Task 1 – Even or Odd Return

Program:

```
import java.util.Scanner;

class EvenOddReturn {
    static int checkEvenOdd(int num) {
        if (num % 2 == 0)
            return 2;
        else
            return 1;
    }

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int num = sc.nextInt();
        System.out.println(checkEvenOdd(num));
        sc.close();
    }
}
```

Output:

```
Enter a number:
8
2
```

Task 2 – Access Array Elements

Program:

```
class task2 {
    public static void main(String[] args) {
        int[] array = {10, 20, 30, 40, 50};
        for (int i = 0; i < array.length; i++) {
            System.out.println("Element at index " + i + ": " + array[i]);
        }
    }
}
```

Output:

```
Element at index 0: 10
Element at index 1: 20
Element at index 2: 30
Element at index 3: 40
Element at index 4: 50
```

Task 3 – Binary Search

Program:

```
class task3 {
    public int binarysearch(int[] array, int target) {
        int left = 0;
        int right = array.length - 1;
        while (left <= right) {
            int mid = (left + right) / 2;
            if (array[mid] < target)
                left = mid + 1;
            else if (array[mid] > target)
                right = mid - 1;
```

```
            else
                return mid;
        }
        return -1;
    }

    public static void main(String[] args) {
        task3 obj = new task3();
        int[] array = {-1, 0, 3, 5, 9, 12};
        int target = 9;
        int result = obj.binarysearch(array, target);
        System.out.println("element found at index " + result);
    }
}
```

Output:

```
element found at index 4
```

Task 4 – Maximum Element in Array

Program:

```
class task4 {
    public static void main(String[] args) {
        int[] array = {10, 20, 50, 40};
        int largest = 0;
        for (int i = 0; i < array.length; i++) {
            if (array[i] > largest) {
                largest = array[i];
            }
        }
        System.out.println("The largest element in array is:" + largest);
    }
}
```

Output:

```
The largest element in array is:50
```

Task 5 – Kth Smallest Element

Program:

```
import java.util.*;

class task5 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();
        int[] array = new int[n];
        for (int i = 0; i < n; i++) {
            array[i] = sc.nextInt();
        }
        int k = sc.nextInt();
        if (k > n || k <= 0) {
            System.out.println("Invalid k value");
        } else {
            Arrays.sort(array);
            System.out.println("the kth smallest element is " + array[k - 1]);
        }
        sc.close();
```

```
    }
}
```

Output:

```
5
10 20 30 40 50
3
the kth smallest element is 30
```

Task 6 – All Possible Pairs

Program:

```
class task6 {
    public static void main(String[] args) {
        int[] array = {1, 2, 3, 4, 5};
        int n = array.length;
        for (int i = 0; i < n; i++) {
            for (int j = i + 1; j < n; j++) {
                System.out.println(array[i] + "," + array[j]);
            }
        }
    }
}
```

Output:

```
1,2
1,3
1,4
1,5
2,3
2,4
2,5
3,4
3,5
4,5
```

Task 7 – Sum of Even/Odd Digits

Program:

```
import java.util.Scanner;

class DigitSumOption {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int num = sc.nextInt();
        String opt = sc.next();
        int sum = 0;
        while (num > 0) {
            int digit = num % 10;
            if (opt.equals("even") && digit % 2 == 0)
                sum += digit;
            else if (opt.equals("odd") && digit % 2 != 0)
                sum += digit;
            num /= 10;
        }
        System.out.println(sum);
        sc.close();
    }
```

```
}
```

Output:

```
2468 even
20
```

Task 8 – Nth Fibonacci Number

Program:

```
import java.util.Scanner;

class task8 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();
        int a = 0, b = 1, c = 0;
        for (int i = 2; i <= n; i++) {
            c = a + b;
            a = b;
            b = c;
        }
        System.out.println(c);
        sc.close();
    }
}
```

Output:

```
7
13
```

Task 9 – Palindrome Number

Program:

```
import java.util.*;

class UserMainCode {
    public int isPalinNum(int input1) {
        int original = input1;
        int reverse = 0;
        while (input1 > 0) {
            int digit = input1 % 10;
            reverse = reverse * 10 + digit;
            input1 /= 10;
        }
        return (original == reverse) ? 2 : 1;
    }

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();
        UserMainCode obj = new UserMainCode();
        System.out.println(obj.isPalinNum(n));
        sc.close();
    }
}
```

Output:

```
121
2
```

Task 10 – Sum of Last Digits

Program:

```
import java.util.*;

class UserMainCode {
    public int addLastDigits(int input1, int input2) {
        input1 = Math.abs(input1);
        input2 = Math.abs(input2);
        return (input1 % 10) + (input2 % 10);
    }

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int a = sc.nextInt();
        int b = sc.nextInt();
        UserMainCode obj = new UserMainCode();
        System.out.println(obj.addLastDigits(a, b));
        sc.close();
    }
}
```

Output:

```
123 456
9
```