2310710005

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For finding CPI

- Positive Test cases

Test Case 1. Input n=3, SPI = [8, 7.5, 9]
Expected output = 8.17
as average of (8+7.5+9)/3 = 8.17

Test case 2. Input n=4 SPI = [6.2, 7, 7.5, 8]
Expected output = 7.18
as average of (6.2+7+7.5+8)/4 = 7.18

Test case 3 Input n=5, SPI = [9, 8.5, 8.8, 9.2, 8.9]
Expected output = 8.88
as (9+8.5+8.8+9.2+8.9)/5 = 8.88

Test case 4 Input n=2, SPI = [7, 6.5]
Expected output = 6.75
as (7+6.5)/2 = 6.75

Test cas 5 Input n=3, SPI = [6.4, 7.0, 7.5]
Expected output = 6.96
as (6.4+7+7.5)/3 = 6.96

- Negative Test Cases

Test case 1: Input n=0, SPI = [] output = 0
as if no. of semester is 0 CPI will be zero no SPI to average

Test case 2: Input n=1, SPI = [5] output = 5
with only one semester, CPI is simply SPI value of semester.

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For finding SPI

- Positive Test Cases

Test case 1: c = [3,4,3], g = [8,7,9]
output = (3*8 + 4*7 + 3*9)/(3+4+3) = 7.9

Test case 2: c = [2,2,2], g = [6,6,6]
output = (2*6 + 2*6 + 2*6)/(2+2+2) = 6

Test case 3: c = [1,2,3), g = [5,5,5]
output = (1*5 + 2*5 + 3*5)/(1+2+3) = 5

Test case 4: c = [4], g = [9]
output = (4*9)/4 = 9

Test case 5: c = [2,5,1], g = [4,8,7]
output = (2*4 + 5*8 + 1*7)/(2+5+1) = 6.875

- Negative Test Cases

Test case 1: Unequal length of Array Input ⇒ c = [3,4], g = [8,7,9]
output = Error: Credits and grades array must be equal length

Test case 2: Zero credit Input → c = [0,4,3], g = [8,7,9]
output = Error: credits must be greater than zero

Test case 3: Negative credit/grades Input c = [3,-4,3], g = [8,7,9]
output = Error: please enter positive integers.

Test case 4: Credits or grades array empty
Input ⇒ c = [], g[]
output = Error: Sum of credit must be greater than zero.