Mid Sem Assignment CS384 - CPI SPI Generator

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Assignment Given: 29th Sep 2021,
Deadline 3rd Oct 2021, 23:59
Submission: GitHub

Things to be kept in mind

1. You cannot use **pandas** library.
2. Program will be checked for plagiarism.

You are given a **grades.csv** file that contains data for the grades for **IIT Antartica**. The content of the file are:
Roll: Roll of the student
Sem: Semester in which that sub is studied
SubCode: Course Code
Credit: Sub Credits
Grade: Obtained Grade
Sub_Type: Whether Core or Elective etc

names-roll.csv - This contains the mapping of names and roll numbers.

subjects_master.csv - This contains mapping of course codes and the name of the subject.

Your task is to generate a marksheet of every roll number and save as ".xlsx" file in the output folder. A sample "0401CS02.xlsx" is provided for your reference. Its self explainable. The names of each sheet should be like the ones mentioned "0401CS02.xlsx". Names: Overall, Sem1,...,SemN

Calculation of SPI and CPI: Suppose in a given semester a student has taken four courses having credits C1, C2, C3 and C4 and grade points in those courses are G1, G2, G3 and G4 respectively. Then,

$$SPI = (C_1 * G_1 + C_2 * G_2 + C_3 * G_3 + C_4 * G_4)/(C_1 + C_2 + C_3 + C_4) \quad (1)$$

$$CPI = (SPI1 * Credits\ in\ semester_1 + SPI2 * Credits\ in\ semester_2 + ...)/(Total\ credits) \quad (2)$$

For example, if in a given semester a student has taken four courses having credits 6, 6, 6, and 8 and grade points in those courses are 10, 9, 8, 6 respectively. Then,

$$SPI = (6 * 10 + 6 * 9 + 6 * 8 + 6 * 6)/(6 + 6 + 6 + 8) = 7.62 \quad (3)$$

If the student has an SPI of 7.62 in the 1st semester worth (say) 32 credits and 8.2 in the next semester worth 36 credits,

$$CPI(at\ the\ end\ of\ 2nd\ semester) = (7.62 * 32 + 8.2 * 36)/(32 + 36) = 7.93 \quad (4)$$

Grade Numeric Equivalent:

- AA - 10
- AB - 9
- BB - 8
- BC - 7
- CC - 6
- CD - 5
- DD - 4
- F - 0
- I - 0