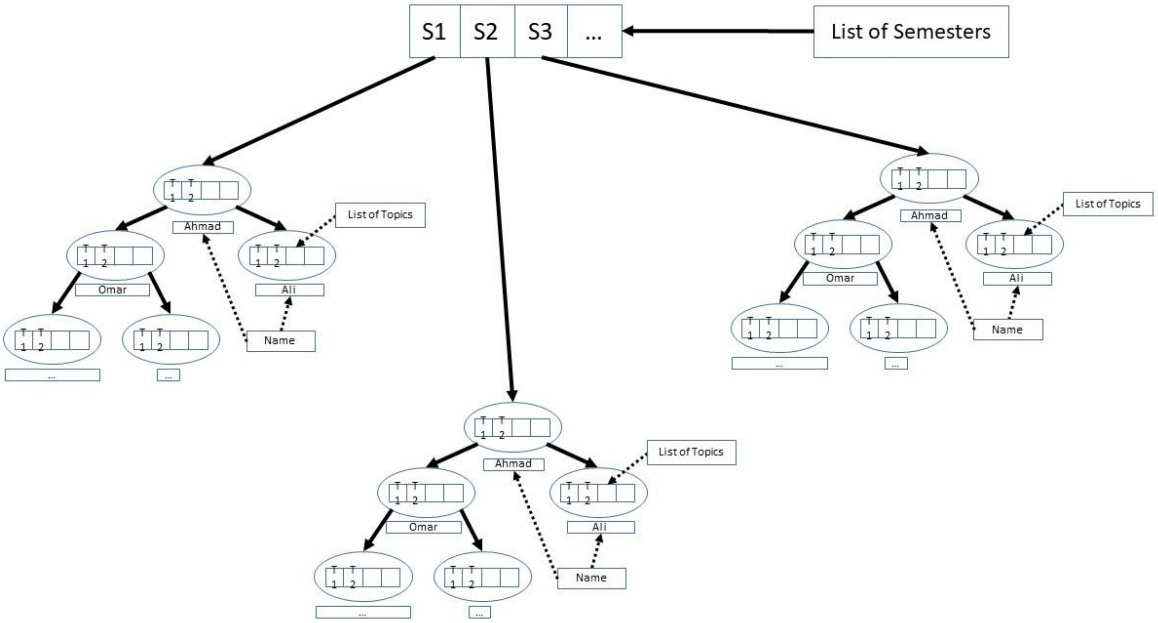
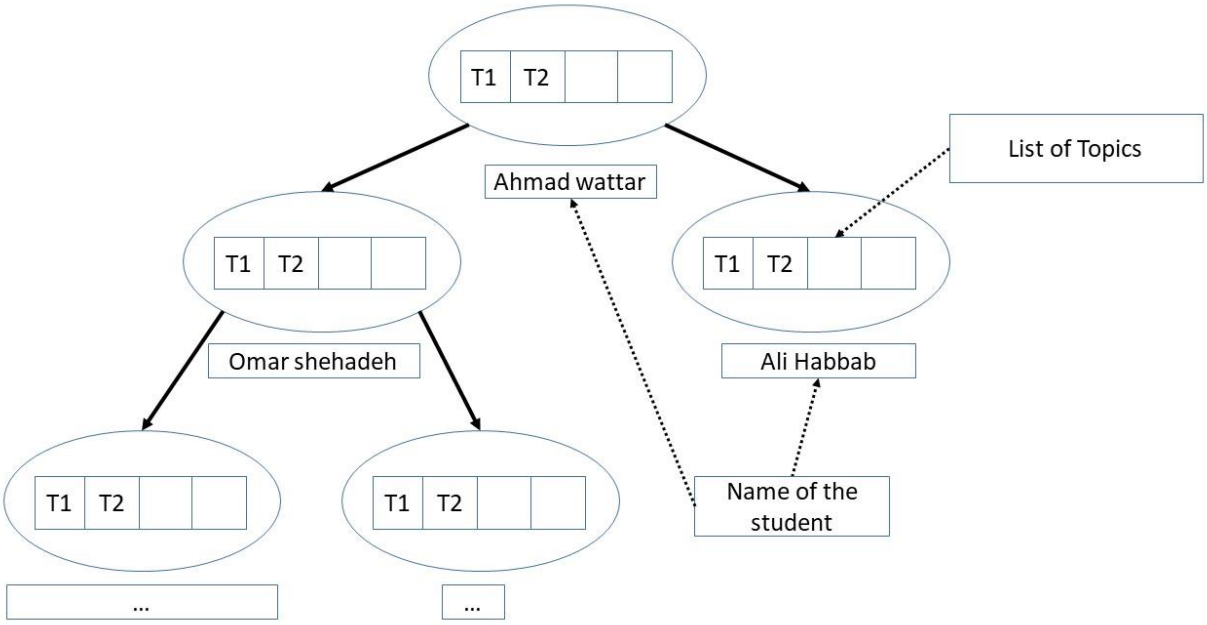
Arab International University

ADSL (Project)!

Description

Look at the structure below:





You are asked to build a data structure to store university data related to students, subjects and semesters:

- S1,S2… represent semesters, each semester has: Name, period in days, total_number_of_students
- Each BST node represents a students, a student has: name, id, age, gender, list of topics
- T1, T2… are Topics learned, each topic has: Name, importance (int between 1 and 10), Subject that teaches this topics,

In other words: you have a linked list of semesters, each semester has a binary search tree representing its students and each student has a linked list of topics he learned.

To do: Create the data structure and write methods to:

- Add new topic to a given student in a specific semester
- Show all topics that have importance lower than a given number
- Given a student name, detect topics that have appeared more than once in all semesters where he exist and return a list of them along with an integer indicating how many times they have appeared.
- Given a semester name, find all students that have an age higher that input number.
- Given a student name, delete all appearances of this student in your data structure

Assignment Details

Type of work: teams of 3 students.
Delivery on Saturday 03/01/2021 including discussion
Grade: 13 marks.

Best Regards

Mhd Tarek Almalek