```
/*################################################################################*/
/*HW02_part2.c                                                                    */
/*_______________________________                                                 */
/*Written by Mustafa Akilli on March 1, 2015                                      */
/*                                                                                */
/*Description                                                                     */
/*___________                                                                     */
/*  Calculate point, grade and contribution for 5 students                        */
/*Inputs:                                                                         */
/*  -Student Name                                                                 */
/*  -Student Surname                                                              */
/*  -Midterm1 Point                                                               */
/*  -Midterm2 Point                                                               */
/*  -Final Point                                                                  */
/*Outputs:                                                                        */
/*  -Point                                                                        */
/*  -Grade                                                                        */
/*  -Contribution                                                                 */
/*################################################################################*/
/*                                                                                */
/*--------------------------------------------------------------------------------*/
/*                           Includes                                             */
#include <stdio.h>
/*--------------------------------------------------------------------------------*/


/*--------------------------------------------------------------------------------*/
/*                                #defines                                        */
#define DENOMINATOR 100
#define SHARE_THIRTY 40
#define SHARE_FORTY 30
#define ALL_CREDITS 20
#define COURSE_CREDIT 3
#define GRADE_A 4.0
#define GRADE_B 3.0
#define GRADE_C 2.0
#define GRADE_D 1.0
#define GRADE_F 0
/*--------------------------------------------------------------------------------*/

/*  Calculate the point of student function                                       */
int calculate_point(int mid1,int mid2,int final);

/*  Calculate the grade of student function                                       */
int calculate_grade(int point);

/*  Calculate the contribution of student function                                */
void calculate_contribution(int grade);

int
main(void){

    /*variables*/
    char student_name_1, student_surname_1;
    int midterm1_point_1, midterm2_point_1, final_point_1;
    char student_name_2, student_surname_2;
    int midterm1_point_2, midterm2_point_2, final_point_2;
    char student_name_3, student_surname_3;
    int midterm1_point_3, midterm2_point_3, final_point_3;
    char student_name_4, student_surname_4;
    int midterm1_point_4, midterm2_point_4, final_point_4;
    char student_name_5, student_surname_5;
    int midterm1_point_5, midterm2_point_5, final_point_5;
    int point1, point2, point3, point4, point5;
    char grade1, grade2, grade3, grade4, grade5;
    int mid1, mid2, mid3, mid4, mid5, final, point;
    int contribution1, contribution2, contribution3;
    int contribution4, contribution5;

    FILE *inp, *outp;

    /*get input from txt*/
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```
inp = fopen("Students.txt","r");
fscanf(inp,"%c",&student_name_1);
fscanf(inp,"%c",&student_surname_1);
fscanf(inp,"%d",&midterm1_point_1);
fscanf(inp,"%d",&midterm2_point_1);
fscanf(inp,"%d",&final_point_1);
fscanf(inp,"\n%c",&student_name_2);
fscanf(inp,"%c",&student_surname_2);
fscanf(inp,"%d",&midterm1_point_2);
fscanf(inp,"%d",&midterm2_point_2);
fscanf(inp,"%d",&final_point_2);
fscanf(inp,"\n%c",&student_name_3);
fscanf(inp,"%c",&student_surname_3);
fscanf(inp,"%d",&midterm1_point_3);
fscanf(inp,"%d",&midterm2_point_3);
fscanf(inp,"%d",&final_point_3);
fscanf(inp,"\n%c",&student_name_4);
fscanf(inp,"%c",&student_surname_4);
fscanf(inp,"%d",&midterm1_point_4);
fscanf(inp,"%d",&midterm2_point_4);
fscanf(inp,"%d",&final_point_4);
fscanf(inp,"\n%c",&student_name_5);
fscanf(inp,"%c",&student_surname_5);
fscanf(inp,"%d",&midterm1_point_5);
fscanf(inp,"%d",&midterm2_point_5);
fscanf(inp,"%d",&final_point_5);

fclose(inp);


point1 = calculate_point(midterm1_point_1,midterm2_point_1,final_point_1);
point2 = calculate_point(midterm1_point_2,midterm2_point_2,final_point_2);
point3 = calculate_point(midterm1_point_3,midterm2_point_3,final_point_3);
point4 = calculate_point(midterm1_point_4,midterm2_point_4,final_point_4);
point5 = calculate_point(midterm1_point_5,midterm2_point_5,final_point_5);
grade1 = calculate_grade(point1);
grade2 = calculate_grade(point2);
grade3 = calculate_grade(point3);
grade4 = calculate_grade(point4);
grade5 = calculate_grade(point5);

/*output the result to screen*/
printf("Student 1:%c%c ",student_name_1,student_surname_1);
printf("point:%d ",point1);
printf("grade:%c ",grade1);
calculate_contribution(grade1);
printf("Student 2:%c%c ",student_name_2,student_surname_2);
printf("point:%d ",point2);
printf("grade:%c ",grade2);
calculate_contribution(grade2);
printf("Student 3:%c%c ",student_name_3,student_surname_3);
printf("point:%d ",point3);
printf("grade:%c ",grade3);
calculate_contribution(grade3);
printf("Student 4:%c%c ",student_name_4,student_surname_4);
printf("point:%d ",point4);
printf("grade:%c ",grade4);
calculate_contribution(grade4);
printf("Student 5:%c%c ",student_name_5,student_surname_5);
printf("point:%d ",point5);
printf("grade:%c ",grade5);
calculate_contribution(grade5);

/*output the result to txt*/
outp = fopen("Grades.txt","w");
fprintf(outp,"%c%c %d\n",student_name_1,student_surname_1,point1);
fprintf(outp,"%c%c %d\n",student_name_2,student_surname_2,point2);
fprintf(outp,"%c%c %d\n",student_name_3,student_surname_3,point3);
fprintf(outp,"%c%c %d\n",student_name_4,student_surname_4,point4);
fprintf(outp,"%c%c %d",student_name_5,student_surname_5,point5);

fclose(outp);
```

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    return 0;

}

/*------------------------------------------------------------------------*/
/*                          Function Prototypes                           */
/*------------------------------------------------------------------------*/

/*  Calculate the point of student function                               */
int calculate_point(int mid1,int mid2,int final){

    int point;
    point = (mid1*SHARE_FORTY/DENOMINATOR)
            +(mid2*SHARE_FORTY/DENOMINATOR)
            +(final*SHARE_THIRTY/DENOMINATOR);
    return point;
}

/*  Calculate the grade of student function                               */
int calculate_grade(int point){

    char grade;

    if(point<=39){
        grade = 'F';
}

    else if(point<=64){
        grade = 'D';
}

    else if(point<=69){
        grade = 'C';
}

    else if(point<=84){
        grade = 'B';
}

    else {
        grade = 'A';
}

    return grade;
}


/*  Calculate the contribution of student function                        */
void calculate_contribution(int grade){



    double contribution;


    switch(grade){

        case 'A' : contribution = GRADE_A*COURSE_CREDIT/ALL_CREDITS;
                   printf("Contribution: %.2f\n",contribution);
                   break;

        case 'B' : contribution = GRADE_B*COURSE_CREDIT/ALL_CREDITS;
                   printf("Contribution: %.2f\n",contribution);
                   break;

        case 'C' : contribution = GRADE_C*COURSE_CREDIT/ALL_CREDITS;
                   printf("Contribution: %.2f\n",contribution);
                   break;

        case 'D' : contribution = GRADE_D*COURSE_CREDIT/ALL_CREDITS;
                   printf("Contribution: %.2f\n",contribution);
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                    break;

        default  : contribution = GRADE_F*COURSE_CREDIT/ALL_CREDITS;
                   printf("Contribution: %.2f\n",contribution);


    }

}

/*##############################################################################*/
/*                            End of HW02_part1.c                               */
/*##############################################################################*/
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