Answer on Question #55470, Programming / Java

Solution

```
import java.io.BufferedReader;
import java.io.FileReader;
import java.io.IOException;

/**
 * Main class
 *
 */
public class Main {

	/**
	 * @param args
	 */
	public static void main(String[] args) {
		//one-dimensional array to store the student name
		String studentNames[] =new String[5];
		//(parallel) two- dimensional array to store the test score
		int testScores[][]=new int[5][5];
		//a parallel one-dimensional array to store grades
		char storeGrades[]=new char[5];

		//read data from file
		int totalStudents= read(studentNames,testScores);
		print(totalStudents, studentNames, testScores);
	}
	/**
	 * Read students from file  students.txt
	 */
```

```
private static int read(String studentNames[],int testScores[][]){
	BufferedReader br = null;
	int counter=0;
	try {
		String fileLine;

		br = new BufferedReader(new FileReader("students.txt"));
		while ((fileLine = br.readLine()) != null) {
			//get name from file
			studentNames[counter]=fileLine.split(" ")[0];
			//get score 1 from file
			testScores[counter][0]=Integer.parseInt(fileLine.split(" ")[1]);
			//get score 2 from file
			testScores[counter][1]=Integer.parseInt(fileLine.split(" ")[2]);
			//get score 3 from file
			testScores[counter][2]=Integer.parseInt(fileLine.split(" ")[3]);
			//get score 4 from file
			testScores[counter][3]=Integer.parseInt(fileLine.split(" ")[4]);
			//get score 5 from file
			testScores[counter][4]=Integer.parseInt(fileLine.split(" ")[5]);
			counter++;
		}
	} catch (IOException e) {
		e.printStackTrace();
	} finally {
		try {
			if (br != null)br.close();
		} catch (IOException ex) {
			ex.printStackTrace();
		}
	}
```

```
            return counter;
        }
        /**
         *  calculate the average test score
         * @return
         */
        private static double calculateAverageTestScore(int testScores[][],int
studentIndex){
            double sum=0;
            for(int s=0;s<5;s++){
                //calculate total sum of scores of selected student
                 sum+=testScores[studentIndex][s];
            }
            return sum/5;
        }
        /**
         * getGrade
         * @param averageTestScore
         * @return
         */
        private static char getGrade(double averageTestScore){
            //85 - 100 A
            if(averageTestScore>=85){
                return 'A';
            }
            //75 - 84 B
            if(averageTestScore>=75){
                return 'B';
            }
            //65- 74 C
            if(averageTestScore>=65){
                return 'C';
```

```
		}
		//50 - 64 D
		if(averageTestScore>=50){
			return 'D';
		}
		//<50 F
		return 'F';
	}
	/***
	 * calculate Class Average
	 * @param testScores
	 * @return
	 */
	private static double calculateClassAverage(int testScores[][]){
		double sum=0;
		for(int i=0;i<5;i++){
			for(int s=0;s<5;s++){
				//calculate total sum of all scores
				sum+=testScores[i][s];
			}
		}
		return sum/25;
	}
	/**
	 * method to output the result.
	 * @param totalStudents
	 * @param studentNames
	 * @param testScores
	 */
	private static void print(int totalStudents,String studentNames[],int testScores[][]){
		 //display information
```

```
                for(int i=0;i<totalStudents;i++){
                        System.out.print(studentNames[i]+": ");
                        for(int s=0;s<5;s++){
                                System.out.print(testScores[i][s]+" ");
                        }
                        //calculate average Test Score
                        double
averageTestScore=calculateAverageTestScore(testScores,i);
                        //display averageTestScore
                        System.out.println(" average test score: "+averageTestScore+
                                        " grade: "+getGrade(averageTestScore));
                }
                //display Class Average
                System.out.println("\nClass Average:
"+calculateClassAverage(testScores)+" = "
+getGrade(calculateClassAverage(testScores)));
        }
}
```