**SETS**

1. Develop a java class with a instance variable H1 (HashSet) add a method saveCountryNames(String CountryName) , the method should add the passed country to a HashSet (H1) and return the added HashSet(H1). Develop a method getCountry(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.

**CODE**

*import* java.util.HashSet;

*import* java.util.Iterator;

*import* java.util.Scanner;

*public* class SaveCountryName {

*private* HashSet<String> H1;

*public* SaveCountryName() {

        H1 = new HashSet<>();

    }

*public* HashSet<String> saveCountryNames(String countryName) {

        H1.add(countryName);

        return H1;

    }

*public* String getCountry(String countryName) {

        Iterator<String> iterator = H1.iterator();

        while (iterator.hasNext()) {

            String current = iterator.next();

            if (current.equalsIgnoreCase(countryName)) {

                return current;

            }

        }

        return null;

    }

*public* *static* *void* main(String[] args) {

        SaveCountryName Country = new SaveCountryName();

        Scanner sc = new Scanner(System.*in*);

        while (true) {

            System.*out*.println("What do you want to do? 1. Search  2. Add country");

*int* choice = sc.nextInt();

            sc.nextLine();

            if (choice == 1) {

                System.*out*.println("Enter country name to search:");

                String searchCountry = sc.nextLine();

                String searchresult = Country.getCountry(searchCountry);

                if (searchresult != null) {

                    System.*out*.println("Country found: " + searchresult);

                } else {

                    System.*out*.println("Country not found: null");

                }

            } else if (choice == 2) {

                System.*out*.println("Enter country names (type 'exit' to stop):");

                while (true) {

                    String countryname = sc.nextLine();

                    if (countryname.equalsIgnoreCase("exit")) {

                        break;

                    } else {

                        Country.saveCountryNames(countryname);

                    }

                }

            }

            System.*out*.println("Do you want to continue? (yes/no)");

            String response = sc.nextLine();

            if (response.equalsIgnoreCase("no")) {

                break;

            }

        }

        sc.close();

    }

}

**OUTPUT:**

What do you want to do? 1. Search 2. Add country

2

Enter country names (type 'exit' to stop):

India

USA

England

exit

Do you want to continue? (yes/no)

Yes

What do you want to do? 1. Search 2. Add country

1

Enter country name to search:

USA

Country found: USA

Do you want to continue? (yes/no)

yes

What do you want to do? 1. Search 2. Add country

1

Enter country name to search:

Japan

Country not found: null

1. Write a program to store a group of employee names into a HashSet, retrieve the elements one by one using an Iterator.

**CODE**

*import* java.util.HashSet;

*import* java.util.Iterator;

*public* class EmployeeSet {

*public* *static* *void* main(String[] args) {

        HashSet<String> employeeNames = new HashSet<>();

        employeeNames.add("Anil");

        employeeNames.add("Bhavya");

        employeeNames.add("Charan");

        employeeNames.add("Deepa");

        employeeNames.add("Esha");

        Iterator<String> iterator = employeeNames.iterator();

        System.*out*.println("Employee Names:");

        while (iterator.hasNext()) {

            String name = iterator.next();

            System.*out*.println(name);

        }

    }

}

**OUTPUT:**

Employee Names:

Bhavya

Esha

Deepa

Anil

Charan

1. Create a Collection called TreeSet which is capable of storing String objects. Then try these following operations :

a) Reverse the elements of the Collection.

b) Iterate the elements of the TreeSet using Iterator.

c) Check if a particular element exists or not.

**CODE**

*import* java.util.Collections;

*import* java.util.Iterator;

*import* java.util.TreeSet;

*public* class TreeSetDemo {

*public* *static* *void* main(String[] args) {

*// Create a TreeSet to store String objects*

        TreeSet<String> treeSet = new TreeSet<>();

***// Add elements to the TreeSet***

        treeSet.add("Apple");

        treeSet.add("Banana");

        treeSet.add("Cherry");

        treeSet.add("Date");

        treeSet.add("Fig");

        System.*out*.println("Original TreeSet: " + treeSet);

***// a) Reverse the elements of the Collection***

        System.*out*.println("\nReversed TreeSet:");

        TreeSet<String> reversedSet = new TreeSet<>(Collections.reverseOrder());

        reversedSet.addAll(treeSet);

        System.*out*.println(reversedSet);

***// b) Iterate the elements of the TreeSet using Iterator***

        System.*out*.println("\nIterating through TreeSet:");

        Iterator<String> iterator = treeSet.iterator();

        while (iterator.hasNext()) {

            System.*out*.println(iterator.next());

        }

***// c) Check if a particular element exists or not***

        String searchElement = "Cherry";

        System.*out*.println("\nChecking if '" + searchElement + "' exists:");

        if (treeSet.contains(searchElement)) {

            System.*out*.println("'" + searchElement + "' exists in the TreeSet");

        } else {

            System.*out*.println("'" + searchElement + "' does not exist in the TreeSet");

        }

    }

}

**OUTPUT:**

Reversed TreeSet:

[Fig, Date, Cherry, Banana, Apple]

Iterating through TreeSet:

Apple

Banana

Cherry

Date

Fig

Checking if 'Cherry' exists:

'Cherry' exists in the TreeSet

1. Implement the assignment 1 using TreeSet

*import* java.util.HashSet;

*import* java.util.Iterator;

*import* java.util.Scanner;

*import* java.util.TreeSet;

public class SaveCountryTreeSet {

    private TreeSet<String> H1;

    public SaveCountryTreeSet() {

        H1 = new TreeSet<>();

    }

    public TreeSet<String> saveCountryNames(String countryName) {

        H1.add(countryName);

        return H1;

    }

    public String getCountry(String countryName) {

        Iterator<String> iterator = H1.iterator();

        while (iterator.hasNext()) {

            String current = iterator.next();

            if (current.equalsIgnoreCase(countryName)) {

                return current;

            }

        }

        return null;

    }

    public static void main(String[] args) {

        SaveCountryName Country = new SaveCountryName();

        Scanner sc = new Scanner(System.in);

        while (true) {

            System.out.println("What do you want to do? 1. Search  2. Add country");

            int choice = sc.nextInt();

            sc.nextLine();

            if (choice == 1) {

                System.out.println("Enter country name to search:");

                String searchCountry = sc.nextLine();

                String searchresult = Country.getCountry(searchCountry);

                if (searchresult != null) {

                    System.out.println("Country found: " + searchresult);

                } else {

                    System.out.println("Country not found: null");

                }

            } else if (choice == 2) {

                System.out.println("Enter country names (type 'exit' to stop):");

                while (true) {

                    String countryname = sc.nextLine();

                    if (countryname.equalsIgnoreCase("exit")) {

                        break;

                    } else {

                        Country.saveCountryNames(countryname);

                    }

                }

            }

            System.out.println("Do you want to continue? (yes/no)");

            String response = sc.nextLine();

            if (response.equalsIgnoreCase("no")) {

                break;

            }

        }

        sc.close();

    }

}

**OUTPUT:**

What do you want to do? 1. Search 2. Add country

2

Enter country names (type 'exit' to stop):

India

Japan

China

USA

exit

Do you want to continue? (yes/no)

yes

What do you want to do? 1. Search 2. Add country

1

Enter country name to search:

Russia

Country not found: null