



Model Driven Software Engineering
COEN-6312

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University Management System
Deliverable 4 (State Machines)

Team: Hungry for Troubles

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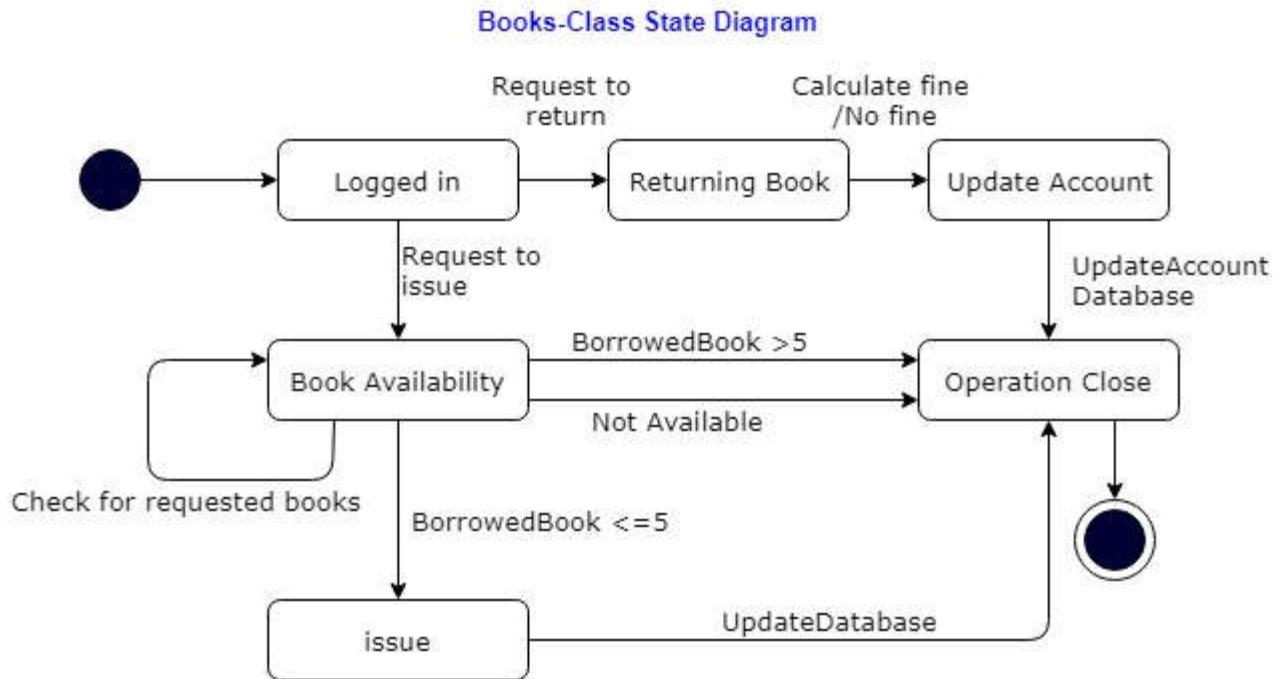
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1. State Diagram, Description and Action Specification

1. Book Class



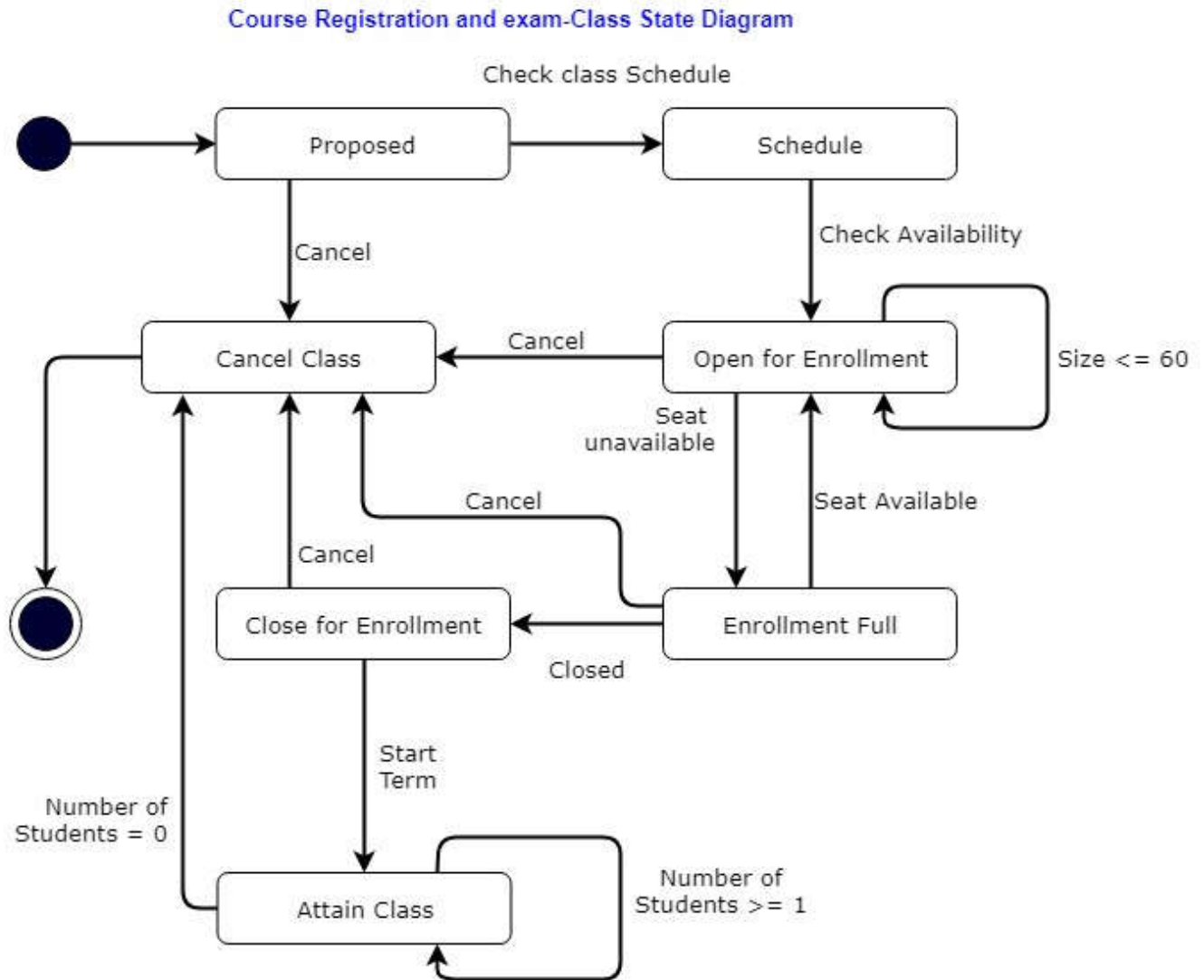
Description:

It represents the flow that a user will take to borrow a book. When the user requests to get a book issued, then book availability is checked. If the book is not available, then the operation is closed. Also, if the user wants to return the book, the system calculated any overdue. The account of the user is updated, and operation is closed. Here the database is updated side by side.

Operations and Action Specifications:

Operation	Action Specification
Calculate Fine	The number of overdue days is calculated and multiplied by the fine per day.
Borrow books (more than limit)	The message will have displayed to indicate that limit has been reached.
Book Issued	Receipt is generated indicating the date of issue and date of return along with book code.

2. Course Registration and Exam Class



Description:

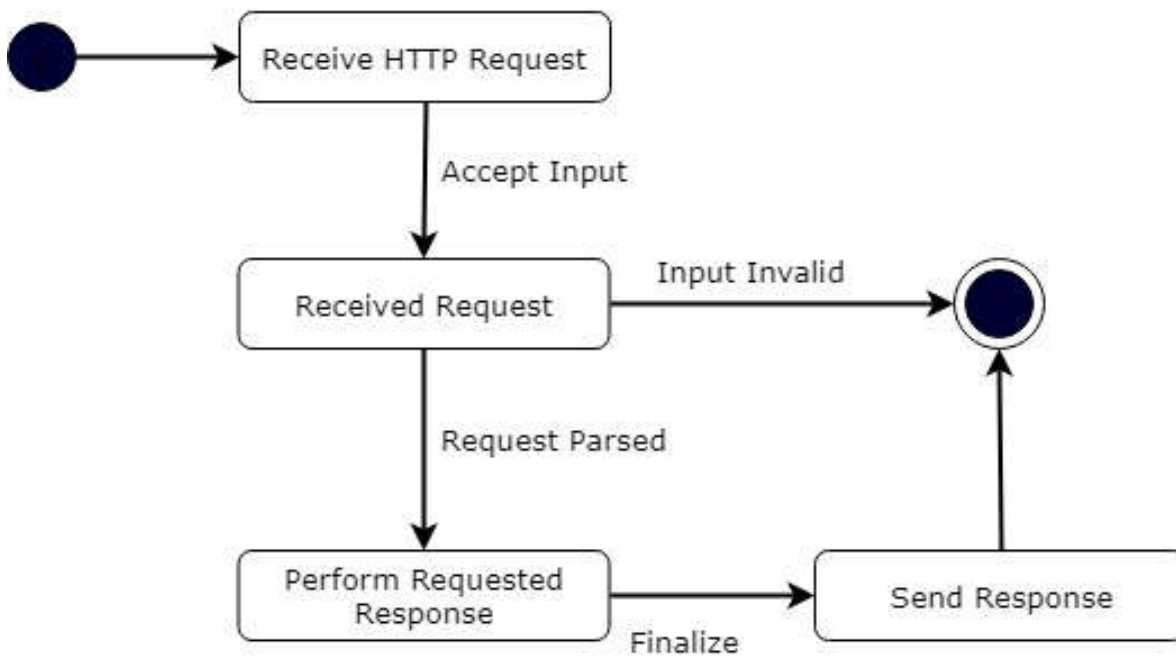
This state diagram represents that when the proposed courses and their respective schedules are out, students can enroll for the same. After the course enrolment process the class begins. Also, there are certain conditions applied on some of the states.

Operation and Action Specifications:

Operation	Action Specification
Check class schedule	Student can check the schedule of the course offered
Check Availability	Availability of the course is checked. The course is not available in case the number of the students enrolled exceeds 60 or if no one enrolls
Seat Available	Student can enroll
Seat unavailable	Student cannot enroll

3. Database Class

Database-Class State Diagram



Description:

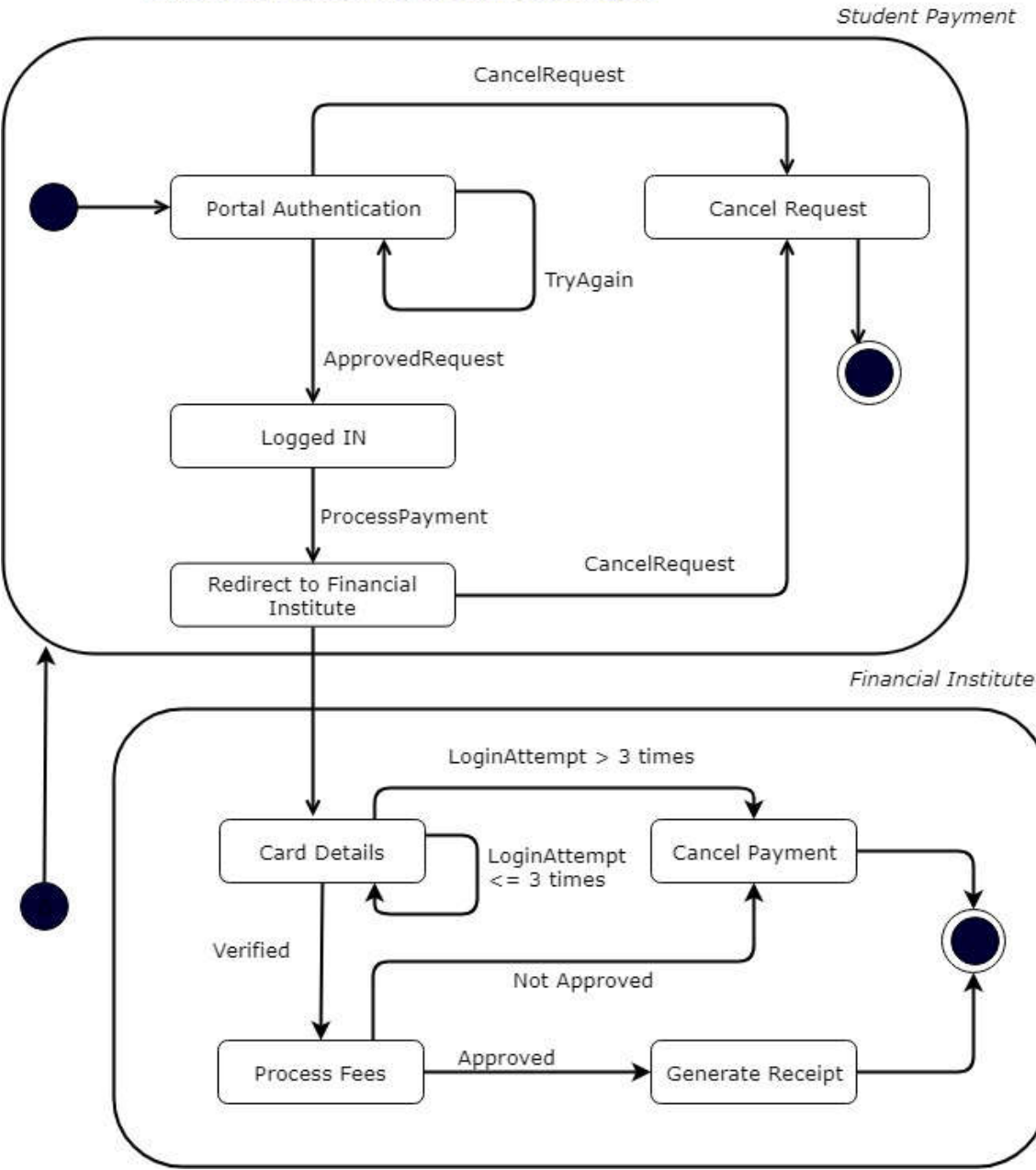
The database receives the HTTP request, the request is parsed, and the desired action is performed for the requested response until the operation is completed; and the final result is stored in the system.

Operation and Action Specifications:

Operation	Action Specification
Request Parsed	The Database is updated
Input is Accepted	The input is analyzed to check for validity

4. Payment and Financial Institute Class

Payment and Financial Institute Class State Diagram



Description:

The student logs in to the university website using the username and the password. If the request is approved, then the student selects the payment link under the finance account. That redirects to the financial website where the student chooses the payment mode (visa, debit) and enters the card details and submits the payment. If the payment is processed a receipt is generated.

Operation and Action Specifications:

Operation	Action Specification
CancelRequest	The request is cancelled when user is not authenticated or when exceptional transmission error occurs
ApprovedRequest	The user is authenticated
ProcessPayment	Payment process is commenced which directs the user to the financial website
LoginAttempt	The card details are asked, and maximum three attempts are allowed
Verified	Student pays fee successfully
Approved	Receipt is generated
Not Approved	Exceptional Transmission error

4. Contribution Table

	State Diagram	Brief Description	Operation and Specification
Hem Raj Regmi	√	Report Preparation	Payment, Enrollment
Bitta Rani Rana	√	Payment, Database	Payment, Enrollment
Aeisha Vyas	√	Books, Enrollment	Payment, Enrollment
Manjot Kaur Grewal	√	Books, Database, Payment	Books, Database
Harmanpreet Kaur Rajput	√	Books, Database, Payment	Books, Database

GitHub: <https://github.com/sangamsyabil/COEN6312---College-Management-System>