جامعة بيرزيت
BIRZEIT UNIVERSITY

COMP242 Project I

In this project, you will implement a sorted **singly** linked list (*without tail*) structure that represents a list of Tawjihi records and do different operations on the records in that structure. The inputs for the project will be the two Tawjihi files (One file for West Bank **WestBank_2022.csv** and the other for Gaza records **Gaza_2022.csv**) (note: those files are normal text files, you can open them using notepad). Each line in those files contains the Tawjihi record of a student (seat number, branch, and average) separated by comma (**,**). You may use the code you wrote/implemented during the lab to create and store Tawjihi record data into your singly Linked List(s). You are free to use as many linked lists as needed.

YOU MAY NOT USE ARRAYLIST IN THIS PROJECT.

For a good user experience, you will need to implement a graphical user interface (GUI) using javaFX.

YOU MAY NOT USE SCENE BUILDER IN THIS PROJECT

In the GUI there should be a way to switch between ***WestBank*** or ***Gaza*** as well as an option to switch between branchs "***Literary*** or ***Science***". According to the previouse selction the following functions will operate in the specfic selected data above:

1. An option to insert new Tawjihi record into the List **sorted**. (You chose the sorted record field(s) [*seat number, branch, and/or average*] that best and easy to proceed with other requirements down)
2. An option to delete a Tawjihi record from the List using the seat number.
3. An option to search for a specific Tawjihi record using a seat number.
4. An option to display the top 10 students according to the grade (you may need to consider the repetitive grades العلامات المكررة)
5. An option to calculate and display the mean (average)[1]
6. An option to calculate and display the mode average (the most common average in a data set)[2]
7. An option to return the number and percentage of students whom grade above or equal a specific grade.

You have to study the time complexity of each function (above) and be ready to explain it during the discussion.

Good Luck!

[1] https://www.mathsisfun.com/mean.html
[2] https://www.mathsisfun.com/mode.html