

Programming II

Lab 6

SkillForge UML Design

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Group 4 Section 2

1. Use Case Diagram



The Use Case Diagram shows how students, instructors, and administrators interact with the SkillForge platform. It outlines the main actions each type of user can perform, such as enrolling in courses, creating content, or managing users. This diagram is important because it gives a clear overview of the system's functionality and helps define what each user can do within the platform.

Use Case Descriptions:

- Student Use Cases:

- Browse Courses:** The student views the list of all available courses on the platform and their descriptions.
- Enroll in Course:** The student registers for a chosen course to start learning.
- View Lessons:** The student accesses lesson materials and resources within an enrolled course.
- Take Quiz:** The student answers multiple quiz questions to evaluate their understanding.
- Earn Certificate:** After completing all lessons and passing all quizzes, the system generates and stores a completion certificate.
- View Analytics:** The student checks their learning statistics such as completed courses, quiz grades, and time spent.

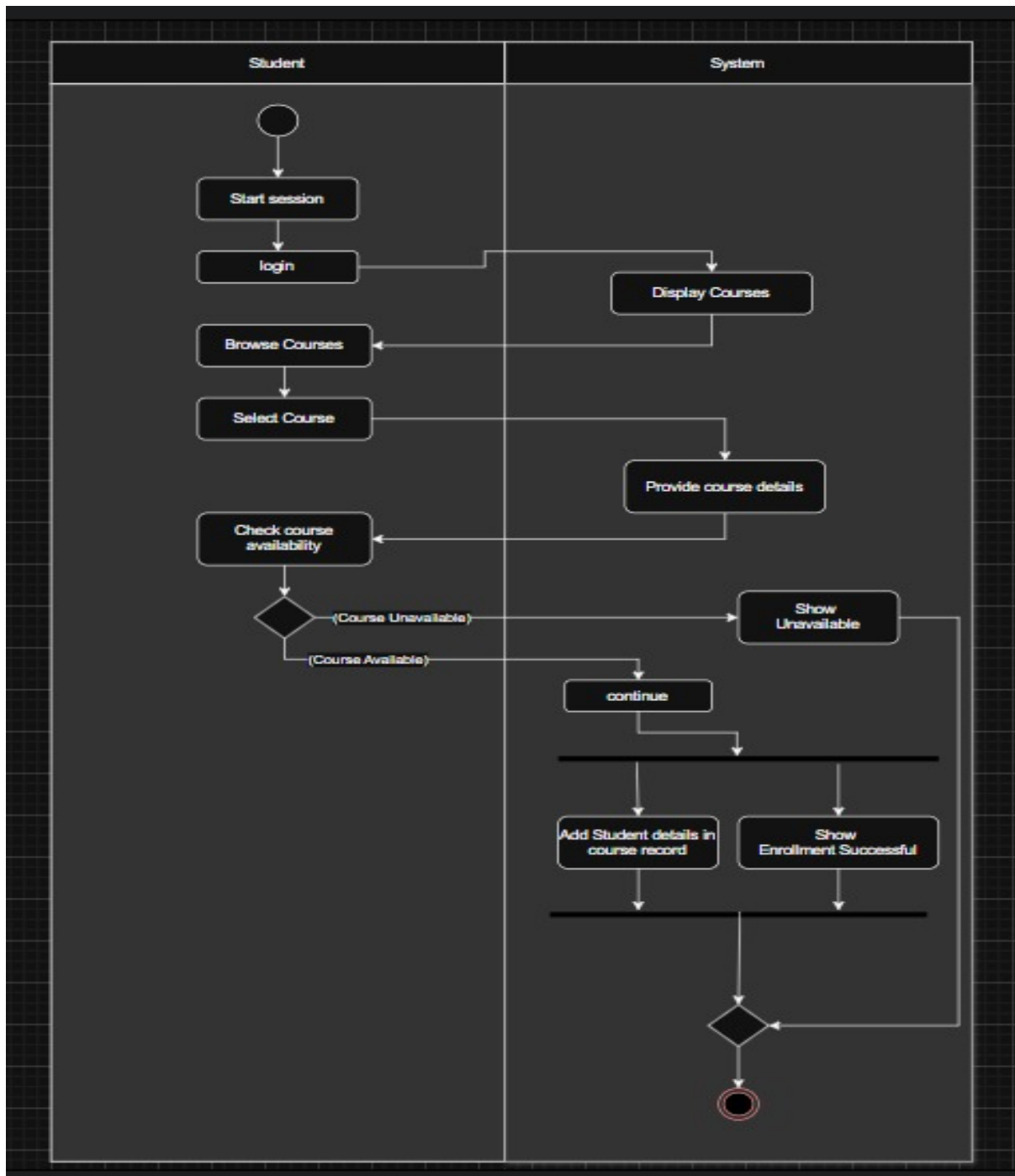
- Instructor Use Cases:

- Create Course:** The instructor designs a new course with details such as title and description.
- Manage Course Content:** The instructor edits course information and uploads resources to their courses.
- Upload Lesson:** The instructor adds a new lesson to an existing course.
- Create Quiz:** The instructor prepares quizzes and adds questions to assess students.
- View Analytics:** The instructor checks reports and analytics to evaluate how well students perform in their courses.

- Admin Use Cases:

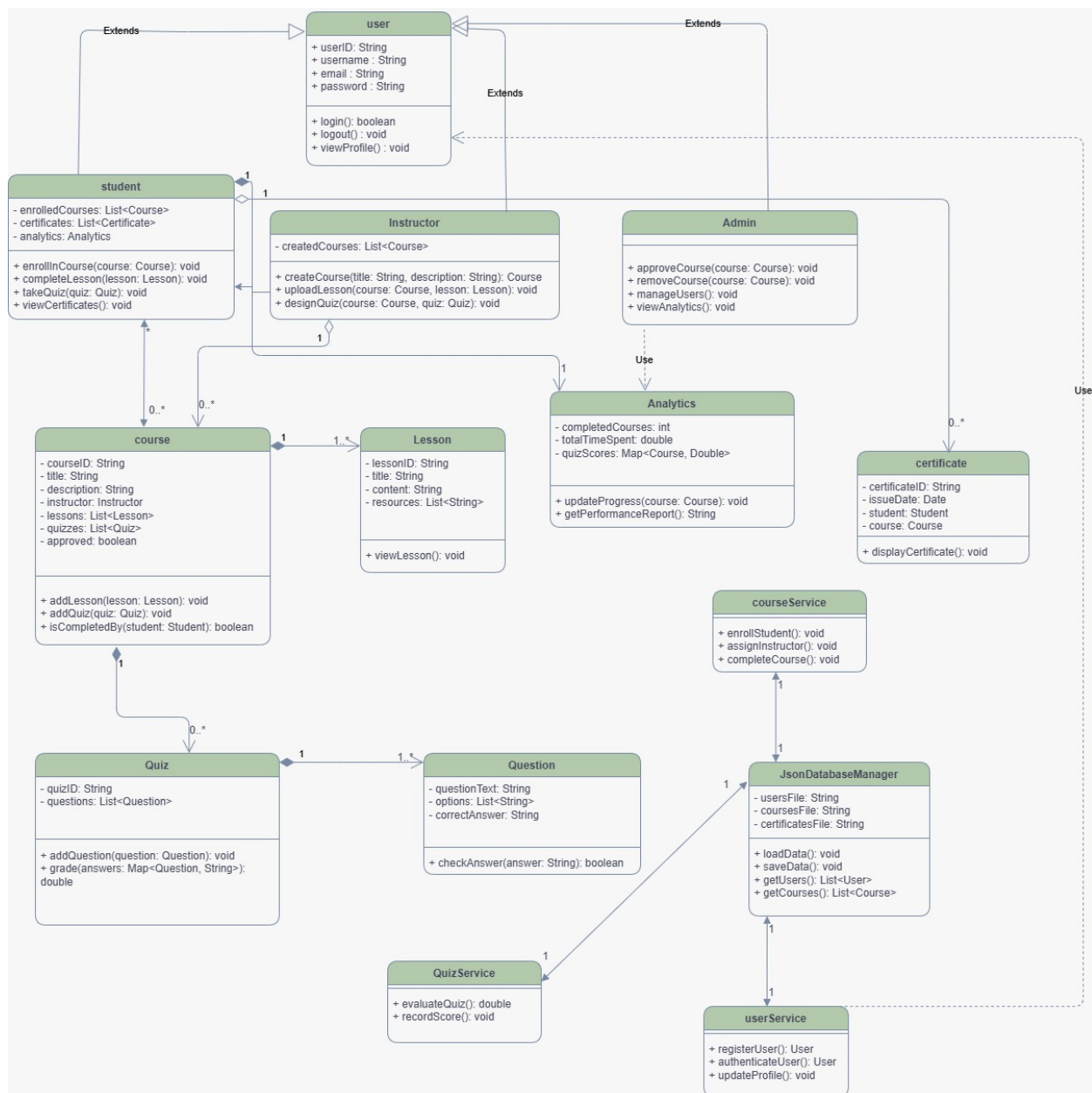
- Manage Users:** The admin can view, add, edit, or remove users(students and instructors).
- Approve or Remove Courses:** The admin reviews new courses and either approves them or removes the ones not following the correct guidelines.
- Monitor Analytics:** The admin checks system-wide data like user activity, course statistics, and platform performance.

2. Activity Diagram



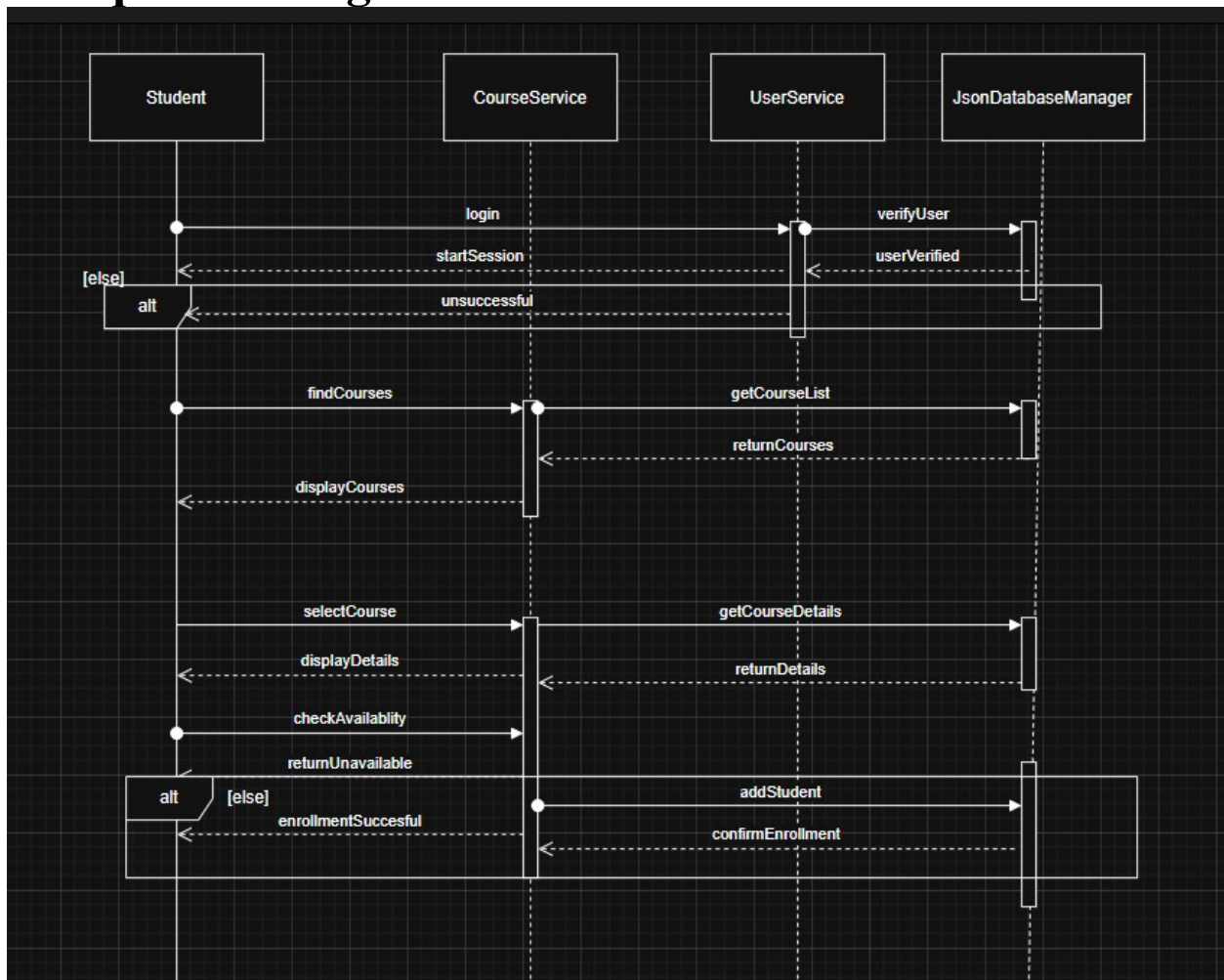
This is an Activity diagram that shows how a student enrolls in a course using the system to log in, browse and select a course, check its availability, and enroll if the course is available.

3. Class Diagram



The class diagram shows the main parts of the SkillForge system and how they are connected. It includes users, courses, lessons, quizzes, and services that manage data through the database manager. This helps explain how the system is structured and how different components work together.

4. Sequence Diagram



The sequence diagram shows how the Student interacts with system components to enroll in a course. It illustrates the main phases, login, browsing, and enrollment, while showing message exchanges between UserService, CourseService, and JsonDatabaseManager.