Al-Aqsa University
Faculty of Computing and IT
Information and Computer Science Dep.

First Semester 2022-2023
Data Structure-practical
Instructor: Sara Al-Zamly

Final Project - Data Structure

The project is intended to use Data Structures and Algorithms concept clearly.

1. Define the problem you want to solve (Student Management, Hospitals, banks, Airports, Supermarket, Library Management System, Pharmacy, Employee Record System, Restaurant and others)
2. Analyze the problem and you need to consider following the necessary steps while developing the solution.
    - ❖ Use the 2 linked list (you can used linear, circular or double linked list)

Library management system as example:

- The student object will be entered by the user and stored in a linked list (All student have name, address, grades, Sid and age).
- The book object will be entered by the user and stored in a linked list (All book have name, Bid, Pages and category).
- The user interface will be a menu(Each one has submenu) having the following options:
    1. Add
        a. student object in linked list1
        b. book object in linked list2
    2. search
        a. student with binary search
        b. book with liner search
    3. update
        a. student with Sid
        b. book with Bid

4. delete
    a. Delete the student from linked list1 and add it to the stack
    b. Revert the deletion(add the element at the end of Linked list)
5. Reports
    a. *show all students*
    b. *show all books*
    c. *Show students who are older than 20*
    d. Sort the students based on their grades in ascending order(*bubble sort*)
6. exit

- All actions (add, delete, update) on student information must be saved in a txt file called student file And read all values from it
- All actions (add, delete, update) on book information must be saved in a txt file called book file And read all values from it

Important Notes:

- Deadline is before 11:59 PM on 10/1/2022
- There will be a discussion for the project
- Teamwork maximum 3 students
- PowerPoint summarized your project
- The total mark for this project is 20.
- Project discussion is individual
- If there is any match between the projects, both will take a zero mark in the project
- Submit the code (zip file) and PowerPoint file on the model

Good Luck