**LAB # 3**

**OBJECTIVE**

# To Study Java One Dimentional and Two Dimentional Arrays.

**Question:**

1. Write a program that reads (fictitious) student test scores in the range 0 through 100 and print the following statistics to two decimal places:  
  
The average (mean) score.  
The student with the highest score.  
The student with the lowest score.  
The number of students whose score equal or exceed the average.  
  
For each student:  
  
The difference between the average score and the student’s score (this can be either positive or negative).  
The grade letter where  
A is a score of 90 or greater.  
B is a score of 80 through 89.99.  
C is a score of 70 through 79.99  
D is a score of 60 through 69.99  
E is a score of less than 60.

**Source Code:**

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| package lab3;  /\*\*  \*  \* @author Abdul Moiz Chishti  \*/ import java.util.Scanner;  import java.util.Arrays;  public class LAb3 {  /\*\*  \* @param args the command line arguments  \*/  public static void main(String[] args) {  // TODO code application logic here  Scanner obj=new Scanner(System.in);  int[] score=new int[5];    for(int i=0; i< score.length;i++){  System.out.println("Enter Student's Score");  score[i]= obj.nextInt();  }  Arrays.sort(score);  double mean=(score[0]+score[1]+score[2]+score[3]+score[4])/5;  System.out.println("Average(mean)"+mean);  int min= score[0];  System.out.println("Minimun "+min);  int max=score[4];  System.out.println("Maximum "+max);    int count=0;    for(int j=0; j< score.length;j++){  if (score[j]>=mean){  count++;  }  if (score[j]>=90){  System.out.println("Student "+(j+1)+"Grade is A");  }  else if (score[j]>=80 && score[j]<=89.99){  System.out.println("Student "+(j+1)+"Grade is B");  }  else if (score[j]>=70 && score[j]<=79.99){  System.out.println("Student "+(j+1)+"Grade is C");  }  else if (score[j]>=60 && score[j]<=69.99){  System.out.println("Student "+(j+1)+"Grade is D");  }  else{  System.out.println("Student "+(j+1)+"Grade is E");}  double check = mean- score[j];    if(check< 0){  System.out.println("student "+(j+1)+" the diff is -ve");  }  else{  System.out.println("student "+(j+1)+"the diff is +ve");  }  }  System.out.println("Number of Students whose score is greater than or equal to mean "+count);  }    } |

**Output:**

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**Question:**

The problem is to write a program that picks four cards randomly from a deck of 52 cards. All the cards can be represented using an array named deck, filled with initial values 0 to 51, as follows:

Int [ ] deck = new int[52];

// Initialize cards for (int i = 0; i < deck.length; i++) deck[i] = i;

Card numbers 0 to 12, 13 to 25, 26 to 38, 39 to 51 represent 13 Spades, 13 Hearts, 13 Diamonds, and 13 Clubs, respectively, as shown in Figure 6.3. After shuffling the array deck, pick the first four cards from deck.

**Source Code:**

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| package lab3task2;  /\*\*  \*  \* @author Abdul Moiz Chishti  \*/  public class Lab3Task2 {  /\*\*  \* @param args the command line arguments  \*/  public static void main(String[] args) {  // TODO code application logic here  int[] deck = new int[52];  String[] suits = {"Spades", "Hearts", "Diamonds", "Clubs"};  String[] ranks = {"Ace", "2", "3", "4", "5", "6", "7", "8", "9",  "10", "Jack", "Queen", "King"};    // Initialize the cards  for (int i = 0; i < deck.length; i++)  deck[i] = i;  // Shuffle the cards  for (int i = 0; i < deck.length; i++) {  // Generate an index randomly  int index = (int)(Math.random() \* deck.length);  int temp = deck[i];  deck[i] = deck[index];  deck[index] = temp;  }  // Display the first four cards  for (int i = 0; i < 4; i++) {  String suit = suits[deck[i] / 13];  String rank = ranks[deck[i] % 13];  System.out.println("Card number " + deck[i] + ": "  + rank + " of " + suit);  }  }    } |

**Output:**

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**Question:**

Write a program to wander around 10 different locations and find their average temperature of a year, you’ll generate the temperatures as random values between -10 degrees and 35 degrees. This assumes you are recording temperatures in degrees Celsius. If you prefer Fahrenheit, you could generate values from 14 degrees to 95 degrees to cover the same range.

Expected Output:

Average temperature at location 1 = 12.2733345

Average temperature at location 2 = 12.012519

Average temperature at location 3 = 11.545245…continue till location 10.

**Source Code:**

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| package lab3task3;  /\*\*  \*  \* @author Abdul Moiz Chishti  \*/  import java.util.Scanner;  import java.util.Random;  public class Lab3Task3 {  public static void main(String[] args) {  Random rn=new Random();  Scanner sc=new Scanner(System.in);  double temp[]=new double[10];  int max=35;  int min =-10;  int length= temp.length;  double avg=0;  System.out.println(length);  for(int i=0;i<temp.length;i++){  temp[i]= (int)(Math.random() \* (max - min + 1) + min);  avg= (temp[i])/length;  System.out.println("\nAverage of location "+(i+1)+" is: "+ avg);  }  }  } |

**Output:**

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