



IT102/CS102-Computer Programming 1  
Programming Exercise 5  
1<sup>st</sup> Semester 2022-2023

Write a C program that will ask the user to input five values corresponding to the grades in **quizzes**(25%), **midterm exam**(20%), **final exam**(25%), **project**(20%) and **recitation**(10%). Compute for the actual total grade based on the read values and their given weights, then transmute the actual total grade to the range 60-100 where passing grade is 60% using the formula

$$TG = \begin{cases} \text{if } AG < 60; \left\lfloor 60 + \frac{AG}{4} \right\rfloor \\ \text{if } AG \geq 60; \left\lfloor 75 + \frac{AG - 60}{1.6} \right\rfloor \end{cases}$$

Where,  
TG = Transmuted Grade  
AG = Actual Grade  
⌊ ⌋ = Round down to the nearest integer.

Using the computed transmuted grade, get the equivalent grade point and based on the grade point, get the description. Please refer to the table below. Use the two-way selection constructs in C (**if**, **if..else**) in implementing these given tasks.

Transmuted Grade	Grade Point	Description
95-100	1.00	Outstanding
91-94	1.25	Superior
88-90	1.50	Very Satisfactory
86-87	1.75	Very Satisfactory
84-85	2.00	Satisfactory
82-83	2.25	Satisfactory
79-81	2.50	Fair
77-78	2.75	Fair
76-75	3.00	Fair
74-60	5.00	Failure

Output on the screen and on the file “**grade.txt**” the inputted values and the weights, actual total grade, transmuted grade and its description.

Sample output on the screen:

```
Enter grade for Quizzes: 88.5
Enter grade for Midterm exam: 90.42
Enter grade for Final exam: 85.93
Enter grade for Project: 87.65
Enter grade for Reciation: 80.7

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REQUIREMENT          GRADE    WEIGHT
-----
Quizzes                88.50    25%
Midterm Exam           90.42    20%
Final Exam             85.93    25%
Project                87.65    20%
Recitation             80.70    10%

Actual Grade:          87.29
Transmuted Grade:      92
Grade point:           1.25
Description:           Superior
```

Sample output on the file “grade.txt”:

```
-----
REQUIREMENT          GRADE    WEIGHT
-----
Quizzes                88.50    25%
Midterm Exam           90.42    20%
Final Exam             85.93    25%
Project                87.65    20%
Recitation             80.70    10%

Actual Grade:          87.29
Transmuted Grade:      92
Grade point:           1.25
Description:           Superior
```

You can use the table below to verify if your computation for the transmuted grade for a given actual grade is correct.

Actual Grade	Transmuted Grade	Actual Grade	Transmuted Grade	Actual Grade	Transmuted Grade
100.00	100	77.60-79.19	86	48.00-51.99	72
98.40-99.99	99	76.00-77.59	85	44.00-47.99	71
96.80-98.39	98	74.40-75.99	84	40.00-43.99	70
95.20-96.79	97	72.80-74.39	83	36.00-39.99	69
93.60-95.19	96	71.20-72.79	82	32.00-35.99	68
92.00-93.59	95	69.60-71.19	81	28.00-31.99	67
90.40-91.99	94	68.00-69.59	80	24.00-27.99	66
88.80-90.39	93	66.40-67.99	79	20.00-23.99	65
87.20-88.79	92	64.80-66.39	78	16.00-19.99	64
85.60-87.19	91	63.20-64.79	77	12.00-15.99	63
84.00-85.59	90	61.60-63.19	76	8.00-11.99	62
82.40-83.99	89	60.00-61.59	75	4.00-7.99	61
80.80-82.39	88	56.00-59.99	74	0.00-3.99	60
79.20-80.79	87	52.00-55.99	73		

$$TG = \begin{cases} \text{if } AG < 60; \left\lfloor 60 + \frac{AG}{4} \right\rfloor \\ \text{if } AG \geq 60; \left\lfloor 75 + \frac{AG - 60}{1.6} \right\rfloor \end{cases}$$

Where,  
TG = Transmuted Grade  
AG = Actual Grade  
⌊ ⌋ = Round down to the nearest integer.