

Deadline: 27.3.2025 22h00**Format: Ex01_MSSV_HoTen.ipynb / Ex02_MSSV_HoTen.ipynb**

Exercise 1: Student Management System

Implement a linked list structure to manage student records with the following requirements:

1. Create a student record structure containing:
 - Student ID
 - Name
 - Major
 - GPA
2. Implement the following functions:
 - Create an empty linked list to store student records
 - Add a new student to the beginning of the list
 - Add a new student to the end of the list
 - Add a new student after a specific student (by ID)
 - Display all students in the system
 - Find a student by ID
 - Update a student's information (name, major, GPA)
 - Remove a student from the beginning of the list
 - Remove a student from the end of the list
 - Remove a specific student (by ID)
 - Sort students by GPA (ascending and descending)
 - Find students with the highest and lowest GPAs
 - Generate a report showing how many students are enrolled in each major
 - Save all student data to a file
 - Load student data from a file
 - Check if the list is empty
 - Get the total number of students in the list

Exercise 2: Course Registration System

Implement a linked list structure to manage course registrations with the following requirements:

1. Create a course record structure containing:
 - Course code
 - Title
 - Credits
 - Instructor name
 - Maximum enrollment capacity
 - Current enrollment count
 - A linked list of enrolled student IDs
2. Implement the following functions:
 - Create an empty linked list to store course records
 - Add a new course to the beginning of the list
 - Add a new course to the end of the list
 - Add a new course after a specific course (by code)
 - Display all courses in the system
 - Find a course by code
 - Update a course's information (title, credits, instructor, capacity)
 - Remove a course from the beginning of the list
 - Remove a course from the end of the list
 - Remove a specific course (by code)
 - Register a student for a course (add student ID to the course's student list)
 - Drop a student from a course (remove student ID from the course's student list)
 - List all students enrolled in a specific course
 - Calculate and display enrollment statistics (courses with highest/lowest enrollment)
 - Sort courses by enrollment count or alphabetically by title
 - Save all course data to a file

- Load course data from a file
- Check if the list is empty
- Get the total number of courses in the list