`

COSC1436 – PROJECT

TITLE**:** File access – Array Access - Grading Students

TIME TO COMPLETE**: 7** weeks

# HOW TO DO project

From now and on **yourLastName** will be changed to your last name

\***Step1:** Read the requirement, write the **pseudo-code** in a word document by listing the step by step what you suppose to do in main() and then save it with the name as Project\_pseudoCode\_OutputPictues\_**yourLastName.docx**

\*Step2:

-start Virtual Studio C++, create the project 🡪 project name: FA2022\_PROJECT\_yourLastName

-add .cpp file

FA2022\_16WeeksGradingApplication\_yourLastName.cpp

\***Step3**: follow step by step in the pseudo-code to write the C++ code

\***Step4**: compile and run the program

\***Step5:** debug if there are any errors to complete the program

# PROJECT REQUIREMENT

Provide pseudo-code and the C++ application that helps to calculate the numeric grade and determine the letter grade of students based on the scores of 7 assignment types: quizzes, homework, labs, project, discussion topic, teamwork, tests, and policy quiz as extra credit.

Using the following arrays of size 7 to hold the information 7 assignment types:

const string **ASSIGNMENT\_NAMES**[] = { "QUIZZES", "HOMEWORK", "LABS", "PROJECT", "TEAMWORK", "DISCUSSION TOPIC", "TESTS" };

int **assignmentSize**[7]; // to store the number of assignments each type, for example assignmentSize[6]=3 if there are 3 tests, assignmentSize[1] = 10 if there are 10 homework

float **maxScore**[7]; //to store the max scores of assignments, for example, maxScore[3] = 30 if max score of each lab is 30 points

float **studentScores**[7]; //to store the scores of students, for example studentScores[6] stores total scores of 3 student tests. studentScores[3] stores total scores of student labs

You may declare one string array **listScores** with its size of 7 to store the list of scores of each assignment type **for** the output. For example, users enter 3 tests score:

75.5 82.75 80.5

Then the listScores[6] = “75.5 82.75 80.5”

The extraCredit(float) to store the extra credit on the policy quiz

Then display the following menu:

FA2022\_16WeeksGradingApplication\_Smith.cpp

TASK OF GRADING – JAMES SMITH

--------------------------------------------------------------------

1.Grading One Student

2.Printing The Grade of One Student

3.Printing The Grades of Class

0.Exit

CASE 1: GRADING ONE STUDENT

Read course name, for example COSC1436

INSIDE THE LOOP:

Read student id, last name, first name of one student

Read the scores of 7 assignment types to store in the array studentScores and extra credit. The scores of one assignment types are provided separate by spaces. For example: if there are 3 tests then input looks like below:

78.5 80.25 82.5

The scores are read and **add up together** then store to the array at studentScore[6] = 241.25

To keep the list of scores of each assignment type for output, you should store the string of assignment scores

Calculate the total of scores stored in the array **studentScore**s,

Total student score = studentScores[0] + studentScores[1] + …+studentScores[6] + extra credit

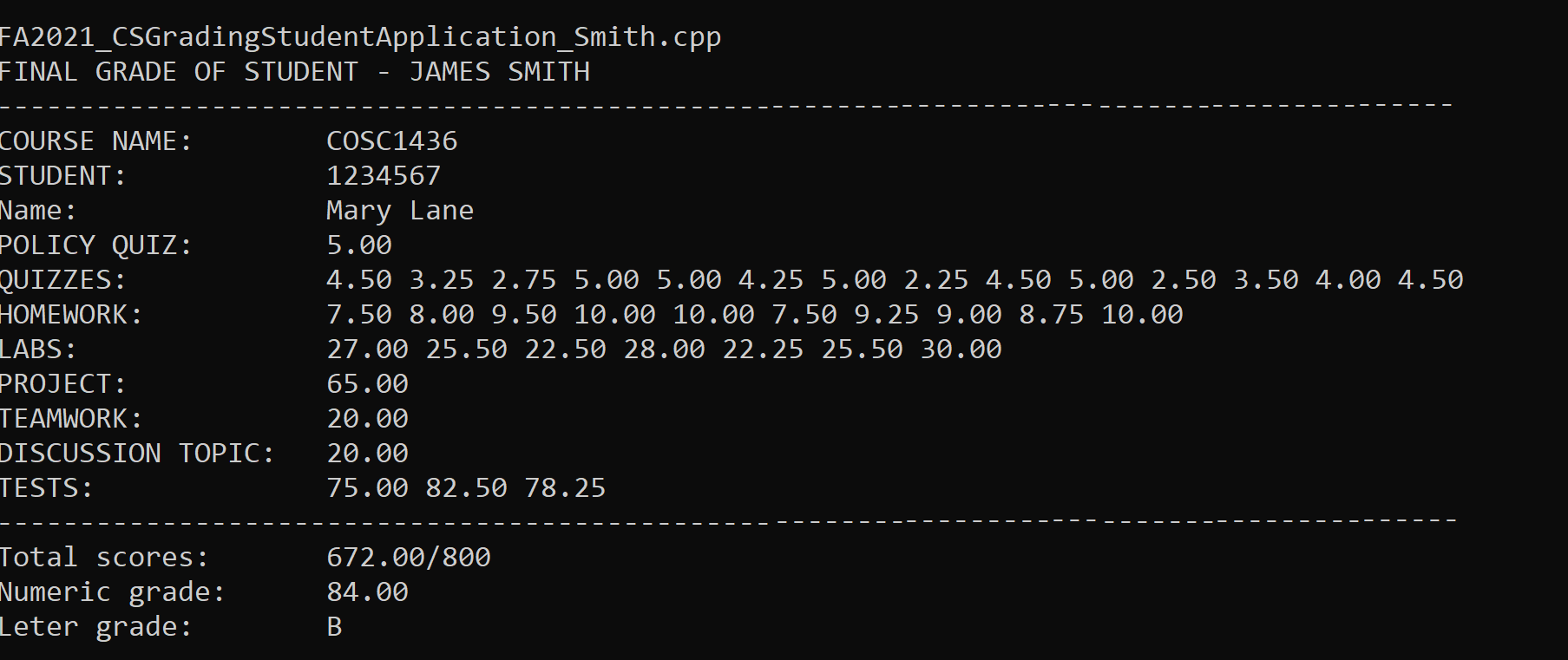
Calculate total **max scores** in the array maxScore. total max score = maxScore[0]\*assignmentSize[0] + maxScore[1] \*assignmentSize[1]+ ….. + maxScore[6]\*assignmentSize[6]

Calculate **the numeric grade** = 100 \* total student score / total max score

With numeric grade, determine the **letter grade** based on the ranges in the following table:

| Letter Grade | Numeric grade |
| --- | --- |
| A | 90 - 100 |
| B | 80-89 |
| C | 70-79 |
| D | 60-69 |
| F | 0-59 |

Display the output in the following:



**WRITE TO FILE**:

Display message to ask and read the answer: If users want to store the grade of this student to file

-If yes, ask for file name then **open output file** to append, then **write one line** to the file in the following format:

className,studentId,firstname lastname,numericGrade,letterGrade,extraCredit,quiz1,quiz2,..quiz14,homework1, homework1A, .., homework8,lab1, .., lab7, teamwork, topic, test1,test2,test3

For example:

COSC1436,1212121,Ahmed,Isra,84,B,5,3.5 4 5 5 2.5 3 5 3.5 2.5 3 5 4.5 5 4.5,8.5 9 10 10 6.5 7.5 8 9.75 10 10,30 22.5 25 22.5 25.75 30 22.5,65.5,20,20,78.5 80.75 78.75

Close file

**ASK IF CONTINUE GRADING OTHER STUDENTS**

-if yes, loop back for grading one student; -If no, display the main menu of Tasks

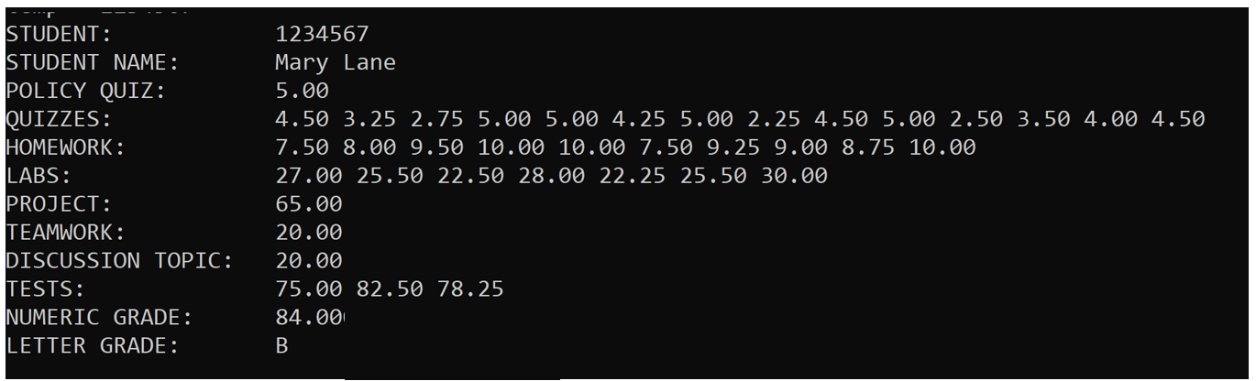
**CASE 2: PRINT THE GRADE OF ONE STUDENT**

-Ask users to provide the ID of the student to print

-open file studentGrade.txt to read

-for each line if the student id matches to the ID then split information of the line into studentid, name, numericGrade, letterGrade, score of policy quiz, list of quizzes score, list of homework scores, list of lab scores, project score, teamwork score, topic score, list of test scores

-provide the output of the grade of the student in the following format

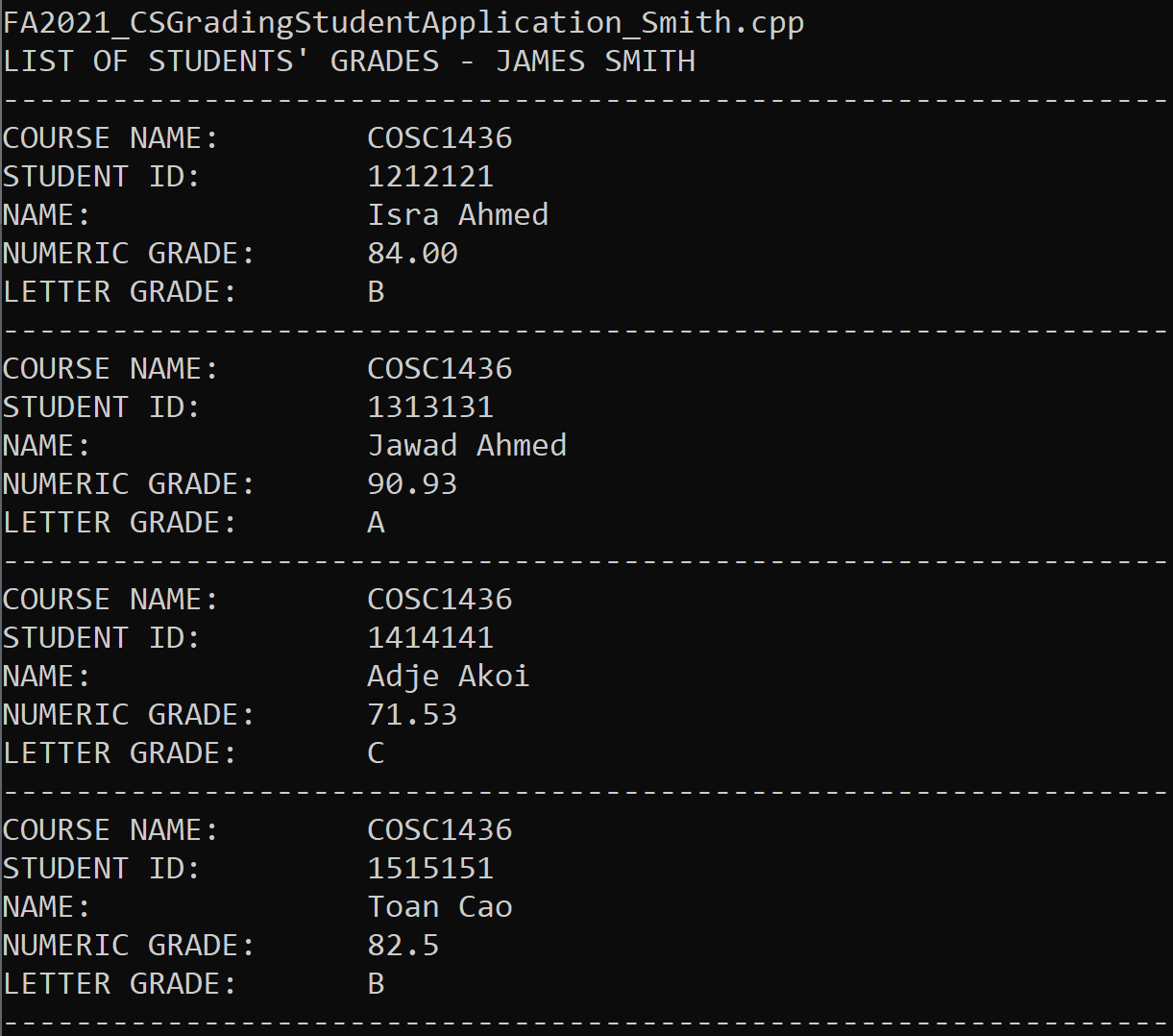


**CASE 3**: Display the Grades of class

-ask for the file name. -Open file to read. If the file exists read each line if the file

For each line, split information into studentId, name, numeric grade, letter grade.

Display the information of each on screen in the following format:



# HOW TO TURN IN

You should turn in the following files:

Project\_pseudoCode\_OutputPictues\_yourLastName.docx (pseudocode and output pictures)

FA2022\_16WeekGradingApplication\_yourLastName.cpp

FA2022\_PROJECT\_yourLastName.exe

IF YOU GET ANY PROBLEM TO SUBMIT FILE .exe, YOU CAN SUBMIT ALL PROJECT FOLDER

INTO ONE FILE .zip or .rar

# how to grade the lab

| ITEMS | SCORES |
| --- | --- |
| TURN IN ON TIME | 10 |
| Submit all files requested | 3 |
| compile success with all the requirements | 10 |
| Pseudo-code or flowchart | 5 |
| Write the comment in the program | 5 |
| Using at least 5 user-defined functions and call them in main() with reference parameters or array parameters | 5 |
| Using at least 3 arrays | 3 |
| Manage main menu to re-display after finishing each task and terminate when users select exit | 3 |
| TASK1:  Grading one student process: read info, scores, calculate the numeric grade correct, letter grade correct, output correct format | 15 |
| Write to output file append, correct format, close file | 3 |
| Loop back to allow users to work on another student | 2 |
| TASK 2  Open file, ask ID, read file, compare id  Print the grade of one student as required format | 8 |
| TASK3  Open file to read, open file to write, close file,  while loop to read the file, read one line, display on the screen | 8 |
| PROJECT SCORES | 80 POINTS |

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