CSCI 112: Mid-Term Exam, Maximum Points: 100

Grade Calculator (60 points)

Create a program to calculate letter grade scores for students in a class; the letter grade is based on average of three tests, each test is worth 100 points:

The program should ask for the student information and score for each of the three test.

Student Information:

Student's first name, student's last name and then scores for each test (scores must be read using a function).

After score for the 3 tests has been entered, the following output will be displayed on the screen and also in an output file:

Student Name: First Name, Last Name

Average Score: Average of the 3 tests, up to 2 decimal points.

Letter Grade: letter grade is evaluated according to the following table:

90 or higher	A
80 – 89.99	B
70 – 79.99	C
60 – 69.99	D
Less than 60	F

The program should then prompt user "Calculate another student grade: (press Y for Yes, press N for No)":

- If the user input is "Y" or "y", program should prompt for student information (see above).
- If the user input in "N" or "n", program should end.

Test score reading function

Prompt user to enter score for a test – the function should validate that the score entered is correct:

- Must be positive number
- Cannot be more than the maximum score for the test i.e. more than 100.
- If an invalid score has been entered, display a message “Invalid score, the valid range is 0 – 100”; ask user to re-enter the score. This should repeat until the user enters a valid score.

Grading Rubric

1. Reading multiple student information: 20 points
2. Reading test score: 20 points
3. Display student output(screen/file): 20 points

Submission

- Submit the “C” program file.
- Submit a screenshot of your program output. Make sure to use data to test all conditions listed above. The screenshot must include entry of invalid data and corresponding error message
- Output file

Fibonacci Number Generator (40 points)

The Fibonacci sequence are numbers in the following integer sequence:

0,1,1,2,3,5,8,13, 21,34, 55, 89,……..

By definition, the 1st two numbers in the sequence are 0 and 1 and each subsequent number is the sum of the previous two numbers.

Write a program that asks user to input a number and then print all numbers in the Fibonacci sequence **until the number in the sequence is more than the user input**. In addition, also print how many numbers were printed.

Program Requirements:

1. Create a function to read the user input; if the user enters a value less than zero, print message “Invalid user input, enter a positive number”; prompt them to re-enter the input. This should repeat until a valid value is entered.
2. Create a function to print the Fibonacci sequence – the function should define a parameter to accept the user input.
3. Print the user input and Fibonacci sequence output to a file (Make sure the statements printed in the output file makes sense)

This are some example of what the program should do

Note: The user input does not tell you how many numbers to print (look at the two examples below)

If the user input is 5; the output will be

a. 0,1,1,2,3,5
b. Length of sequence: 6

If the user input is 15, the output will be

c. 0,1,1,2,3,5,8,13
d. Length of sequence: 8

The above examples are for reference only. Do not hardcode these values in your program.

Grading Rubric:

1. Reading User Input: 15
2. Printing Fibonacci Sequence: 15
3. Generating Output file: 10

Submit the following files in a ZIP format:

1. C source file
2. Screen shot of the output on screen
3. Output text file.