TCP1201 Object-Oriented Programming and Data Structures
Lab01 Introduction to Java

Exercise 1: Phone Keypads (String)

The international standard letter/number mapping for telephones is shown below.

1. Based on the mapping above, define a method that returns a number given a letter (uppercase or lowercase), as follows:

    ```
    public static int getNumber (char letter)
    ```

2. Write a program that prompts the user to enter a phone number as a string. The input number may contain letters. The program translates a letter (uppercase or lowercase) to a digit and leaves all other characters intact.

    Hint: Use `Character.isLetter()` and `Character.toLowerCase()`.
    https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/lang/Character.html

    Here is a sample run of the program:

    ```
    C:\>java PhoneKeypads
    Enter phone number: 1-800-Contacts
    1-800-26682287
    ```

Exercise 2: Merge Two Arrays

Write a program that prompts the user to enter the size of the first array and its elements. Repeat the same process for the second array. Then merge the two arrays into a new third array. Displays the contents of all arrays.

Your program shall define the following methods:

```
public static double[] createArrayFromInput()
```
-   Read user input for creating an array of double., then return the array.

```
public static void print (double[] array)
```
-   Print the array.

```
public static double[] merge (double[] array1, double[] array2)
```
-   Merge array1 and array2 into a new array, then return the new array.

Sample run (Note that the first number in the input indicates the number of the elements in the array. This number is not part of the array):

```
Enter array1: 4 2.1 5.3 4.4 9.2
Enter array2: 3 6.3 2.5 7.8
array1: [1.1, 2.2, 3.3, 4.4]
array2: [7.7, 8.8, 9.9]
array3: [1.1, 2.2, 3.3, 4.4, 7.7, 8.8, 9.9]
```

Exercise 3: Remove Duplicates in ArrayList

Write a program that removes duplicate words from user input.

Your program shall define the following method:

```
public static void removeDuplicate(ArrayList<String> list)
```

The method should:
1. Copy unique elements from list to a temporary list.
2. You may require ArrayList's `contains()` method and `clear()` method.
   https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/util/ArrayList.html

Sample run:
```
Enter words (0 to finish): apple durian orange durian apple banana 0
The distinct words: [apple, durian, orange, banana]
```