CSc 110 Assignment 5
The Class Grade Calculator

Due July 14 @ 11:55pm

Learning Outcomes:

When you have completed this assignment, you should understand:

- How to receive input from a file
- How to design a suite of tests that will check the various cases in a branching program (i.e. one that contains conditional statements).
- How to design and use indefinite loops to handle invalid inputs.
- How to *refactor* your program design based on new constraints.
- How to model multiple, linear dimensions of a problem using nested loops: the nesting may occur across method boundaries.

Calculating the Grades for the Entire Class!

Modify the program of Assignment 4 to read its input from a file called `scores.dat`. Ensure it works for one student first, then make it work for all of the students in the file. The data for each student in the file will adhere to the following format, where each element is separated by either a space or a tab character:

<id number> <a1> <a2> <a3> <a4> <a5> <a6> <a7> <a8> <lab> <quiz> <midterm> <final>
<id number> <a1> <a2> <a3> <a4> <a5> <a6> <a7> <a8> <lab> <quiz> <midterm> <final>
<id number> <a1> <a2> <a3> <a4> <a5> <a6> <a7> <a8> <lab> <quiz> <midterm> <final>
.
.
.

It is important to notice that this file only contains the integer portion of the student ID numbers (ie, the V00 part is not included.)

The output, written to the screen, should be the last four digits of the student number, the final percentage, and the final letter grade. Additionally, there should be a summary of the number of students who received each grade (that is, the number of A+'s, A,'s, B+'s, B's, B-'s, C+'s, C's, D's and F's).

Consider the sample file below, that contains only a single student's information,

```
804403  16.5  16.75  20  19.5  20  14  17.6  18  3  18  84  88
```

The program should produce output similar to the following:

```
C O U R S E   G R A D E   C A L C U L A T O R

Author: L. Jackson November 2007 Update May 2011
Purpose: Calculated the weighted grade for a student in a course
         Inputs: Assignment, Problem Solving, Quiz and Exam grades

INPUT being received from file. . . .

04403 Grade = 85.9725 Letter = B+

Grade  Number Receiving Grade
  A+      0
  A       0
  A-      0
  B+      1
  B       0
  B-      0
  C+      0
  C       0
  D       0
  F       0
```

Additional sample input files will be made available off the course web site.

Documentation (i.e., comments) at the top of the program should include: The name and purpose of the entire program and the Author and the author's ID number. Also include a comment indicating how to change the number of people in each generation and the number of generations in the family.

HAND IN: Submit your code using the 'Assignments' link of the course connex web page.