**Solution : Lab 10**

import java.util.Scanner;

public class CourseManager1 {

 public static void main(String[] args) {

 Scanner input = new Scanner(System.in);

 System.out.print("Enter number of students: ");

 int numOfStudents = input.nextInt();

 while (numOfStudents < 1){

 System.out.print("Number of students is invalid. Enter number of students: ");

 numOfStudents = input.nextInt();

 }

 double[] scores = new double[numOfStudents];

 System.out.print("Please enter students' scores: ");

 for (int i = 0; i < scores.length; i++){

 double score = input.nextDouble();

 if (score >= 0 && score <= 100){

 scores[i] = score;

 }

 else {

 System.out.println("The score " + score + " you entered is wrong. Program will store score 0.");

 }

 }

 System.out.print("The scores are: ");

 for (int i = 0; i < scores.length; i++){

 System.out.print(scores[i] + " ");

 }

 System.out.println();

 }

}

import java.util.Scanner;

public class CourseManager2 {

 public static void main(String[] args) {

 Scanner input = new Scanner(System.in);

 System.out.print("Enter number of students: ");

 int numOfStudents = input.nextInt();

 while (numOfStudents < 1){

 System.out.print("Number of students is invalid. Enter number of students: ");

 numOfStudents = input.nextInt();

 }

 double[] scores = new double[numOfStudents];

 System.out.print("Please enter students' scores: ");

 for (int i = 0; i < scores.length; i++){

 double score = input.nextDouble();

 if (score >= 0 && score <= 100){

 scores[i] = score;

 }

 else {

 System.out.println("The score " + score + " you entered is wrong. Program will store score 0.");

 }

 }

 char[] grades = scoreToGrade(scores);

 System.out.print("The scores/grades are: ");

 for (int i = 0; i < scores.length; i++){

 System.out.print(scores[i] + "/" + grades[i] + " ");

 }

 System.out.println();

 }

 // Precondition: all scores in the array are between 0 and 100

 public static char[] scoreToGrade(double[] scores){

 char[] grades = new char[scores.length];

 for (int i = 0; i < scores.length; i++){

 if (scores[i] >= 90)

 grades[i] = 'A';

 else if (scores[i] >= 80)

 grades[i] = 'B';

 else if (scores[i] >= 70)

 grades[i] = 'C';

 else if (scores[i] >= 60)

 grades[i] = 'D';

 else

 grades[i] = 'F';

 }

 return grades;

 }

}

class CourseManager6{

 private Student [] students;

 private int nStudents ;

 public static int MAX\_SIZE=100;

 public CourseManager6() {

 students = new Student [100];

 nStudents=0;

 }

 public Student getarray(int i){

 return students[i];

 }

 /\*\*\*\*\*\*\*Adding the student\*\*\*\*\*\*\*\*\*\*/

 public void addStudent(Student newStudent) {

 if (nStudents < 100)

 {

 if (findStudentByName(newStudent.getName())==-1)

 {

 students[nStudents]=newStudent;

 nStudents++;

 }

 else

 System.out.println("ERROR: STUDENT ALREADY ADDED");

 }

 else

 System.out.println("ERROR: COURSE IS FULL");

 /\* 2- add the new student to the list

 Increment the current number of students\*/

 }

 /\*\*\*\*\*\*\*\*Display the student list\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

 public void displayStudent(int i) {

 System.out.println(students[i].getId()+", "+students[i].getName()+", "+students[i].getScore());

 }

 public int getNStudents() {

 return nStudents;

 }

 public int findStudentByName (String name){

 for (int i = 0 ; i < nStudents; i++)

 {

 if (students[i].getName().equalsIgnoreCase(name))

 return i;

 }

 return -1;

 }

 /\*\*\*\*\*\*Maximum score\*\*\*\*\*\*\*\*\*\*\*\*/

 public int findMaxScoreIndex ()

 {

 //double topscore=0;

 int max=0;

 /// s[0] =90 ; s[1] = 95 ; s[2]= 93 s[3] = 99 s[4]=95

 for (int i = 0 ; i < nStudents ; i++)

 {

 if (students[i].getScore()>students[max].getScore()){

 max=i;

 }

 }

 return max;

 }

 /\*\*\*\*\*\*\*\*\*Averag of all the scores\*\*\*\*\*\*\*\*\*\*\*\*/

 public double findAverageScore(){

 double sum = 0;

 for (int i = 0 ; i<nStudents;i++){

 sum+=students[i].getScore();

 }

 if (nStudents!=0)

 return (sum/nStudents);

 else return 0;

 }

}

import java.util.Scanner;

public class TestCourseManager6 {

 /\*\*

 \* @param args

 \*/

 public static void main(String[] args) {

 // TODO Auto-generated method stub

 Scanner read = new Scanner(System.in);

 CourseManager6 cm6 = new CourseManager6();

 int id ;

 String name;

 double score;

 for ( int i = 0 ; i<3 ; i++)

 {

 System.out.println("Please enter the ID, name, and score of student "+i+": ");

 id = read.nextInt();

 name=read.next();

 score=read.nextDouble();

 Student s = new Student (id,name,score);

 cm6.addStudent(s);

 }

 System.out.println("Students are: ");

 for ( int i = 0 ; i < cm6.getNStudents() ; i++)

 {

 cm6.displayStudent(i);

 }

 int maxindex = cm6.findMaxScoreIndex();

 System.out.println("the name of the max student is :"+cm6.getarray(maxindex).getName());

 System.out.println("The Student with the maximum score is: ");

 cm6.displayStudent(cm6.findMaxScoreIndex());

 System.out.println("Average is: "+cm6.findAverageScore());

 }

 public static int search(int t)

 {

 return 0;

 }

 }