**Prakriti Gautam(bhn19)**

**Student Id: A05284149**

**Write a program that will read the grades and process them, giving a le5er grade as per university guidelines(F->A). Use functions, structures, and arrays as learned throughout the semester.  
BONUS: Make this program into a course grading program, such that it will read a .csv file with student info and grade from a file and process them saving the output into a different .csv file.**

#include <fstream>

#include <iostream>

#include <string>

#include <iomanip>

#include <cmath>

using namespace std;

const int iMAX\_SIZE = 100;

//Define a structure to store student names and grades

struct GradeSheet {

string StdName[iMAX\_SIZE];

int iGrade[iMAX\_SIZE];

};

// Define a structure to store student names and corresponding letter grades

struct LetterGradeSheet {

string StdName[iMAX\_SIZE];

char cLetterGrade[iMAX\_SIZE];

};

// function to convert numerical grades to letter grades

void ConvertLetterGrade(GradeSheet& Grade\_CS, int iSize, LetterGradeSheet& LetterGrade\_CS) {

for (int i = 0; i < iSize; i++) {

// check grade ranges and assign corresponding letter grades

if(Grade\_CS.iGrade[i] >= 90 && Grade\_CS.iGrade[i] <= 100){

LetterGrade\_CS.cLetterGrade[i] = 'A';

}

else if(Grade\_CS.iGrade[i] >= 80){

LetterGrade\_CS.cLetterGrade[i] ='B';

}

else if(Grade\_CS.iGrade[i] >= 70){

LetterGrade\_CS.cLetterGrade[i] = 'C';

}

else if(Grade\_CS.iGrade[i] >= 60){

LetterGrade\_CS.cLetterGrade[i] = 'D';

}

else{

LetterGrade\_CS.cLetterGrade[i] ='F';

}

}

}

// function to copy student names from Grade sheet to lettergradesheet

void CopyStudent(const GradeSheet& Grade\_CS, int iSize, LetterGradeSheet& LetterGrade\_CS) {

for(int i = 0; i < iSize; i++){

LetterGrade\_CS.StdName[i] = Grade\_CS.StdName[i];

}

}

int main() {

// declare instances of grade sheet and lettergradesheet structures

GradeSheet Grade\_CS;

LetterGradeSheet LetterGrade\_CS;

string szGrade;

string szCurrentline;

int iIndex = 0;

// open input file

ifstream fileinput;

fileinput.open("Student\_Marks.csv");

// check if the file is successfully opened

if (!fileinput) {

cout << "File not Found!!!" << endl;

return -1;

}

// open output file

ofstream fileoutput;

fileoutput.open("Student\_LetterGrade.csv");

// read and ignore the header line in the input file

getline(fileinput, szCurrentline);

// loop through each line in the input file

while (getline(fileinput, szCurrentline)) {

// use string stream to extract data from each line

istringstream stream(szCurrentline);

// read student name separated by a comma

getline(stream, Grade\_CS.StdName[iIndex], ',');

// read numerical grade as a string and convert it to an integer

getline(stream, szGrade);

Grade\_CS.iGrade[iIndex] = stoi(szGrade);

// increment the index for the next iteration

iIndex = iIndex + 1;

}

// copy student names from GradeSheet to LetterGradeSheet

CopyStudent(Grade\_CS, iIndex, LetterGrade\_CS);

//Convert numerical grades to letter grades

ConvertLetterGrade(Grade\_CS, iIndex, LetterGrade\_CS);

// write the results to the output file

for(int i = 0; i < iIndex; i++){

fileoutput << LetterGrade\_CS.StdName[i] << "," << LetterGrade\_CS.cLetterGrade[i] << endl;

}

// close input and output file

fileinput.close();

fileoutput.close();

}