Module Code: COS1511

Assessment: Assignment 3

Student Number: 69234175

Name: Jaymeen Patel

Question one

#include <iostream>

using namespace std;

//Question 1.1

void getData(float &weight, float &height)

{

cout << "Please input your weight in KG ";

cin >> weight;

cout << "Please input your height in M ";

cin >> height;

}

//Question 1.2

float calcBMI(float weight, float height)

{

float BMI;

BMI = weight/(height\*height);

return BMI;

}

//Question 1.3

string displayFitnessResults (float BMI)

{

string message;

if (BMI<18.5)

message = "Underweight";

else if(BMI >= 18.5 && BMI <= 24.9)

message = "Healthy";

else if(BMI >= 25.0 && BMI <= 29.9)

message = "Overweight";

else if (BMI >= 30.0)

message = "Obese";

return message;

}

//Question 1.4

int main()

{

float weight, height, BMI;

string message;

getData(weight,height);

BMI = calcBMI(weight,height);

message = displayFitnessResults(BMI);

cout.setf(ios::fixed);

cout.precision(2);

cout << "Your BMI is " << BMI << endl;

cout << "Weight status: " << message << endl;

return 0;

}

Text

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Question two

#include <iostream>

using namespace std;

//Question 2a

void studentDetails(string &name, string &surname, string&schoolName)

{

cout << "Please enter your first name: " << endl;

getline(cin, name, '\n');

cout << "Please enter your surname: " << endl;

getline(cin, surname, '\n');

cout << "Please enter your Schoolname: " << endl;

getline(cin, schoolName, '\n');

}

//Question 2b

void getMarks(int &markEnglish,int &markMaths,int &markLO,int &markHistory,int &markComputerL,int &markGeography)

{

cout << "Please enter your mark for English: " << endl;

cin >> markEnglish;

while (markEnglish<0 || markEnglish>100)

{cout << "Please enter a mark between 0-100" << endl;

cin >> markEnglish;}

cout << "Please enter your mark for Mathematics: " << endl;

cin >> markMaths;

while (markMaths<0 || markMaths>100)

{cout << "Please enter a mark between 0-100" << endl;

cin >> markMaths;}

cout << "Please enter your mark for Life Orientation: " << endl;

cin >> markLO;

while (markLO<0 || markLO>100)

{cout << "Please enter a mark between 0-100" << endl;

cin >> markLO;}

cout << "Please enter your mark for History: " << endl;

cin >> markHistory;

while (markHistory<0 || markHistory>100)

{cout << "Please enter a mark between 0-100" << endl;

cin >> markHistory;}

cout << "Please enter your mark for Computer Literacy: " << endl;

cin >> markComputerL;

while (markComputerL<0 || markComputerL>100)

{cout << "Please enter a mark between 0-100" << endl;

cin >> markComputerL;}

cout << "Please enter your mark for Geography: " << endl;

cin >> markGeography;

while (markGeography<0 || markGeography>100)

{cout << "Please enter a mark between 0-100" << endl;

cin >> markGeography;}

}

//Question 2c

void calcAverageYearMark(float markEnglish,float markMaths,float markLO,float markHistory,float markComputerL,float markGeography)

{

float average;

float sum;

string symbol, code;

sum = (markEnglish + markMaths + markLO + markHistory + markComputerL + markGeography);

average = sum / 6;

cout.setf(ios::fixed);

cout.precision(2);

switch(int(average))

{

case 80 ... 100 : symbol = "A";

code = "7";

cout << endl;

cout << "Average Year Mark: " << average << "%" << " with Symbol " << symbol << " and code " << code << endl;

break;

case 70 ... 79 : symbol = "B";

code = "6";

cout << endl;

cout << "Average Year Mark: " << average << "%" << " with Symbol " << symbol << " and code " << code << endl;

break;

case 60 ... 69 : symbol = "C";

code = "5";

cout << endl;

cout << "Average Year Mark: " << average << "%" << " with Symbol " << symbol << " and code " << code << endl;

break;

case 50 ... 59 : symbol = "D";

code = "4";

cout << endl;

cout << "Average Year Mark: " << average << "%" << " with Symbol " << symbol << " and code " << code << endl;

break;

case 40 ... 49 : symbol = "E";

code = "3";

cout << endl;

cout << "Average Year Mark: " << average << "%" << " with Symbol " << symbol << " and code " << code << endl;

break;

case 30 ... 39 : symbol = "F";

code = "2";

cout << endl;

cout << "Average Year Mark: " << average << "%" << " with Symbol " << symbol << " and code " << code << endl;

break;

case 0 ... 29 : symbol = "FF";

code = "1";

cout << endl;

cout << "Average Year Mark: " << average << "%" << " with Symbol " << symbol << " and code " << code << endl;

break;

default : cout << "" ;

break;

}

}

//Question 2d

void minMax(int markEnglish,int markMaths,int markLO,int markHistory,int markComputerL,int markGeography)

{

int minimum = 100, maximum = 0;

{

if (markEnglish < minimum)

minimum = markEnglish;

if (markMaths < minimum)

minimum = markMaths;

if (markLO < minimum)

minimum = markLO;

if (markHistory < minimum)

minimum = markHistory;

if (markComputerL < minimum)

minimum = markComputerL;

if (markGeography < minimum)

minimum = markGeography;

}

{

if (markEnglish > maximum)

maximum = markEnglish;

if (markMaths > maximum)

maximum = markMaths;

if (markLO > maximum)

maximum = markLO;

if (markHistory > maximum)

maximum = markHistory;

if (markComputerL > maximum)

maximum = markComputerL;

if (markGeography > maximum)

maximum = markGeography;

}

cout << "Lowest mark was " << minimum << "%" << endl;

cout << "Highest mark was " << maximum << "%" <<endl << endl;

}

//Question 2e

void passOrFail(int markEnglish,int markMaths,int markLO,int markHistory,int markComputerL,int markGeography)

{

int i = 0;

if (markEnglish >= 50)

i++;

else if (markEnglish < 50)

i = i;

if (markMaths >= 50)

i++;

else if (markMaths < 50)

i = i;

if (markLO >= 50)

i++;

else if (markLO < 50)

i = i;

if (markHistory >= 50)

i++;

else if (markHistory < 50)

i = i;

if (markComputerL >= 50)

i++;

else if (markComputerL < 50)

i = i;

if (markGeography >= 50)

i++;

else if (markGeography < 50)

i = i;

//cout << "num is " << i << endl;

if(i>=4 && markEnglish >= 50)

{cout << "Outcome: Passed " << endl << endl;}

else

{cout << "Outcome: Failed " << endl << endl;}

}

//Question 2f

void awardDistinction(int markEnglish,int markMaths,int markLO,int markHistory,int markComputerL,int markGeography)

{

float average;

float sum;

sum = (markEnglish + markMaths + markLO + markHistory + markComputerL + markGeography);

average = sum / 6;

if (markEnglish >= 75)

cout << "Distinction recieved for English" << endl;

if (markMaths >= 75)

cout << "Distinction recieved for Mathematics" << endl;

if (markLO >= 75)

cout << "Distinction recieved for Life Orientation" << endl;

if (markHistory >= 75)

cout << "Distinction recieved for History" << endl;

if (markComputerL >= 75)

cout << "Distinction recieved for Computer Literacy" << endl;

if (markGeography >= 75)

cout << "Distinction recieved for Geography" << endl;

if (average >= 75 && markEnglish>=50)

cout << "Passed with distinction" << endl;

}

//Question 2g

void codeSymbol(int markEnglish,int markMaths,int markLO,int markHistory,int markComputerL,int markGeography)

{

string code, symbol;

switch(markEnglish)

{

case 80 ... 100 : symbol = "A";

code = "7";

cout << "English " << markEnglish << "% ";

cout << symbol << " " << code << endl;

break;

case 70 ... 79 : symbol = "B";

code = "6";

cout << "English " << markEnglish << "% ";

cout << symbol << " " << code << endl;

break;

case 60 ... 69 : symbol = "C";

code = "5";

cout << "English " << markEnglish << "% ";

cout << symbol << " " << code << endl;

break;

case 50 ... 59 : symbol = "D";

code = "4";

cout << "English " << markEnglish << "% ";

cout << symbol << " " << code << endl;

break;

case 40 ... 49 : symbol = "E";

code = "3";

cout << "English " << markEnglish << "% ";

cout << symbol << " " << code << endl;

break;

case 30 ... 39 : symbol = "F";

code = "2";

cout << "English " << markEnglish << "% ";

cout << symbol << " " << code << endl;

break;

case 0 ... 29 : symbol = "FF";

code = "1";

cout << "English " << markEnglish << "% ";

cout << symbol << " " << code << endl;

break;

default : cout << "" ;

break;

}

switch(markMaths)

{

case 80 ... 100 : symbol = "A";

code = "7";

cout << "Mathematics " << markMaths << "% ";

cout << symbol << " " << code << endl;

break;

case 70 ... 79 : symbol = "B";

code = "6";

cout << "Mathematics " << markMaths << "% ";

cout << symbol << " " << code << endl;

break;

case 60 ... 69 : symbol = "C";

code = "5";

cout << "Mathematics " << markMaths << "% ";

cout << symbol << " " << code << endl;

break;

case 50 ... 59 : symbol = "D";

code = "4";

cout << "Mathematics " << markMaths << "% ";

cout << symbol << " " << code << endl;

break;

case 40 ... 49 : symbol = "E";

code = "3";

cout << "Mathematics " << markMaths << "% ";

cout << symbol << " " << code << endl;

break;

case 30 ... 39 : symbol = "F";

code = "2";

cout << "Mathematics " << markMaths << "% ";

cout << symbol << " " << code << endl;

break;

case 0 ... 29 : symbol = "FF";

code = "1";

cout << "Mathematics " << markMaths << "% ";

cout << symbol << " " << code << endl;

break;

default : cout << "" ;

break;

}

switch(markLO)

{

case 80 ... 100 : symbol = "A";

code = "7";

cout << "Life Orientation " << markLO << "% ";

cout << symbol << " " << code << endl;

break;

case 70 ... 79 : symbol = "B";

code = "6";

cout << "Life Orientation " << markLO << "% ";

cout << symbol << " " << code << endl;

break;

case 60 ... 69 : symbol = "C";

code = "5";

cout << "Life Orientation " << markLO << "% ";

cout << symbol << " " << code << endl;

break;

case 50 ... 59 : symbol = "D";

code = "4";

cout << "Life Orientation " << markLO << "% ";

cout << symbol << " " << code << endl;

break;

case 40 ... 49 : symbol = "E";

code = "3";

cout << "Life Orientation " << markLO << "% ";

cout << symbol << " " << code << endl;

break;

case 30 ... 39 : symbol = "F";

code = "2";

cout << "Life Orientation " << markLO << "% ";

cout << symbol << " " << code << endl;

break;

case 0 ... 29 : symbol = "FF";

code = "1";

cout << "Life Orientation " << markLO << "% ";

cout << symbol << " " << code << endl;

break;

default : cout << "" ;

break;

}

switch(markHistory)

{

case 80 ... 100 : symbol = "A";

code = "7";

cout << "History " << markHistory << "% ";

cout << symbol << " " << code << endl;

break;

case 70 ... 79 : symbol = "B";

code = "6";

cout << "History " << markHistory << "% ";

cout << symbol << " " << code << endl;

break;

case 60 ... 69 : symbol = "C";

code = "5";

cout << "History " << markHistory << "% ";

cout << symbol << " " << code << endl;

break;

case 50 ... 59 : symbol = "D";

code = "4";

cout << "History " << markHistory << "% ";

cout << symbol << " " << code << endl;

break;

case 40 ... 49 : symbol = "E";

code = "3";

cout << "History " << markHistory << "% ";

cout << symbol << " " << code << endl;

break;

case 30 ... 39 : symbol = "F";

code = "2";

cout << "History " << markHistory << "% ";

cout << symbol << " " << code << endl;

break;

case 0 ... 29 : symbol = "FF";

code = "1";

cout << "History " << markHistory << "% ";

cout << symbol << " " << code << endl;

break;

default : cout << "" ;

break;

}

switch(markComputerL)

{

case 80 ... 100 : symbol = "A";

code = "7";

cout << "Computer Literacy " << markComputerL << "% ";

cout << symbol << " " << code << endl;

break;

case 70 ... 79 : symbol = "B";

code = "6";

cout << "Computer Literacy " << markComputerL << "% ";

cout << symbol << " " << code << endl;

break;

case 60 ... 69 : symbol = "C";

code = "5";

cout << "Computer Literacy " << markComputerL << "% ";

cout << symbol << " " << code << endl;

break;

case 50 ... 59 : symbol = "D";

code = "4";

cout << "Computer Literacy " << markComputerL << "% ";

cout << symbol << " " << code << endl;

break;

case 40 ... 49 : symbol = "E";

code = "3";

cout << "Computer Literacy " << markComputerL << "% ";

cout << symbol << " " << code << endl;

break;

case 30 ... 39 : symbol = "F";

code = "2";

cout << "Computer Literacy " << markComputerL << "% ";

cout << symbol << " " << code << endl;

break;

case 0 ... 29 : symbol = "FF";

code = "1";

cout << "Computer Literacy " << markComputerL << "% ";

cout << symbol << " " << code << endl;

break;

default : cout << "" ;

break;

}

switch(markGeography)

{

case 80 ... 100 : symbol = "A";

code = "7";

cout << "Geography " << markGeography << "% ";

cout << symbol << " " << code << endl;

break;

case 70 ... 79 : symbol = "B";

code = "6";

cout << "Geography " << markGeography << "% ";

cout << symbol << " " << code << endl;

break;

case 60 ... 69 : symbol = "C";

code = "5";

cout << "Geography " << markGeography << "% ";

cout << symbol << " " << code << endl;

break;

case 50 ... 59 : symbol = "D";

code = "4";

cout << "Geography " << markGeography << "% ";

cout << symbol << " " << code << endl;

break;

case 40 ... 49 : symbol = "E";

code = "3";

cout << "Geography " << markGeography << "% ";

cout << symbol << " " << code << endl;

break;

case 30 ... 39 : symbol = "F";

code = "2";

cout << "Geography " << markGeography << "% ";

cout << symbol << " " << code << endl;

break;

case 0 ... 29 : symbol = "FF";

code = "1";

cout << "Geography " << markGeography << "% ";

cout << symbol << " " << code << endl;

break;

default : cout << "" ;

break;

}

}

//Question 2h

void displayOutput(string name, string surname, string schoolName)

{

cout << "\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*" << endl;

cout << " \*\*\*\* STUDENT ACADEMIC RECORD " << endl;

cout << "This program inputs the learner marks of matric " << endl << "level subjects and prints the student final report." << endl << endl;

cout << "\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*" << endl;

cout << "\*\*\*\*" << endl;

cout << "Name and Surname: " << name << " " << surname;

cout << " ";

cout << "School: " << schoolName << endl << endl;

cout << "Subject " << "Mark " << "Symbol " << "Code " << endl;

}

int main()

{

int markEnglish,markMaths,markLO,markHistory,markComputerL,markGeography;

float average;

string name,surname,schoolName;

studentDetails(name,surname,schoolName);

getMarks(markEnglish,markMaths,markLO,markHistory,markComputerL,markGeography);

displayOutput(name,surname,schoolName);

codeSymbol(markEnglish,markMaths,markLO,markHistory,markComputerL,markGeography);

calcAverageYearMark(markEnglish,markMaths,markLO,markHistory,markComputerL,markGeography);

passOrFail(markEnglish,markMaths,markLO,markHistory,markComputerL,markGeography);

minMax(markEnglish,markMaths,markLO,markHistory,markComputerL,markGeography);

awardDistinction(markEnglish,markMaths,markLO,markHistory,markComputerL,markGeography);

return 0;

}

Text

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Question three

Line 19: first second

?

?

Line 21: first second

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2

?

?

Line 23: first second

3

2

?

2

?

?

Line 24 4: [first] [second] firstP secondP

2

3

3

2

Line 6: [first] [second] firstP secondP

3

3

4

2

Line 7: [first] [second] firstP secondP

Line 8 24: first second

3

2

4

6

3

2

Line 25 10: [first] firstP [second] secondP

Line 13: [first] firstP [second] secondP

3

2

6

3

Line 14: [first] firstP [second] secondP

9

6

c

Line 15 25: first second

9

6

c