Lab 7

Grade Calculator

Write a program that reads in assignment scores, quiz scores, exam scores, and final exam score from file and then produces a weighted average. The weighted average will be based on the percentage for each of the following categories (assignments, labs, quizzes, exams, final exam). When the percentages of each category are added, they total 100%. Assume the following about each category:

- Assignments
  - Each assignment is worth 100 points
  - Assignments account for 25% of the course grade

- Labs
  - Each lab is worth 50 points
  - Quizzes account for 20% of the course grade

- Quizzes
  - Each quiz is worth 25 points
  - Quizzes account for 5% of the course grade

- Exams
  - There are a total of 2 exams
  - Each exam is worth 100 points
  - Exams account for 30% of the course grade

- Final Exam
  - The final exam is worth 200 points
  - The final exam accounts for 20% of the course grade

The file will contain in this order:

- The student name (You must allocate the exact amount of required memory)
- The word assignment space number of assignments (You must allocate the exact number of assignments)
  - assignment scores - one per line
- the word lab space the number of labs (You must allocate the exact number of labs)
  - lab scores - one per line
- the word quizzes space the number of quizzes (You must allocate the exact number of quizzes)
  - quiz scores - one per line
- exam scores - one per line
- final exam score

You may presume the “Happy Part of Stuland”.

After the data has been read:

- report the percentage earned in each category
- the weighted percentage
- the Grade Point for the course based on the following table:

- 95% and above 4.0
- for each percentage from 94% down to 65%, drop the grade point by 0.1 - here are some examples
  - 94% - 3.9
  - 90% - 3.5
  - 82% - 2.7
  - 65% - 1.0
  - 64% and 63% are a 0.9
  - 62% and 61% are a 0.8
  - 60% is a 0.7
  - below 60% is a 0.0

Sample Run

Welcome to the Grade Calculator Program.
This program will produce a weighted percentage based on the scores earned in: assignments, labs, quizzes, exams, and a final exam. In addition to the weighted percentage, the associated Grade Point will also be reported.

Name: Stu Steiner

Score for Assignment 1: 100
Score for Assignment 2: 100
Score for Assignment 3: 100
Score for Assignment 4: 100
Score for Assignment 5: 100

Score for Lab 1: 50
Score for Lab 2: 50
Score for Lab 3: 50
Score for Lab 4: 50
Score for Lab 5: 50
Score for Lab 6: 50

Score for Quiz 1: 25
Score for Quiz 2: 25
Score for Quiz 3: 25

Score for Exam 1: 100
Score for Exam 2: 100

Score for Final Exam: 200

Percentage per category
Assignments: 25%
Exams: 20%
Quizzes: 5%
Exams: 30%
Final Exams: 20%

Stu Steiner:
Your weighted percentage is: 100%
Your GPA is: 4.0

Would you like to calculate another GPA (yes/no) no

Specifics

- You must use a 3 file format
- All scores should be treated as integer numbers.
- Your printout must be identical to mine for formatting (only difference will be percentage per category, weighted percentage, GPA)
- You must utilize dynamic arrays on this assignment (except exams and final exam)
- You must name your C file that contains main cscd240_s13_lab7Tester.c.
- You must create a simple makefile that will be used to compile your code and create a target named lab7
- Include comments at the top of your source file that has your name, a description of the program, and a list of shortcomings (if any).
- You must clean up all dynamic memory
- The name of the file should be specified as the second command line parameter. If it is not there than prompt the user for the file name. If the file doesn't exist, or open, continue to prompt the user until the file name does open.
- I have provided main. You can change it.

To Turn In

- Submit a zip file
  - Containing your C files and H file(s).
  - Your makefile
  - Include an output captures from running your program that includes data such that the user gets a 4.0, a 2.7, and a 0.7. Name your output capture cscd240_s13_lab7output.txt.
  - Include a valgrind run to illustrate you don't leak memory. This run will be

  Your zip will be named your last name first letter of your first name lab7.zip (Example: steinerslab7.zip)