectangle

Program:

```
import java.util.Scanner;
public class Assign_4
{
        public static void main(String[] args)
        {
            Scanner sc = new Scanner(System.in);
```

```
                System.out.print("Enter length of rectangle: ");
                double length = sc.nextDouble();
                System.out.print("Enter width of rectangle: ");
                double width = sc.nextDouble();
                // Calculate area
                double area = length * width;
                System.out.println("Area of the rectangle = " + area);

                sc.close();
        }
}
```

Output:

```
Enter length of rectangle: 2
Enter width of rectangle: 3
Area of the rectangle = 6.0
```

String:

1.**Count number of vowels in a string(input=”Programming”, output=3 Vowels)**

Program:

```
 public class VowelCount
{
        public static void main(String[] args)
        {
                String input = "Programming";
                int count = 0;
                for (char ch : input.toLowerCase().toCharArray())
                {
                        if ("aeiou".indexOf(ch) != -1)
                        {
                                count++;
                        }
```

```
            }
            System.out.println("Number of vowels: " + count);
        }
}
```

Output:

Number of vowels: 3

2.Replace all Spaces with Hyphens

Program:

```
public class ReplaceSpaces
{
        public static void main(String[] args)
    {
        String str = "Learn Java Programming";
          String result = str.replace(" ", "-");
          System.out.println(result);
     }
}
```

Output:

Learn-Java-Programming

3.Check if a string is Palindrome

Program:

```
public class Palindrome
{
        public static void main(String[] args)
        {
                String str = "madam";
                String rev = "";
                for (int i = str.length() - 1; i >= 0; i--)
```

```
                {
                        rev += str.charAt(i);
                }
                if (str.equalsIgnoreCase(rev))
                {
                System.out.println(str + " is Palindrome");
                }
                else
                {
                System.out.println(str + " is Not Palindrome");
                }
            }
        }
```

Output:

Palindrome

4.Count words in a Sentence

Program:

```
public class WordCount
{
    public static void main(String[] args)
    {
        String sentence = "Java is simple to use";
        String[] words = sentence.trim().split("\\s+");
        System.out.println("Number of words: " + words.length);
    }
}
```

Output:

Number of words: 5

5.Check if String starts with “j” and end with “a” . eg. “java”

Program:

```
public class StartEndCheck
{
        public static void main(String[] args)
        {
              String str = "java";
                 if (str.toLowerCase().startsWith("j") &&str.toLowerCase().endsWith("a"))
                 {
                          System.out.println("Yes");
              }
                 else
                 {
                          System.out.println("No");
              }
           }
}
```

Output:

Yes

6.Split a sentence into words

Program:

```
public class SplitSen
{
        public static void main(String[] args)
        {
                 String sentence = "Java Programming";
              String[] words = sentence.split(" ");
              for (String word : words)
```

```
                {
                        System.out.println(word);
                }
        }
}
```

Output:

Java

Programming

7.Write a program to find the frequency of each character in a string

Program:

```
public class CharFrequency
{
        public static void main(String[] args)
        {
                String str = "hello";
                int[] freq = new int[26];
                for (char ch : str.toCharArray())
                {
                        freq[ch]++;
                }
                for (int i = 0; i < freq.length; i++)
                {
                        if (freq[i] > 0)
                        {
                                System.out.println((char) i + " : " + freq[i]);
                        }
                }
        }
}
```

Output:

h : 1

e : 1

l : 2

o : 1

8.Write a program to remove all white Spaces from string

Program:

```
   public class RemoveSpaces
{
   public static void main(String[] args)
{
          String str = "Java is secure";
      System.out.println(str.replaceAll("\\s+", ""));
  }
}
```

Output:

Javaissecure

9.Write a Program to count digits, letters, spaces and Special characters

Program:

```
public class CountCharacters
{
        public static void main(String[] args)
        {
              String str = "Hello 123!";
            int letters = 0, digits = 0, spaces = 0, special = 0;
            for (char ch : str.toCharArray())
              {
              if (Character.isLetter(ch))
```

```
                letters++;
            else if (Character.isDigit(ch))
                digits++;
            else if (Character.isSpaceChar(ch))
                spaces++;
            else
                special++;
            }
            System.out.println("Letters: " + letters);
            System.out.println("Digits: " + digits);
            System.out.println("Spaces: " + spaces);
            System.out.println("Special: " + special);
        }
}
```

Output:

Letters: 5

Digits: 3

Spaces: 1

Special: 1

10.Write a program to sort characters of a String Alphabetically

Program:

```
import java.util.Arrays;
public class SortCharacters
{
    public static void main(String[] args)
    {
        String str = "java";
        char[] arr = str.toCharArray();
        Arrays.sort(arr);
```

```
            System.out.println(new String(arr));
        }
}
```

Output:

aajv

Array

1.Write a program to find the sum of all elements in an integer array

Program:

```
public class ArraySum
{
    public static void main(String[] args)
    {
        int[] arr = {10, 20, 30, 40, 50};
        int sum = 0;
        for (int num : arr)
        {
            sum += num;
        }
        System.out.println("Sum of elements: " + sum);
    }
}
```

Output:

Sum of elements: 150

---

2. Write a program to count even and odd numbers from an array

Program:

```
public class CountEvenOdd
{
```

```
    public static void main(String[] args)
    {
        int[] arr = {1, 2, 3, 4, 5, 6};
        int evenCount = 0;
        int oddCount = 0;
        for (int num : arr)
        {
            if (num % 2 == 0)
                evenCount++;
            else
                oddCount++;
        }
        System.out.println("Even numbers: " + evenCount);
        System.out.println("Odd numbers: " + oddCount);
    }
}
```

Output:

Even numbers: 3

Odd numbers: 3

---

3. Find maximum and minimum elements from an array.

Program:

```
public class MaxMin
{
    public static void main(String[] args)
    {
        int[] arr = {5, 7, 2, 9, 1};
      int max = arr[0], min = arr[0];
      for (int num : arr)
        {
```

```
                if (num > max)
                        max = num;
                elseif (num < min)
                        min = num;
            }
            System.out.println("Maximum: " + max);
            System.out.println("Minimum: " + min);
        }
}
```

Output:

Maximum: 9

Minimum: 1

4.write a program to find out second highest element from an array

Program:

```
public class SecondHighest
{
    public static void main(String[] args)
    {
        int[] arr = {10, 20, 4, 45, 99};
        int first = Integer.MIN_VALUE;
        int second = Integer.MIN_VALUE;
        for (int num : arr)
        {
            if (num > first)
            {
                second = first;
                first = num;
            }
            else if (num > second && num != first)
```

```
                {
                        second = num;
                }
            }
            System.out.println("Second highest: " + second);
        }
    }
```

Output:

Second highest: 45

5.write a program to search for a number entered by the user in an array

Program:

```
import java.util.Scanner;
public class SearchElement
{
    public static void main(String[] args)
    {
        int[] arr = {5, 10, 15, 20, 25};
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter number to search: ");
        int search = sc.nextInt();
        boolean found = false;
        for (int num : arr)
        {
            if (num == search)
            {
                found = true;
                break;
            }
        }
```

```
        if (found)
                System.out.println(search + " found in array.");
        else
                System.out.println(search + " not found in array.");
          }
}
```

Ouput:

Enter number to search: 15

15 found in array.

6.write a program to print an array in reverse order

Program:

```
public class ReverseArray
{
        public static void main(String[] args)
        {
                int[] arr = {1, 2, 3, 4, 5};
                System.out.println("Array in reverse:");
                for (int i = arr.length - 1; i >= 0; i--)
                {
                        System.out.print(arr[i] + " ");
                }
        }
}
```

Output:

Array in reverse:

5 4 3 2 1

7.remove duplicate elements from an array

Program:

```
import java.util.LinkedHashSet;
```

```
public class RemoveDuplicates
{
	public static void main(String[] args)
	{
		int[] arr = {1, 2, 2, 3, 4, 4, 5};
		LinkedHashSet<Integer> set = new LinkedHashSet<>();
		for (int num: arr)
		{
			set.add(num);
		}
      System.out.println("Array without duplicates: " + set);
   }
}
```

Output:

Array without duplicates: [1, 2, 3, 4, 5]

8.Copy all elements from one array to another.

Program:

```
public class CopyArray
{
	public static void main(String[] args)
	{
		int[] arr1 = {1, 2, 3, 4, 5};
		int[] arr2 = new int[arr1.length];
		for (int i = 0; i < arr1.length; i++)
		{
			arr2[i] = arr1[i];
		}
		System.out.print("Copied array: ");
		for (int num : arr2)
```

```
        {
            System.out.print(num + " ");
        }
    }
}
```

Output:

Copied array: 1 2 3 4 5

9.Sort an array in ascending order

Program:

```
import java.util.Arrays;

public class SortArray
{
    public static void main(String[] args)
    {
        int[] arr = {5, 1, 4, 2, 8};
        Arrays.sort(arr);
        System.out.print("Sorted array: ");
        for (int num : arr)
        {
            System.out.print(num + " ");
        }
    }
}
```

Output:

Sorted array: 1 2 4 5 8

10.print only prime numbers from array

Program:

```
public class PrimeFromArray
{
        public static void main(String[] args)
        {
                int[] arr = {2, 4, 5, 6, 7, 9, 11};
                System.out.print("Prime numbers: ");
                for (int num : arr)
                {
                        if (isPrime(num))
                        {
                                System.out.print(num + " ");
                        }
                }
   }
   static boolean isPrime(int n)
{
      if (n <= 1)
                return false;
      for (int i = 2; i <= Math.sqrt(n); i++)
         {
                if (n % i == 0)
                        return false;
      }
      return true;
   }
}
```

Output:

Prime numbers: 2 5 7 11

---

11. find out frequency of each element

Program:

```
public class FrequencyOfElements
{
	public static void main(String[] args)
	{
		int[] arr = {1, 2, 2, 3, 4, 3, 1, 5};
		boolean[] visited = new boolean[arr.length];
		for (int i = 0; i < arr.length; i++)
		{
			if (visited[i])
				continue;
			int count = 1;
			for (int j = i + 1; j < arr.length; j++)
			{
				if (arr[i] == arr[j])
				{
				visited[j] = true;
			count++;
			}
		}
		System.out.println(arr[i] + " occurs " + count + " times");
	}
  }
}
```

Output:

1 occurs 2 times

2 occurs 2 times

3 occurs 2 times

4 occurs 1 times

5 occurs 1 times

---

12. Rotate array elements(left or right)

Program:

```
public class RotateArrayLeft
{
	public static void main(String[] args)
	{
		int[] arr = {1, 2, 3, 4, 5};
		int first = arr[0];
		for (int i = 0; i < arr.length - 1; i++)
		{
			arr[i] = arr[i + 1];
		}
		arr[arr.length - 1] = first;
		System.out.print("Array after left rotation: ");
		for (int num : arr)
		{
			System.out.print(num + " ");
		}
	}
}
```

Output:

Array after left rotation: 2 3 4 5 1

---

13. merge two arrays and sort them

Program:

```
import java.util.Arrays;
```

```
public class MergeAndSortArrays
{
	public static void main(String[] args)
	{
		int[] arr1 = {5, 1, 9};
		int[] arr2 = {8, 2, 6};
		int[] merged = new int[arr1.length + arr2.length];
		System.arraycopy(arr1, 0, merged, 0, arr1.length);
		System.arraycopy(arr2, 0, merged, arr1.length, arr2.length);
		Arrays.sort(merged);
		System.out.print("Merged and sorted array: ");
		for (int num : merged)
		{
			System.out.print(num + " ");
		}
	}
}
```

Output:

Merged and sorted array: 1 2 5 6 8 9

---

14. check if array is palindrome or not

Program:

```
public class PalindromeArray
{
	public static void main(String[] args)
	{
	int[] arr = {1, 2, 3, 2, 1};
		boolean isPalindrome = true;
		for (int i = 0; i < arr.length / 2; i++)
```

```
        {
            if (arr[i] != arr[arr.length - 1 - i])
            {
                isPalindrome = false;
                break;
            }
        }
        if (isPalindrome)
            System.out.println("Array is Palindrome");
        else
            System.out.println("Array is not Palindrome");
        }
}
```

Output:

Array is Palindrome

---

15 .segregate even and odd numbers

Program:

```
public class SegregateEvenOdd
{
    public static void main(String[] args)
    {
        int[] arr = {12, 17, 70, 15, 22, 65, 21, 90};
        int left = 0, right = arr.length - 1;
        while (left < right)
        {
        while (arr[left] % 2 == 0 && left < right)
        {
            left++;
        }
```

```
            while (arr[right] % 2 == 1 && left < right)
            {
                right--;
            }
            if (left < right)
            {
                int temp = arr[left];
                arr[left] = arr[right];
                arr[right] = temp;
            }
        }
        System.out.print("Array after segregation: ");
        for (int num : arr)
            {
            System.out.print(num + " ");
        }
    }
}
```

Output:

Array after segregation: 12 90 70 22 15 65 21 17