

CS150-01 Assignment 7  
Grader

**Date Assigned:** Monday, November 13, 2005

**Date Due:** Friday, December 2, 2005

**Points:** 75

### 1 Problem statement

The results of a true-false Quiz given to a Computer Science class over the WWW have been saved in a file called 07quiz.dat. The information available for each student consists of a student identification number and the student's answers for up to 25 true-false questions. The first line of data consists of the true-false answers to the Quiz where a 1 stands for true and 0 stands for false. Each subsequent line contains a student ID number and the student's answers to the Quiz. The sentinel value is a student ID number of 9999. Also, there will be no more than 100 students and 25 questions.

You are to write a C++ program that will print for each student, the student's ID number, the Quiz percent, and a list of the questions missed on the Quiz by question number. The questions missed must be separated by commas if more than one question was missed.

As summary statistics, your program must print:

- 1) The class average
- 2) The highest percent score achieved
- 3) The lowest percent score achieved

The following is sample data that might be used in your program:

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```
      0 1 0 0 1 0 0 1 0 1
1080 0 1 1 0 1 0 1 1 0 1
1340 0 1 0 1 0 1 1 1 0 0
1462 1 1 0 1 1 1 0 0 1 0
1512 1 0 1 0 1 0 1 0 1 0
1341 0 1 1 0 1 1 1 1 1 1
1401 1 1 0 0 1 0 0 1 1 1
1463 1 1 1 1 1 1 1 1 1 1
1464 0 1 0 0 1 0 0 1 0 1
9999 0 0 0 0 0 0 0 0 0 0
```

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Your output must be in the order of ID, percent, and then missed questions. Your output must also be in the following form:

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```
*****  
*           STUDENT GRADES           *  
*****
```

```
ID      PERCENT  MISSED QUESTIONS  
-----  
1080    80.0    3, 7  
1340    50.0    4, 5, 6, 7, 10
```

and so on

```
          SUMMARY STATISTICS  
          -----  
CLASS AVERAGE:  XX.XX  
HIGHEST SCORE:  XX.XX  
LOWEST SCORE:   XX.XX
```

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**Note:** I will run your program on the test data supplied and one or two more files that I will not hand out.

## 2 You need to do the following for this assignment

- (a) **Problem Analysis:** Identify the input to your program, the output from your program, and any internal data in your program. You should also identify the data type and indicate whether it should be a variable or a constant.
- (b) **Algorithm:** Write out the steps that you'll need to do complete the program. Be as detailed as possible. It will help you write the program. When writing the steps of the algorithm, don't write any C++ code.
- (c) **Test Results:** These are solutions to the problem using some method other than your computer program. They are often done by hand, but could include experimental or other results. These results should be explicitly compared to those from the program to demonstrate that the program works. The number of specific cases done should be sufficient to prove beyond a reasonable doubt that the program works.
- (d) **Program Implementation:**
  - (1) Write the C++ code then build and run it in Visual Studio .NET. Name your project 07GraderPUNetId, e.g. .07Graderkhoy0332.
  - (2) Build (using at least four functions) and debug your program in small incremental steps. Your main function must be small.
  - (3) Make sure to follow the coding standards to the letter.
  - (4) Test the code as much as you can for different values to make sure it works.
  - (5) Remember, code that does not build or run loses 70% of the points.

### **3 What to turn in**

1. Turn in a hard copy of your code on the instructor's desk by the time class starts on the day in which the assignment is due. You must make sure that your code follows the coding standards in order for you to receive full credit.
2. Place your completed project folder in the CS150-01 Drop folder by 1pm on Friday, December 2, 2005. **There is no late grace for this assignment.** Your project MUST be created in Visual Studio .NET, and you MUST submit the complete Visual Studio .NET project folder otherwise you will receive a zero on this assignment.

Start early!!!!