Algorithm to Calculate SPI and CPI

1] Start

2] Create a function that takes input a vector of grades and credits ~~and no.~~ of a sem and returns SPI for that sem.

3] Create a for loop to multiply each element of grade with credits and then add them up together.

4] Divide the sum obtained in step 3 by the sum of credits. This is the SPI for that sem. Return it.

5] Create an if condition that checks if sum of credits is zero or no and display appropriate error message if it is.

6] Create a function CPI that takes no. of semesters as parameter and return the CPI.

7] Create ~~a~~ two vectors to store grades and credits for 8 semesters.

8] Run a for loop to take input for grades and credits for each sem.

9] Calculate SPI for each sem and add and store that value in a variable. spi.

10] Create if condition to check if grades

are not less than 0 and greater than 10 and display appropriate error message.

10] Now divide the variable Spi, having sum of all sem's SPI ~~and divide by number of sems~~ to get CPI.
Sum of credits

11] Return the CPI

12] End.

Test case

1] No. of sem: 2

Sem 1:
grades: 10, 8, 9, 7, 9.5, 8.5, 7, 6.5
credits: 2, 3, 1, 2, 4, 3, 2, 1

Sem 2:
grades: 9, 8, 7, 10, 9.5, 7.5, 8.5, 7
credits: 3, 3, 2, 1, 1, 2, 2, 3

Output:
SPI for sem 1: 8.38
SPI for sem 2: 8.08

CPI = 8.23

2] No. of sem: 1
grades: 9, 8, 7, 6, 5, 4, 3, 2
credits: 3, 3, 3, 3, 3, 3, 3, 3

Output:
SPI: 5.5
CPI: 5.5

3] No. of sem: 2

Sem 1:
grades: 8, 7, 6, 5, 4, 3, 2, 1
credits: 2, 2, 2, 2, 2, 2, 2, 2

Sem 2
grades: 9, 8, 7, 6, 5, 4, 3, 2
credits: 1, 1, 1, 1, 1, 1, 1, 1

Output:
SPI for sem 1: 4.5
SPI for sem 2: 5.5

CPI = 4.833

4] No of sem: 1
grades: 9, 8, 7, 6, 5, 4, 3, 2
credits: 0, 0, 0, 0, 0, 0, 0, 0

Error

5] No of Sem: 1
grades: -9, -8, -7, -6, -5, -4, -3, -3
Credits: 1, 1, 1, 1, 1, 1, 1, 1

Error

Conclusion

Here we have learned to calculate SPI of each sem of CPI for overall.