

C++ Exercises

Foundation Course SS 2018

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1 Problem 1 : Grading Bot

Write a C++ program that allows the user to enter the grade scored in a programming class (0-100). Based on the score provided, print if they passed or failed.

Marks	Grade
0-59	F
60-100	P

Example

Input	Output
45	F
67	P
82	P

1.1 Optional exercise

Modify the above program.

Based on the score provided, print their grade based on following criterion
If the user scored a 100 then print "Congrats! Perfect score!" on screen.

Marks	Grade
0-59	F
60-69	D
70-79	C
80-89	B
90-100	A

Example

Input	Output
34	F
75	C
98	A
100	A, Congrats! Perfect score!

2 Problem 2 : Addition Bot

Initiate an array of size 5 with some numbers.

Calculate the sum of those numbers using **for** loop.

Print the sum.

Example

Array	Output
{ 1,2,3,4,5 }	15
{ 10,20,30,40,50 }	150

2.1 Optional problem

Modify the above program.

Ask the user for number until user inputs 0.

Add all those numbers and print the sum.

Example

Input	Output
5 6 7 0	18
32 0	32

(Hint : Use `while(1)` for infinite loop. Then when 0 is received from input, use `break`)

3 Problem 3 : Area calculator Bot

Make a OOP C++ program which calculates area of rectangles and triangles.

Ask the user for two numbers.

Make 3 classes, one of type shape, one for rectangle and one for triangle.

In main, create an object of rectangle and triangle.

Print the area of rectangle($\text{length} * \text{height}$) and triangle($0.5 * \text{length} * \text{height}$).

Note : The rectangle and triangle class should inherit from shape class.

Height and length should not be public.

Example

input	Output
Length : 5	Triangle : 7.5
Height : 3	Rectangle : 15.0
Length : 4	Triangle : 12.0
Height : 6	Rectangle : 24.0