North South University

Department of Electrical and Computer Engineering

CSE 215L: Programming Language II Lab

Lab – 6: Arrays

Learning Objectives:

- to learn about arrays in detail (1D to n-D, foreach loop)
- to apply arrays for problem solving

Ex-1: Array 1D example

```
import java.util.Scanner;

public class Main {
 public static void main (String[] args) {
  Scanner input = new Scanner(System.in);
  double[ ] list = new double[3];

  // input array elements
  System.out.print ("Enter " + list.length + " values: ");
    for (int i = 0; i < list.length; i++){
        list[i] = input.nextDouble();
   }

   // print array elements
   System.out.println("Array elements are: ");
   for (double listItem: list) {
     System.out.println(listItem);
   }
 }
}
```

Ex-2: Array 2D example

```
import java.util.Scanner;

public class Main {
 public static void main (String[] args) {
  Scanner input = new Scanner(System.in);
  int rowNo = 3, colNo = 3;
  int[ ][ ] arr = new int[rowNo][colNo];

  // input matrix elements
   System.out.print ("Enter " + rowNo + "x" + colNo + "
matrix elements: ");
    for (int i = 0; i < arr.length; i++){
      for (int j = 0; j < arr[i].length; j++){
         arr[i][j] = input.nextInt();
      }
    }

    // print matrix elements
   System.out.println("Matrix elements are: ");
   for (int i = 0; i < arr.length; i++){
     for (int j = 0; j < arr[i].length; j++){
        System.out.print(arr[i][j] + " ");
     }
      System.out.println();
   }
 }
}
```

Lab Task:

1. Write a program that prompts the user to input integer elements in an array of size n. Then display the number of elements (normally and with percentage) greater than the average.

2. Write a method that finds an element in an array of int values using the following header:

    public static int findElement(int[ ] arr, int key)

Write a test program that prompts the user to enter n integers and a key value, invokes this method to find out if the key value is present in that array or not and displays the result.

3. Write two methods those find out the smallest and largest element in an array of int values using the following header:

    public static int findMinElement(int[ ] arr)

    public static int findMaxElement(int[ ] arr)

Write a test program that prompts the user to enter n integers, invokes those methods to return the minimum and maximum values and displays the result.

4. Write a method that takes a 2D matrix as input and displays which row has the largest sum in the matrix

5. Write a method that takes a 2D matrix as input and displays the sum of elements by column in the matrix.