

//1. Write a program to demonstrate adding and printing elements from an ArrayList.

```
package Introduction_To_CollectionsFramework;
import java.util.ArrayList;
public class Challenge1 {
    public static void main(String[] args) {
        ArrayList<String> fruits = new ArrayList<>();
        fruits.add("Apple");
        fruits.add("Banana");
        fruits.add("Mango");
        fruits.add("Orange");
        System.out.println("Fruits in the list:");
        for (String fruit : fruits) {
            System.out.println(fruit);
        }
    }
}
```

//2. Show how to use Collections.max() and Collections.min() on a list of integers.

```
package Introduction_To_CollectionsFramework;
import java.util.ArrayList;
import java.util.Collections;
import java.util.List;
public class Challenge2 {
    public static void main(String[] args) {
        List<Integer> numbers = new ArrayList<>();
        numbers.add(42);
        numbers.add(7);
        numbers.add(19);
        numbers.add(88);
        numbers.add(3);
        System.out.println("Numbers: " + numbers);
        int max = Collections.max(numbers);
        int min = Collections.min(numbers);
        System.out.println("Maximum number: " + max);
        System.out.println("Minimum number: " + min);
    }
}
```

//3. Demonstrate the use of Collections.sort() on a list of strings.

```
package Introduction_To_CollectionsFramework;
import java.util.ArrayList;
import java.util.Collections;
import java.util.List;
public class Challenge3 {
    public static void main(String[] args) {
        List<String> names = new ArrayList<>();
        names.add("Zara");
```

```

        names.add("Alex");
        names.add("John");
        names.add("Cena");
        System.out.println("Original list: " + names);
        Collections.sort(names);
        System.out.println("Sorted list: " + names);
    }
}

```

//4. You need to store a dynamic list of student names and display them in alphabetical order. Implement this using a suitable collection.

```

package Introduction_To_CollectionsFramework;
import java.util.ArrayList;
import java.util.Collections;
import java.util.Scanner;
public class Challenge4 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        ArrayList<String> studentNames = new ArrayList<>();
        System.out.println("Enter student names (type 'sort' to sort the student names):");
        while (true) {
            System.out.print("Name: ");
            String name = sc.nextLine();
            if (name.equalsIgnoreCase("sort")) {
                break;
            }
            studentNames.add(name);
        }
        Collections.sort(studentNames);
        System.out.println("\nSorted student names:");
        for (String name : studentNames) {
            System.out.println(name);
        }
        sc.close();
    }
}

```

//5. A user can input any number of integers. Your program should store them and display the sum of all elements using the Collection Framework.

```

package Introduction_To_CollectionsFramework;
import java.util.ArrayList;
import java.util.List;
import java.util.Scanner;
public class Challenge5 {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        List<Integer> arr = new ArrayList<>();
    }
}

```

```
System.out.print("Enter count of n to enter numbers: ");
int n = sc.nextInt();
for (int i = 1; i <= n; i++) {
    System.out.print("Enter number " + i + ": ");
    int num = sc.nextInt();
    arr.add(num);
}
int sum = 0;
for (int a : arr) {
    sum += a;
}
System.out.println("Sum of all numbers: " + sum);
sc.close();
}
```