Introduction to programming Dr. Saleh Mosbah

Name: Abdallah Mohamed Elsayed Aboudeif Awad

Registration No. 19235004

**Mid-Term Exam Report**

**CS641: Introduction to Programming Spring 2019-2020 Date:**

**9/7/2020**

**Quiz (1)**

An instructor needs a grading system for his course. The grading system has the following grading rules:

There is a mid-term exam, a lab quiz, and a final exam.

a. The grade of the mid-term exam is 30 points.

b. The grade of the lab quiz is 20 points.

c. The grade of the final exam is 50 points.

**Write a C program for the instructor according to the above requirements:**

a. The number of students is unspecified.

b. The program reads only the students’ registration numbers (not the names).

c. The grade of the absent student is -1.

d. The student is considered “Fail” if his grade in the final exam is less than 15, whatever her/his total points.

e. The grades are displayed in points, percentage, and a letter grade as follows:

* Any grade of 90 or more is an A
* Any grade of 80 or more (but less than 90) is a B
* Any grade of 70 or more (but less than 80) is a C
* Any grade of 60 or more (but less than 70) is a D
* Any grade below 60 is an F.

The grading system should print out:

1. The percent success rate.

2. The average overall grade.

3. Number of Students with grade A.

4. Number of Students with grade B.

5. Number of Students with grade C.

6. Number of Students with grade D.

7. Number of Students with grade F.

**Program code**

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| /\*  S641: Introduction to Programming Spring 2019-2020  Dr/ Saleh Mosbah  date: 9/7/2020 Student name: Abdallah Aboudeif  \*/  // stdio library for printf and scanf functions  #include <stdio.h>  // the main function return integar value  int main()  {  /\* Declreation of vurables  Reg\_num = registration number  A = Number of students get 90 or more  B = Number of students get 80 to less than 90  C = Number of students get 70 to less than 80  D = Number of students get 60 to less than 70  F = Number of students get less than 60  Test\_dg = Total degrees for each student\*  Total\_dg = Total degrees for all students\*  Grade1 = Mid-Term exam degree\*  Grade2 = Lab Quiz degree\*  Grade3 = Final Exam exam degree\*  \*( Student can get a degree of (20) or (20.7) so that degree should be accepted as float number )  Total\_st = counter for students number  SC\_rate = The percent success rate  Av = The average overall grade  Ext = Exit program or start again \*/  int Reg\_num,A,B,C,D,F,Total\_st,Ext;  float Sc\_rate,Av,Total\_dg,Grade1,Grade2,Grade3,Test\_dg;  // The main function loop to repeat whole the program code in case of restart  while(1)  {  // Reset variables value  A=B=C=D=F=Test\_dg=Total\_st=Sc\_rate=Av=Total\_dg=0;  Grade1=Grade2=Grade3=-1.5;  // Loop for entering grades  do  {  // New screen for student data  system("cls");  printf("\*\*\*\*\*\*\*\*\*\* Welcome to Grading System \*\*\*\*\*\*\*\*\*\* \n\n");  // The next line is for testing program statements validation while developing program code, this is not a required part of the program  //printf("Students=%d A=%d B=%d C=%d D=%d F=%d Total Grade=%.0f \n",Total\_st,A,B,C,D,F,Total\_dg);  // Student registration number input  printf("[Student %d]Enter student registration number or [-1] to finish: ",Total\_st+1);  scanf("%d",&Reg\_num);  // Registration number -1 means go to report  if((int)Reg\_num==-1){Reg\_num=0;break;}  // Degree of mid-term (repeat if value is unacceptable)  do{  // Wrong message 1f there is unacceptable entry value  if (Grade1!=-1.5) printf("\n [Wrong Entry] %.1f is unacceptable value - Tray again: \n",Grade1);  printf("\n [Mid-term Exam] > Enter student degree [0 to 30]: ");  scanf("%f",&Grade1);  // Absent student flag is -1  if (Grade1==-1)Grade1=0;  }while(Grade1>30 || Grade1<0);  // Adding the given degree to total overall degree  Total\_dg+=Grade1;  // Degree of Lab Quiz (repeat if value is unacceptable)  do{  // Wrong message 1f there is unacceptable entry value  if (Grade2!=-1.5) printf("\n [Wrong Entry] %.1f is unacceptable value - Tray again: \n",Grade2);  printf("\n [Lab Quiz] > Enter student degree [0 to 20]: ");  scanf("%f",&Grade2);  // Absent student flag is -1  if (Grade2==-1)Grade2=0;  }while(Grade2>20 || Grade2<0);  // Adding the given degree to total overall grade  Total\_dg+=Grade2;  // Degree of Final Exam (repeat if value is unacceptable)  do{  // Wrong message 1f there is unacceptable entry value  if (Grade3!=-1.5) printf("\n [Wrong Entry] %.1f is unacceptable value - Tray again: \n",Grade3);  printf("\n [Final Exam] > Enter student degree [0 to 50]: ");  scanf("%f",&Grade3);  // Absent student flag is -1  if (Grade3==-1)Grade3=0;  }while(Grade3>50 || Grade3<0);  // Adding the given degree to total overall grade  Total\_dg+=Grade3;  // Test if Final Exam grade is less than 15  if (Grade3> 15) {  // Grading student  Test\_dg=Grade1+Grade2+Grade3;  if (Test\_dg>=90)A++;  else if (Test\_dg>=80)B++;  else if (Test\_dg>=70)C++;  else if (Test\_dg>=60)D++;  else if (Test\_dg<60)F++;  } else (F++);  // Counting students number  Total\_st++;  // Reset degrees virables  Grade1=Grade2=Grade3=-1.5;  }/\* Infinite loop until student reg number = -1\*/while(1);  // If there are no students then don't divide by zero  if(Total\_st!=0){  // Calculate the percent success rate  Sc\_rate=((float)Total\_st-F)/(float)Total\_st\*100.0;  // Calculate the average overall grade  Av=Total\_dg/(float)Total\_st;  }else {  Sc\_rate=0.0 ; Av=0.0 ;}  // New screen for the output report  system("cls");  printf("\*\*\*\*\*\*\*\*\*\* Grading System report \*\*\*\*\*\*\*\*\*\* \n");  // grading system report  printf("\nThe percent success rate = %.2f%% \nThe average overall grade = %.2f \nStudents number with grade A = %d \nStudents number with grade B = %d \nStudents number with grade C = %d \nStudents number with grade D = %d \nStudents number with grade F = %d \n",Sc\_rate,Av,A,B,C,D,F);  // Exit or restart input/output  printf("\n[-1] to exit \n[1] to start program again \nExit or Start again ? ");  scanf("%d",&Ext);  // Exit or start again test  if (Ext==1)continue;  else if (Ext==-1)return(0);  }  } |