

CSE 111 2. Midterm

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I. QUESTION (15 POINTS)

Write a program that prints terms of the following mathematical sequence:

$$1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} + \dots$$

Your program should ask user to enter a double number representing a maximum limit, and should repeatedly add and print terms of the sequence until the overall sum of terms meets or exceeds the maximum limit that was taken from the user.

Enter the limit: 2

1 + 1/2 + 1/3 + 1/4 = 2.083

II. QUESTION (15 POINTS)

You will write a program, which reads an integer N and calculates

$$1 \times 2 + 2 \times 3 + \dots + (N - 1) \times N$$

Enter N: 5

Sum is: 40

III. QUESTION (15 POINTS)

Write a program that reads two integers M and N and finds the least common multiple of M and N .

Enter M: 12

Enter N: 20

Least common multiple: 60

IV. QUESTION (20 POINTS)

Write a program that reads integer N , and finds the sum of all digits of all numbers less than or equal to N .

Enter N: 13

Sum of digits: 55

V. QUESTION (15 POINTS)

Write a program that should flip a coin until the same result occurs twice in a row. In other words, if a head is flipped followed by another head or if a tail is flipped followed by another tail, your program should end (stop flipping). The user enters the flips of the coin as strings "H" for head, "T" for tail.

Flip Coin: T

Flip Coin: H

Flip Coin: T

Flip Coin: H

Flip Coin: H

Last two flips are the same.

VI. QUESTION (20 POINTS)

Write a program that ask user to enter an integer size M and that prints a square where N 'th line has a N "\" characters followed by $M - N$ "/" characters, with each slash and backslash separated by a "-" character.

Enter size: 5

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