

C Programming



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General Instructions

- ▶ You can write programs in any programming language. Please download and use a local IDE if possible.
- ▶ There are 5 questions. You will be given questions one by one. Only after completing the current question, next question will be given.
- ▶ The questions are self-explanatory. Read the questions and understand them clearly before you start writing the programs.
- ▶ Test your program with the sample inputs along with other edge cases.
- ▶ Program logic, efficiency, coding standards and modularity will be considered for evaluation.
- ▶ Hard code inputs (like `int x = 10`, `int scores[] = {40, 20}`).
- ▶ Use only primitive data types. Don't use any library functions.
- ▶ Handle as many use cases as possible.
- ▶ Once you have completed the program inform the evaluator, get it verified and get next question.

Sum of all the numbers within the rectangle

- ▶ Given a 2D integer matrix and 2 co-ordinates, find the sum of all the numbers within the rectangle enclosing the co-ordinate.

Example 1

Input:

1	4	7	9
2	5	8	0
3	6	9	2
1	1	1	1

Co-ordinates: (2,0) and (3,3)

Output:

Rectangle:

3	6	9	2
1	1	1	1

Sum: 24

Arithmetic Operations

- ▶ Write a method to implement $*$, $-$, $/$ operations using only the $+$ operator. The numbers can be both positive and negative.

Example 1

Input:

24, 6

Output:

Sum: 30

Difference: 18

Product: 144

Division: 4

Encoded Message

- ▶ A message containing letters A-Z is being encoded to numbers using following mapping:
 - ↪ 'A' => 1
 - ↪ 'B' => 2
 - ↪ ...
 - ↪ 'Z' => 26
- ▶ Given an encoded message containing digits, print all the possible messages.

Example 1

Given encode message is "12", it could be as "AB" (1 2) or "L" (12).

Given encode message is "2514", it could be decoded as "ZAD" (26 1 4) or "BFN" (2 6 14) or "ZN" (26 14) or "BFAD" (2 6 1 4).

Number of Days

- ▶ Write a program to find the number of days between two given dates (date/month/year) with maximum accuracy. DO NOT USE INBUILT FUNCTIONS. You should consider the leap year and accurate number of days in each month (30 or 31).

Example 1

Input:

Date1: 07/05/2016

Date2: 09/05/2016

Output:

2 days

Example 2

Input:

Date1: 09/01/2015

Date2: 09/05/2016

Output:

486 days

Example 3

Input:

Date1: 09/01/2016

Date2: 09/05/2016

Output:

121 days

Balancing String

- ▶ Write a program to accept a string with the following characters: '{' '(' '[' ']' ')' '}'. The string can be in any size, any number of repetition from the above set of characters. You have to check if the string is balanced and print the output as 'balanced' or 'not balanced'.

Example 1

Input:

{0[]}

Output:

balanced

Example 2

Input:

{(O)[]}

Output:

balanced

Example 3

Input:

{{{}}

Output:

not balanced

Example 4

Input:

{() }

Output:

not balanced

Example 5

Input:

{() }

Output:

not balanced

Example 6

Input:

{(())}

Output:

balanced

***Thank
You***



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