Odd-Even Sorter:

Input: A list of numbers.
Output: Two lists: one with odd numbers, one with even numbers.

Example:

- Input: [12, 5, 8, 7, 3]
- Output: "Even numbers: [12, 8], Odd numbers: [5, 7, 3]"

Solution 1: Odd-Even Sorter using ArrayList

Code:

```
import java.util.ArrayList;
import java.util.Scanner;

public class OddEvenSorter {

    public static void main(String[] args) {
        // Initialize ArrayLists to store odd and even numbers
        ArrayList<Integer> oddNumbers = new ArrayList<>();
        ArrayList<Integer> evenNumbers = new ArrayList<>();

        // Create a scanner to read input from the user
        Scanner scanner = new Scanner(System.in);

        // Prompt the user to input the number of elements
        System.out.println("Enter the number of elements in the list: ");
        int n = scanner.nextInt();

        // Prompt the user to input the numbers
        System.out.println("Enter the numbers: ");
        for (int i = 0; i < n; i++) {
            int num = scanner.nextInt();
            if (num % 2 == 0) {
                evenNumbers.add(num);  // Add to even list if divisible by
            } else {
                oddNumbers.add(num);   // Add to odd list if not divisible
            }
        }
```

```
            // Output the sorted lists of even and odd numbers
            System.out.println("Even numbers: " + evenNumbers);
            System.out.println("Odd numbers: " + oddNumbers);

            scanner.close();
        }
    }
```

Output:

```
Enter the number of elements in the list:
 6
Enter the numbers:
 12
 34
 52
 65
 63
 56
Even numbers: [12, 34, 52, 56]
Odd numbers: [65, 63]
```

Explanation :

- ArrayList is used to store the odd and even numbers separately.
- The program prompts the user for the number of inputs and the list of numbers.
- It checks if each number is even (divisible by 2) or odd and stores them accordingly.
- The results are printed at the end.

Solution 2: Odd-Even Sorter using Array

Code:

```
import java.util.Scanner;

public class OddEvenSorterArray {

    public static void main(String[] args) {
        // Create arrays for odd and even numbers with a fixed size
        int[] oddNumbers = new int[100];  // Assuming max input of 100 numb
        int[] evenNumbers = new int[100];
        int oddIndex = 0, evenIndex = 0;
```

```
            // Create a scanner to read input from the user
            Scanner scanner = new Scanner(System.in);

            // Prompt the user for the number of elements
            System.out.println("Enter the number of elements in the list: ");
            int n = scanner.nextInt();

            // Prompt the user to input the numbers
            System.out.println("Enter the numbers: ");
            for (int i = 0; i < n; i++) {
                int num = scanner.nextInt();
                if (num % 2 == 0) {
                    evenNumbers[evenIndex++] = num;  // Add to even array
                } else {
                    oddNumbers[oddIndex++] = num;    // Add to odd array
                }
            }

            // Print even numbers
            System.out.print("Even numbers: ");
            for (int i = 0; i < evenIndex; i++) {
                System.out.print(evenNumbers[i] + " ");
            }
            System.out.println();

            // Print odd numbers
            System.out.print("Odd numbers: ");
            for (int i = 0; i < oddIndex; i++) {
                System.out.print(oddNumbers[i] + " ");
            }
            System.out.println();

            scanner.close();
        }
    }
```

Output:

```
Enter the number of elements in the list:
 7
Enter the numbers:
```

```
 67
 45
 87
 890
 34
 554
 23
Even numbers: 890 34 554
Odd numbers: 67 45 87 23
```

Explanation: