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CSE215.12 - Assignment 2 - Spring 2021

```
Package com.ShadmanSakib;  
import java.Lang.Math;  
import java.util.lang.Arrays;  
import java.util.Random;
```

```
public class Solution02 {  
    public static void main(String[] args) {  
        int size = (int) ((Math.random() * (15-5)) + 5);  
        System.out.println("Random Number of cities to generate: " + size);  
        System.out.println("Generating City Names...");  
  
        String[] cityNames = new String[size];  
        cityNames[0] = "" + generateCityName();  
        for (int i = 1; i < size; i++) {  
            cityNames[i] = "" + generateCityName();  
            if (cityNames[i].equals(cityNames[i-1]))  
                i--;  
        }  
        System.out.println("\nCity Names Array created: " + Arrays.toString(cityNames));  
  
        System.out.println("\nFormulating distance between cities...");  
        generateDistance(cityNames);  
  
        System.out.println("Displaying distance table ... \n");  
        displayTable(cityNames, generateDistance(cityNames));  
  
        System.out.println("\nChoosing Name from Hard coded list ...");  
        System.out.println("Name chosen: " + chooseOne());  
    }  
}
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```
public static int [][] generateDistance (String[] cityNames) {  
    int size = cityNames.length;  
    int [][] distance = new int [size][size];  
    for (int i=0; i < distance.length; i++) {  
        for (int j=0; j < distance.length; j++) {  
            distance [i][j] = (int) ((Math.random() * (90-50)) + 50);  
        }  
    }  
    for (int i=0; i < distance.length; i++) {  
        for (int j=0; j < distance.length; j++) {  
            distance [i][j] = distance [j][i]  
        }  
    }  
    for (int i=0; i < distance.length; i++) {  
        for (int j=0; j < distance.length; j++) {  
            if (i==j) {  
                distance [i][j] = 0; }  
        }  
    }  
    return distance;  
}  
  
public static void displayTable (String[] cityNames, int [][] distance)  
{  
    String [][] table = new String [distance.length+1][distance.length+1];  
    table [0][0] = " ";  
    for (int j=1; j < table.length; j++) {  
        table [0][j] = cityNames [j-1];  
    }  
    for (int i=1; i < table.length; i++) {  
        table [i][0] = cityNames [i-1];  
    }  
}
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```
for (int i = 1; i < table.length; i++) {  
    for (int j = 1; j < table.length; j++) {  
        table[i][j] = String.valueOf(distance[i-1][j-1]);  
    }  
}  
  
for (int i = 0; i < table.length; i++) {  
    for (int j = 0; j < table.length; j++) {  
        System.out.printf("%20s", table[i][j]);  
    }  
    System.out.println();  
}  
  
}  
  
public static StringBuilder generateCityName() {  
    StringBuilder cityName = new StringBuilder();  
    Random generate = new Random();  
    int size = generate.nextInt(6) + 5;  
    String letters = "abcdefghijklmnopqrstuvwxyz";  
    char[] temp = new char[size];  
    for (int i = 0; i < size; i++) {  
        temp[i] = letters.charAt(generate.nextInt(letters.length()));  
    }  
    for (char row : temp) cityName.append(row);  
    System.out.println(cityName);  
    return cityName;  
}
```

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```
public static String chooseOne() {  
    String[] names = {"Dhaka", ..., "Rangpur"}  
    Random choose = new Random();  
    int chooseName = choose.nextInt(names.length);  
    return names[chooseName];  
}
```

```
} //end of class.
```

// I have written all comments on java file and not here
to keep this clean.