Project #1

Create a program to manage the database of faculty of engineering students and staff members. Each student should be represented by name, code, department, and year. The staff member should be represented by name, title, and department.

The tables below show the values that each variable can have.

Title
Demonstrator
Teaching Assistant
Teacher
Assistant professor
Professor

Year
Freshmen
Sophomore
Junior
Senior I
Senior II

Department
Structure
Irrigation and hydraulics
Public works
Architecture
Urban Design and Planning
Power and Electrical Machines
Electronics and Electrical Communication
Computer and Systems
Mechatronics
Mechanical Power
Automotive
Design and Production

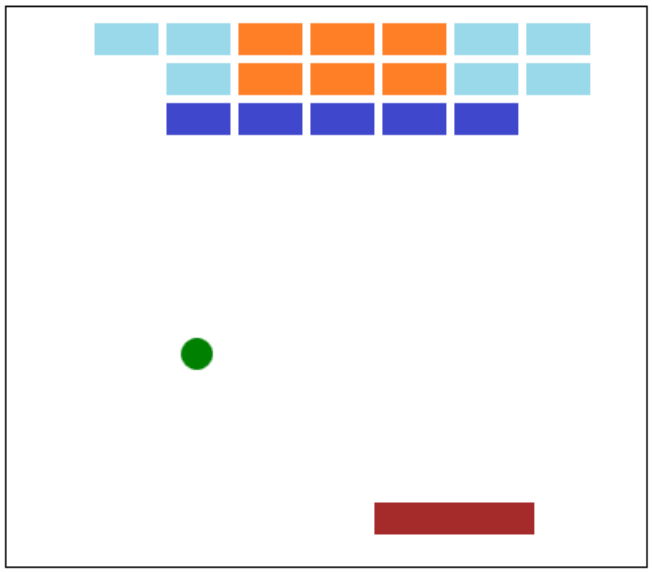
The program should be able to do the following:

- **Load:** Load the database from csv file.
- **Add:** Add new student or staff member.
    - The program should make sure that all the elements are filled **correctly** according to the variables' possible values.
    - A **unique** student code should be automatically generated for each added student according to his/her information.
- **Remove:** Remove student or staff member from the database.
- **Search:** Search for existing student or staff member
    - For staff member, the search should be by name (Full or part of it). Program should be able to find multiple records that relate to the requested search.
    - For students, the user should be able to search using name (as described above) or by student's code.
- **Modify:** Modify an existing information for student or staff member.
- **Save:** User should be asked if he/she wants to save the changes made in the database. The database should be saved in csv file.

The program **MUST** be implemented in object-oriented paradigm.

Project #2

Implement Block-Breaking game as shown in the figure below.



- The game should include at least 5 different levels with increasing difficulty (Different blocks formation, increasing number of hits to break the block).
- The player should be able to resume the game from the level it was closed at or to start a new game.
- Player scored by breaking blocks should be calculated and displayed at the top of the screen.
- The highest score achieved should be displayed at the beginning of the game.

Bonus: Bonus boxes that drop occasionally, if the player catches, the number of existing balls is doubled.

The program **MUST** be implemented in object-oriented paradigm.
A discussion will be held to discuss the code of your game.

Project submission (For both projects)

Working in the project should be **in groups up to two**, which should submit **a compressed file** containing the following deliverables:

1. Source code files. (Project folder)
2. In case of a group submission: A text file which contains the contribution of each member of the group (What did each member do?).
3. You should prepare a demo for discussion.
4. A report in one PDF file containing:
    a. Flow charts of the main flow of the program.
    b. Screenshots of the program while running.

Project deadline is: 4th of February, 11:59 PM. Submission link

Discussion of selected groups will be on 7th of February