Variables :

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

```
class Employee {
   String name;
   static String company = "OpenAI";
   void display() {
      int empId = 101;
      System.out.println(empId);
      System.out.println(name);
      System.out.println(company);
   }
   public static void main(String[] args) {
      Employee e = new Employee();
      e.name = "Likitha";
      e.display();
   }
}
```

Output

```
101
Likitha
OpenAI
```

---

2. Create addition of two numbers using variables ?

```
class Addition {
   public static void main(String[] args) {
      int a = 5, b = 10, sum = a + b;
      System.out.println(sum);
   }
}
```

Output

15

---

3. Swap Two Numbers Using Third Variable

```
class Swap {
   public static void main(String[] args) {
      int a = 10, b = 20, temp;
      temp = a;
      a = b;
      b = temp;
      System.out.println(a + " " + b);
   }
}
```

Output

20 10

---

4. Calculate area of rectangle ?

```
class RectangleArea {
   public static void main(String[] args) {
      int length = 5, width = 3;
      int area = length * width;
      System.out.println(area);
   }
}
```

Output

15

---

5. Calculate simple interest ?

```
class SimpleInterest {
   public static void main(String[] args) {
      int p = 1000, r = 5, t = 2;
      int si = (p * r * t) / 100;
```

```
        System.out.println(si);
    }
}
```

Output

100

Strings

1. Count Number of Vowels in a String

```
class VowelCount {
    public static void main(String[] args) {
        String s = "Programming".toLowerCase();
        int count = 0;
        for (int i = 0; i < s.length(); i++) {
            if ("aeiou".indexOf(s.charAt(i)) != -1) count++;
        }
        System.out.println(count + " Vowels");
    }
}
```

Output

3 Vowels

---

2. Replace All Spaces with Hyphens

```
class ReplaceSpaces {
    public static void main(String[] args) {
        String s = "Java is fun";
        System.out.println(s.replace(" ", "-"));
    }
}
```

Output

Java is fun

---

3. Check if String is Palindrome

```
class Palindrome {
   public static void main(String[] args) {
      String s = "madam";
      String rev = new StringBuilder(s).reverse().toString();
      System.out.println(s.equals(rev) ? "Palindrome" : "Not Palindrome");
   }
}
```

Output

```
Palindrome
```

---

4. Count Words in a Sentence

```
class WordCount {
   public static void main(String[] args) {
      String s = "Java is powerful";
      String[] words = s.split(" ");
      System.out.println(words.length);
   }
}
```

Output

```
3
```

---

5. Check if String Starts with "j" and Ends with "a"

```
class StartsEnds {
   public static void main(String[] args) {
      String s = "java";
      System.out.println(s.startsWith("j") && s.endsWith("a"));
   }
}
```

Output

```
true
```

---

6. Split a Sentence into Words

```
class SplitWords {
   public static void main(String[] args) {
      String s = "Java is fun";
      String[] words = s.split(" ");
      for (String w : words) System.out.println(w);
   }
}
```

Output

```
Java
is
fun
```

7.Write a program for Frequency of Each Character

```
class CharFrequency {
   public static void main(String[] args) {
      String s = "hello";
      for (char c : s.toCharArray()) {
         long count = s.chars().filter(ch -> ch == c).count();
         System.out.println(c + " : " + count);
      }
   }
}
```

Output

```
h : 1
e : 1
l : 2
l : 2
o : 1
```

8.write a program Remove All White Spaces

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

Output

Java is fun

---

9. Write a program for Count Digits, Letters, Spaces, Special Characters

```
class CountTypes {
   public static void main(String[] args) {
      String s = "Java 123 @#";
      int letters=0, digits=0, spaces=0, specials=0;
      for (char c : s.toCharArray()) {
         if (Character.isLetter(c)){ letters++;}
         else if (Character.isDigit(c)){ digits++;}
         else if (Character.isSpaceChar(c)){ spaces++;}
         else {specials++;}
      }
      System.out.println(letters + " " + digits + " " + spaces + " " + specials);
   }
}
```

Output

4 3 2 2

10.Write a program to Sort Characters Alphabetically

```
import java.util.Arrays;
class SortString {
   public static void main(String[] args) {
```

```
        String s = "java";
        char[] arr = s.toCharArray();
        Arrays.sort(arr);
        System.out.println(new String(arr));
    }
}
```

Output

java

Arrays

1. Write a program for Sum of All Elements

```
class ArraySum {
    public static void main(String[] args) {
        int[] arr = {1, 2, 3, 4};
        int sum = 0;
        for (int n : arr) sum += n;
        System.out.println(sum);
    }
}
```

Output

10

---

2. Write a program for Count Even and Odd Numbers

```
class EvenOddCount {
    public static void main(String[] args) {
        int[] arr = {1, 2, 3, 4, 5};
        int even = 0, odd = 0;
        for (int n : arr){
 if (n % 2 == 0){
 even++;
}else { odd++;
```

```
        System.out.println(even + " " + odd);
}
    }
}
```

Output

2 3

---

3. Write a program for Find Maximum and Minimum

```
class MaxMin {
    public static void main(String[] args) {
        int[] arr = {3, 7, 1, 9};
        int max = arr[0], min = arr[0];
        for (int n : arr) {
            if (n > max) max = n;
            if (n < min) min = n;
        }
        System.out.println(max + " " + min);
    }
}
```

Output

9 1

---

4. Write a program for Second Highest Element

```
class SecondHighest {
    public static void main(String[] args) {
        int[] arr = {5, 2, 8, 7};
        int first = Integer.MIN_VALUE, second = Integer.MIN_VALUE;
        for (int n : arr) {
            if (n > first) { second = first; first = n; }
            else if (n > second && n != first) second = n;
        }
```

```
        System.out.println(second);
    }
}
```

Output

7

---

5. Write a program for Search for a Number

```
class SearchNumber {
    public static void main(String[] args) {
        int[] arr = {1, 4, 6, 8};
        int target = 6, found = -1;
        for (int i = 0; i < arr.length; i++) if (arr[i] == target) found = i;
        System.out.println(found != -1 ? "Found" : "Not Found");
    }
}
```

Output

Found

---

6. Write a program for Reverse an Array

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

Output

3 2 1

---

7. Write a program for Remove Duplicates

```
import java.util.LinkedHashSet;
class RemoveDuplicates {
```

```
    public static void main(String[] args) {
        int[] arr = {1, 2, 2, 3, 1};
        LinkedHashSet<Integer> set = new LinkedHashSet<>();
        for (int n : arr) set.add(n);
        System.out.println(set);
    }
}
```

Output

```
[1, 2, 3]
```

---

8. Write a program for Copy Elements to Another Array

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

Output

```
1 2 3
```

---

9. Write a program for Sort Array Ascending

```
import java.util.Arrays;
class SortArray {
    public static void main(String[] args) {
        int[] arr = {5, 2, 8, 1};
```

```
        Arrays.sort(arr);
        for (int n : arr) System.out.print(n + " ");
    }
}
```

Output

1 2 5 8

---

10. Write a program for Print Only Prime Numbers

```
class PrimeArray {
    public static void main(String[] args) {
        int[] arr = {2, 3, 4, 5};
        for (int n : arr) {
            boolean prime = n > 1;
            for (int i = 2; i <= n / 2; i++) if (n % i == 0) prime = false;
            if (prime) System.out.print(n + " ");
        }
    }
}
```

Output

2 3 5

---

11. Write a program for Frequency of Each Element

```
class ElementFrequency {
    public static void main(String[] args) {
        int[] arr = {1, 2, 2, 3};
        for (int i = 0; i < arr.length; i++) {
            int count = 1;
            for (int j = i + 1; j < arr.length; j++) {
                if (arr[i] == arr[j]) { count++; arr[j] = -1; }
            }
            if (arr[i] != -1) System.out.println(arr[i] + " : " + count);
```

```
        }
    }
}
```

Output

```
1 : 1
2 : 2
3 : 1
```

---

12. Write a program for Rotate Array Left

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

Output

```
2 3 4 1
```

---

13. Write a program for Merge Two Arrays and Sort

```
import java.util.Arrays;
class MergeSortArray {
    public static void main(String[] args) {
        int[] a = {3, 1}, b = {4, 2};
        int[] c = new int[a.length + b.length];
        System.arraycopy(a, 0, c, 0, a.length);
        System.arraycopy(b, 0, c, a.length, b.length);
        Arrays.sort(c);
        for (int n : c) System.out.print(n + " ");
```

```
    }
}
```

Output

```
1 2 3 4
```

---

14. Write a program for Check if Array is Palindrome

```
class ArrayPalindrome {
    public static void main(String[] args) {
        int[] arr = {1, 2, 2, 1};
        boolean pal = true;
        for (int i = 0; i < arr.length / 2; i++) if (arr[i] != arr[arr.length - 1 - i]) pal = false;
        System.out.println(pal ? "Palindrome" : "Not Palindrome");
    }
}
```

Output

```
Palindrome
```

---

15. Write a program for Segregate Even and Odd Numbers

```
class SegregateEvenOdd {
    public static void main(String[] args) {
        int[] arr = {1, 2, 3, 4};
        for (int n : arr) if (n % 2 == 0)
{
System.out.print(n + " ");
}
        for (int n : arr) if (n % 2 != 0)
{
System.out.print(n + " ");
}
    }
}
```

Output

2 4 1 3