Semester Project (OOP SE 2024)

Deadline: 30-April-2024 Target CLO: 5, 6

Objective:

The purpose of this database project is for students to design and implement a student database using Aggregation, composition, association, and all concepts learned in the class. The student database project aimed to streamline academic operations by integrating various entities such as students, courses, faculty, departments, assignments, grades, clubs, library resources, attendance, events, projects, and feedback within a cohesive system.

Assignment Details:

- Provide a Class diagram on one page showing the relationship between classes.
- You must implement all types of constructors, Destructors, Getters, and Setters in each following class of Banking System.
- Feel free to implement your version of the class relationship if you feel that you have logical reasons in support of your design.

1. Student Information:

- Students are required to provide their details including name, email, and phone number for enrollment purposes.
- Each student will be assigned a unique student ID for identification within the system.

2. Course Enrollment:

- Students are required to enroll in courses offered for the semester.
- The list of available courses includes the course ID, name, credits, and instructor details.
- Students can enroll in multiple courses based on their academic requirements and interests.

3. Faculty Assignment:

- Faculty members are assigned to teach specific courses for the semester.
- Faculty details including name, email, and phone number are provided for communication purposes.
- Each course is associated with a faculty member who will conduct lectures, assignments, and exams.

4. Department Information:

- Departments offering courses for the semester are listed along with their department ID, name, and head of department details.
- Departments provide the infrastructure and support necessary for conducting courses effectively.

5. Student-Course Relationships:

- Each student is associated with the courses they have enrolled in.
- The relationship between students and courses is maintained to track academic progress and performance.

6. Grade Management:

- Grades for assignments, exams, and overall course performance are managed throughout the semester.
- Each assignment/exam is associated with a course and contributes to the overall grade of the student in that course.

7. Extracurricular Activities:

- Students have the option to join clubs and participate in extracurricular activities.
- Clubs are listed along with their club ID, name, and description.
- Students can join multiple clubs based on their interests and hobbies.

8. Enrollment Management:

- Enrollment records are maintained to track student-course relationships and ensure accurate academic records.
- Each enrollment record includes the student ID, course ID, and enrollment date.

9. Assignment/Exam Management:

- Assignments and exams are integral parts of the courses offered during the semester.
- Each assignment/exam is associated with a course and contributes to the overall assessment of the students.
- Assignment details include the assignment ID, course ID, due date, and description.

10. Grade Management:

- Grades for assignments, exams, and overall course performance are managed throughout the semester.
- Each grade is associated with a student, course, and specific assignment/exam.
- The grade class includes attributes such as grade ID, student ID, course ID, and grade achieved.

11. Faculty Course Allocation:

- Faculty members are allocated to teach specific courses based on their expertise and availability.
- Each faculty member is associated with the courses they are responsible for teaching during the semester.
- The faculty course allocation class includes attributes such as faculty ID, course ID, and semester.

12. Library Resources:

- Library resources such as books, journals, and online databases support the academic curriculum.
- Students have access to library resources to aid their learning and research activities.
- The library class includes attributes such as resource ID, title, author, and availability status.

13. Attendance Management:

- Attendance records are maintained to track student attendance in lectures, labs, and tutorials.
- Attendance is recorded for each session and contributes to the overall assessment of students' participation.
- The attendance class includes attributes such as attendance ID, student ID, session ID, and attendance status.

14. Event Management:

- Events such as seminars, workshops, and conferences are organized to enhance students' academic and professional development.
- Event details include the event ID, title, description, date, and venue.
- Students can participate in various events to broaden their knowledge and network with peers and professionals.

15. Project/Research Management:

- Students have the opportunity to engage in projects or research activities under the supervision of faculty members.
- Project/research details include the project ID, title, description, student(s) involved, and faculty supervisor.
- Projects/research activities contribute to students' practical learning and academic growth.

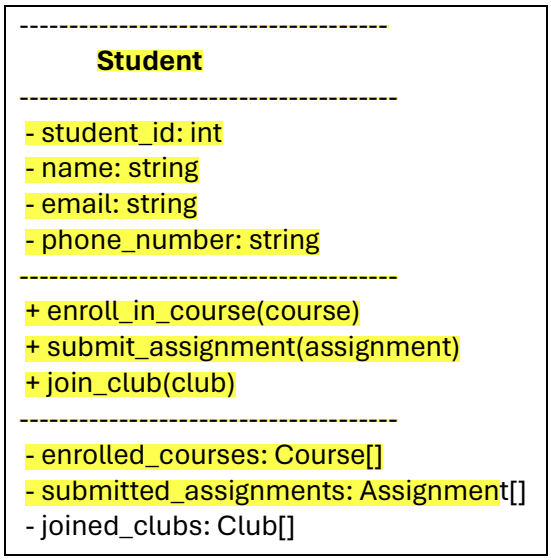
16. Feedback Management:

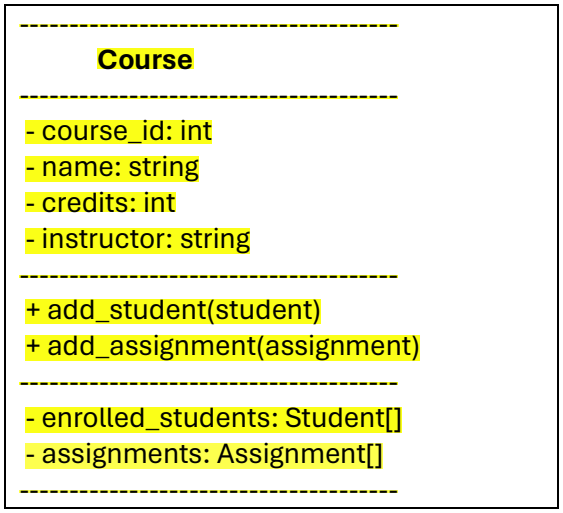
- Feedback from students regarding courses, faculty, and overall learning experience is collected and analyzed.
- Feedback helps identify areas for improvement and enhances the quality of education provided.
- Feedback class includes attributes such as feedback ID, student ID, course ID, feedback content, and rating.

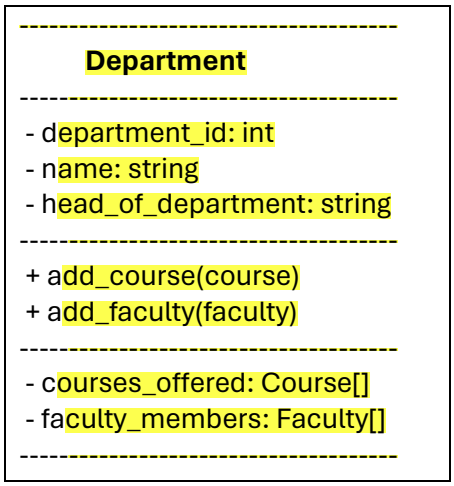
Benefits:

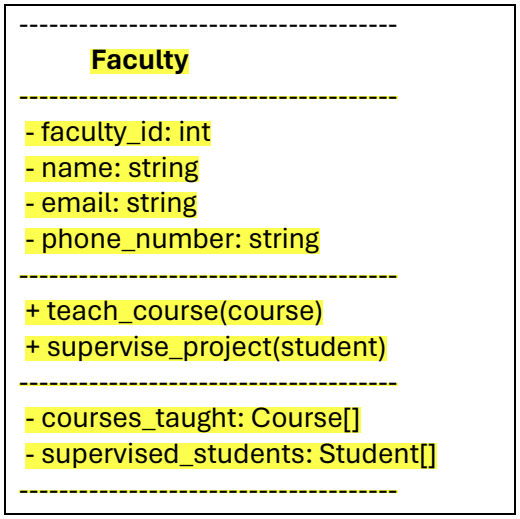
- Facilitates efficient course enrollment for students.
- Provides a structured framework for faculty to manage courses.

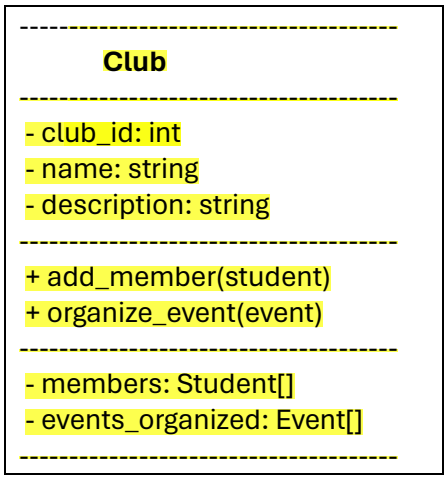
- Ensures effective communication between students, faculty, and departments.
- Facilitates tracking of academic progress and performance throughout the semester.

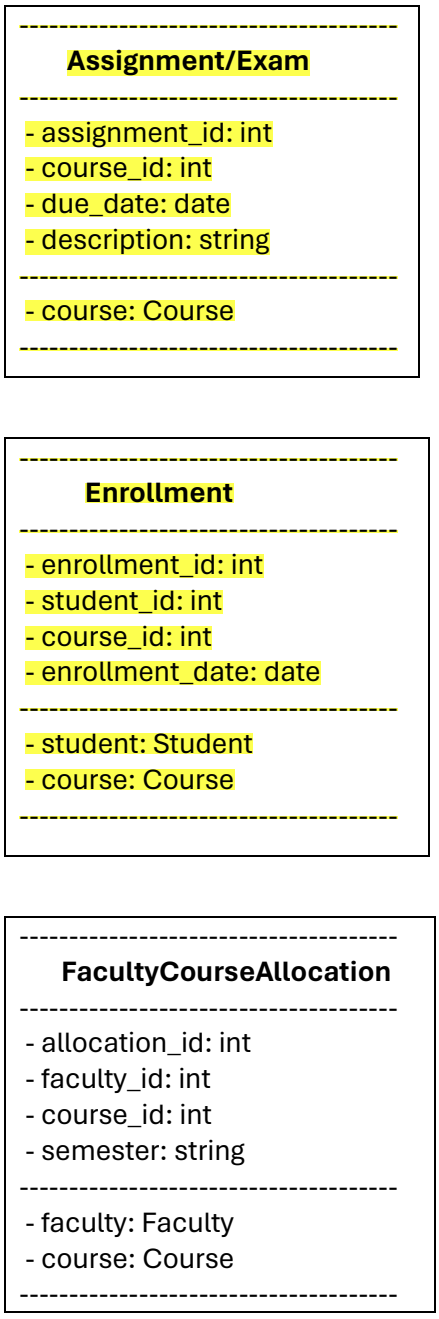


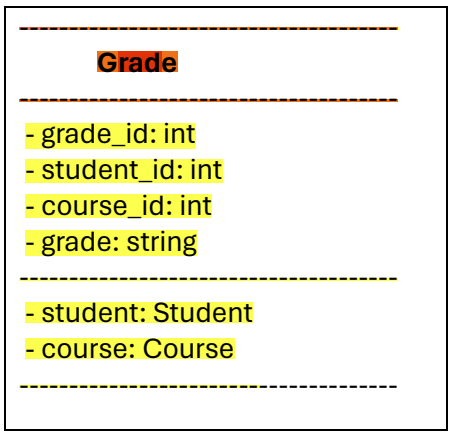


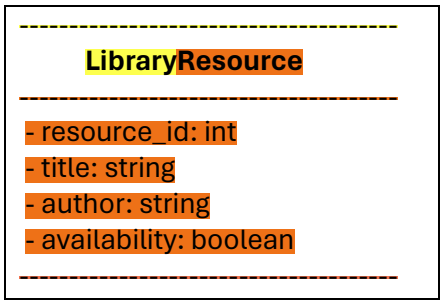


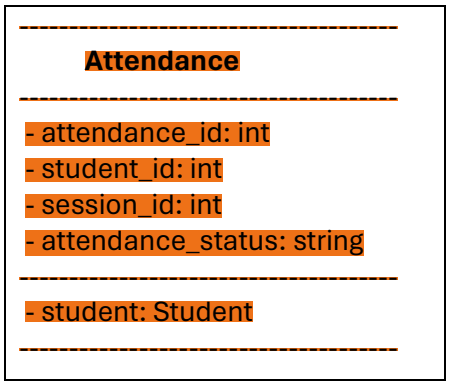


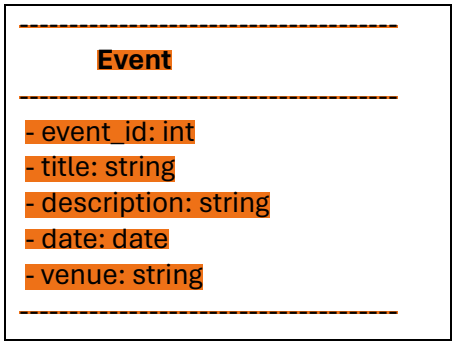


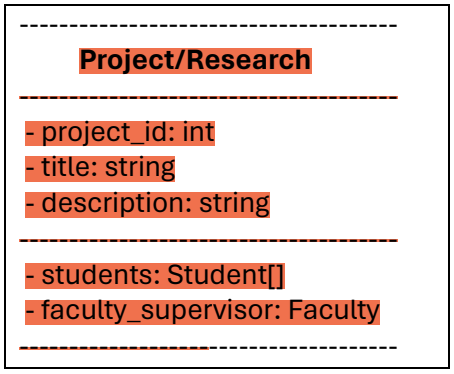

Assignment/Exam
- assignment_id: int
- course_id: int
- due_date: date
- description: string
- course: Course
Enrollment
- enrollment_id: int
- student_id: int
- course_id: int
- enrollment_date: date
- student: Student
- course: Course
FacultyCourseAllocation
- allocation_id: int
- faculty_id: int
- course_id: int
- semester: string
- faculty: Faculty
- course: Course

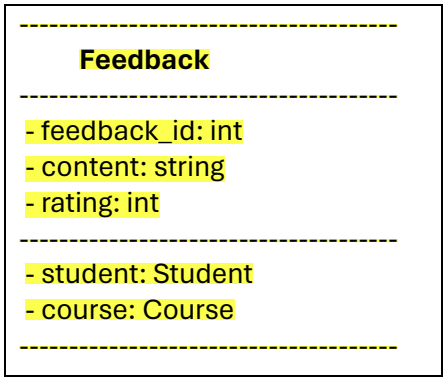

Grade
- grade_id: int
- student_id: int
- course_id: int
- grade: string
- student: Student
- course: Course


LibraryResource
- resource_id: int
- title: string
- author: string
- availability: boolean


Attendance
- attendance_id: int
- student_id: int
- session_id: int
- attendance_status: string
- student: Student


Event
- event_id: int
- title: string
- description: string
- date: date
- venue: string


Project/Research
- project_id: int
- title: string
- description: string
- students: Student[]
- faculty_supervisor: Faculty


Feedback
- feedback_id: int
- content: string
- rating: int
- student: Student
- course: Course