

Hands-on Exercise Objective

After completing the hands-on exercises, you will be able to:

- Develop programs using ArrayList, HashMap, HashSet.
- Use Iterator for iterating Collections.

Problem Statement 1:

1. Develop a java class with a method **storeEvenNumbers(int N)** using ArrayList to store even numbers from 2 to N, where N is a integer which is passed as a parameter to the method **storeEvenNumbers()**. The method should return the ArrayList (A1) created.
2. In the same class create a method **printEvenNumbers()** which iterates through the arrayList A1 in step 1, and It should multiply each number with 2 and display it in format 4,8,12....2*N. and add these numbers in a new ArrayList (A2). The new ArrayList (A2) created needs to be returned.
3. Create a method **retrieveEvenNumber(int N)** parameter is a number N. This method should search the arrayList (A1) for the existence of the number 'N' passed. If exists it should return the Number else return zero.

Hint: Use instance variable for storing the ArrayList A1 and A2.

NOTE: You can test the methods using a main method.

Problem Statement 2:

1. Develop a java class with a instance variable **Country** HashSet (H1) add a method **storeCountryNames(String CountryName)** , the method should add the passed country to a HashSet (H1) and return the added HashSet(H1).
2. Develop a method **retrieveCountry(String CountryName)** which iterates through the **HashSet** and returns the country if exist else return null.

NOTE: You can test the methods using a main method.

Problem Statement 3:

1. Develop a java class with a instance variable **CountryMap** HashMap (M1) add a method **storeCountryCapital(String CountryName, String capital)** , the method should add the passed country and capital as key/value in the map M1 and return the Map (M1).

Key- Country	Value - Capital
India	Delhi
Japan	Tokyo

2. Develop a method **retrieveCapital(String CountryName)** which returns the capital for the country passed from the Map M1 created in step 1.
3. Develop a method **retrieveCountry(String capitalName)** which returns the country for the capital name passed from the Map M1 created in step 1.
4. Develop a method which iterates through the map M1 and creates another map M2 with Capital as the key and value as Country and returns the Map M2.

Key - Capital	Value – Country
Delhi	India
Tokyo	Japan

1. Develop a method which iterates through the map M1 and creates a ArrayList with all the Country names stored as keys. This method should return the ArrayList.

NOTE: You can test the methods using a main method.