Day 3 Assignment

Variables:

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

Ans)

```
package DAY3;
class Student
{
	String name;
	static int rollno=12;
	String sec;
	void section(String sec)
	{
		this.sec = sec;
	System.out.println("Section: " + sec);
	}
}
public class Assign1 {
	public static void main(String[] args) {
		Student std = new Student();
		std.name="Nikki";
		System.out.println(std.name);
		System.out.println(std.rollno);
		std.section("A section");
		//System.out.println("Stored Section: " + std.sec);
	}
}
```

Output:

Nikki

12

Section: A section

2. Create addition of two numbers using variables.

Ans)

```
package DAY3;

class Add
{
   int Addition(int a, int b)
   {
    int c=a+b;
    return c;
   }

}
public class addition_prac {
    public static void main(String[] args) {
            Add a=new Add();
            int b= a.Addition(20,7);
            System.out.println("Sum is : "+b);

    }

}
```

Output:

Sum is: 27

3. Swap two numbers using third variable

Ans)

```
package DAY3;
 class Swap
{
    void swaping(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 number_swaping {
    public static void main(String[] args) {
        Swap s= new Swap();
        s.swapnos(1,8);
    }
}
```

Output:

```
Before swapping : 1 8
After swapping : 8 1
```

4. **Calculate area of rectangle**

Ans)

```
package DAY3;
import java.util.Scanner;
public class area_rect {
    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: 5
Enter width of rectangle: 4
Area of the rectangle = 20.0
```

5.Calculate simple interest

String:

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

Ans)

```
package DAY3;
 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

6.Replace all Spaces with Hyphens

Ans)

```
package DAY3;
 public class ReplaceSpaces {
    public static void main(String[] args) {
        String str = "Java is awesome";
        String result = str.replace(" ", "-");
        System.out.println(result);
    }
 }
```

Output:

Java-is-awesome

7.Check if a string is Palindrome

Ans)

```
package DAY3;
public class Palindrome_exam {
    public static void main(String[] args) {
        String str = "madam";
        String rev = new StringBuilder(str).reverse().toString();
        if (str.equalsIgnoreCase(rev)) {
            System.out.println("Palindrome");
        } else {
            System.out.println("Not Palindrome");
        }
    }
}
```

Output:

Palindrome

8.Count words in a Sentence

Ans)

```
package DAY3;
public class WordCount {
    public static void main(String[] args) {
        String sentence = "Java is Awesome";
        String[] words = sentence.trim().split("\\s+");
        System.out.println("Number of words: " + words.length);
```

```
        }
    }
```

Output:

```
Number of words: 3
```

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

Ans)

```
package DAY3;
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
```

10.Split a sentence into words

Ans)

```
package DAY3;
public class Split_Sentence {
```

```
    public static void main(String[] args) {
        String sentence = "I love Java";
        String[] words = sentence.split(" ");
        for (String word : words) {
            System.out.println(word);
        }
    }
}
```

Output:

I

love

Java

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

Ans)

```
package DAY3;
public class CharFrequency {
    public static void main(String[] args) {
        String str = "hello";
        int[] freq = new int[256];
        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
```

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

Ans)

```
package DAY3;
      public class Remove_Spaces {
   public static void main(String[] args) {
      String str = "Java is fun";
      System.out.println(str.replaceAll("\\s+", ""));
   }
}
```

Output:

Javaisfun

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

Ans)

```
        package DAY3;
        public class Count_Characters {
```

```
    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

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

Ans)

```
package DAY3;
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

Ans)

```
package DAY3;
public class Array_Sum {
    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

Ans)

```
package DAY3;
  public class CountEvenOdd {
   public static void main(String[] args) {
      int[] arr = {1, 2, 3, 4, 5, 6};
      int evenCount = 0, 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.

Ans)

```
package DAY3;
 public class Max_Min {
    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;
            if (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

Ans)

```
package DAY3;
public class Second_Highest {
    public static void main(String[] args) {
        int[] arr = {10, 20, 4, 45, 99};
        int first = Integer.MIN_VALUE, 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

Ans)

```
package DAY3;
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: 20

20 found in array.

5)write a program to print an array in reverse order

Ans)

```
package DAY3;
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

6.remove duplicate elements from an array

Ans)

```
package DAY3;
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.

Ans)

```
package DAY3;
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

Ans)

```
package DAY3;
import java.util.Arrays;
public class SortArray {
    public static void main(String[] args) {
        int[] arr = {5, 7,4,9,8};
        Arrays.sort(arr);
        System.out.print("Sorted array: ");
        for (int num : arr) {
            System.out.print(num + " ");
        }
    }
```

```
}
```

Output:

Sorted array: 4 5 7 8 9

10.print only prime numbers from array

Ans)

```
package DAY3;
  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

Ans)

```
package DAY3;
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)

Ans)

```
package DAY3;
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

Ans)

```
package DAY3;
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

Ans)

```
package DAY3;
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

Ans)

```
package DAY3;
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