

CMSC 21 – Fundamentals of Programming Project Specifications

Random Exam Generator

I. The Problem

The objective of the project is to create a program that generates a random exam from a pool of questions and lets the user answer the exam it creates. Afterwards, it will compute the user's score.

II. The Specifications

A. Input

The program takes the pool of **multiple choice questions** and the number of questions that exam will have as input. The pool of questions will be stored in a **text file** (*.txt) which will be read by the program using file I/O operations. The name of the file will be given by the user as input. When the program loads the pool of questions, it will store the questions in a **doubly linked list**.

The number of questions can simply be taken as a parameter upon execution or as user input at the start of the program.

B. Output

After the user inputs the number of questions the exam should have, the program will output consecutive questions for the user to answer. After each question is displayed, the user enters his answer. After all questions have been answered, the user's score is computed. Before the program exits, it should write the sequence of questions (and choices) that were answered by the user, along with the user's answers, to an output **text file**.

C. Miscellaneous

Aside from the previously specified functionality, the program should also offer the following features:

- Once a question has been displayed, it should not be displayed again.
- The program should also allow users to change their answers to previously answered questions. This entails allowing the user to go back to previously answered questions and allowing him to answer again. However, when writing the output text file, only the user's final answer should be shown. Furthermore, if the user chooses to review previous answers, **skipped questions should not be shown**.
- The program should allow the user to skip questions and go back to them later on in the program. However, when reviewing skipped questions, the questions **that were not skipped should no longer be shown**.
- The minimum requirement is to allow reviewing skipped or previously answered questions **at the end of the exam**.

III. Bonus

Allow the user to review skipped and previously answered questions even while the exam is being answered. :)

IV. Sample Run (with bonus)

Enter question pool file name: **questions.txt**

Instructions: Enter the letter of your choice. If you wish to skip the current question, simply type the word skip. If you wish to review questions, type the word review.

Number of questions? **5**

1. Who was your lecturer in CMSC 11?

- a. Sir Jade
- b. Sir Jimmy
- i. Sir Rex
- d. Ma'am Rizza

Answer: **c**

2. Who was your lab instructor in CMSC 11?

- a. Ma'am Kat
- b. Ma'am Lanie
- i. Sir Martee
- d. Sir Regi

Answer: **skip**

Skipping question...

3. Who is your lecturer in CMSC 21?

- a. Sir Andrel
- b. Ma'am Kei
- c. Sir Arian
- d. Ma'am Kat

Answer: **b**

4. Who is your lab instructor in CMSC 21?

- a. Ma'am Kat
- b. Sir Andrel
- c. Ma'am Kei
- d. Sir Arian

Answer: **review**

Review...

- 1. skipped questions?
- 2. previously answered questions?
- 3. Cancel

Enter your choice: **1**

2. Who was your lab instructor in CMSC 11?

- a. Ma'am Kat
- b. Ma'am Lanie
- c. Sir Martee
- d. Sir Regi

Answer: **c**

Should we...

- 1. review further?
- 2. go back to the current question?

Enter your choice: **1**

There are no more skipped questions to go back to. Returning to current question.

4. Who is your lab instructor in CMSC 21?

- a. Ma'am Kat
- b. Sir Andrel
- c. Ma'am Kei
- d. Sir Arian

Answer: **a**

5. How do you feel about CMSC 21?

- a. It is unfairly hard. :'(
- b. Its difficulty is moderate.
- c. I should never have taken this course!!! >.<
- d. I love CMSC 21! :D

Answer: **d**

Review...

- 1. skipped questions?
- 2. previously answered questions?
- 3. Exit

Enter your choice: **3**

Your score is 5 / 5. Congratulations! :D

Enter the filename of output file: **exam1.txt**

Writing to exam1.txt...

Done!

Goodbye! :)