BANNARI AMMAN INSTITUTE OF TECHNOLOGY
An Autonomous Institution Affiliated to Anna University - Chennai, Accredited by NAAC with A+ Grade
Sathyamangalam– 638401 , Erode District, Tamil Nadu, India

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Seat No: 277

Project ID: 37

Project title: SKILL PORTAL

Technical Components

Component	Tech Stack
Backend	NODE JS
Frontend	VUE JS
Database	Mongo DB
API	Rest API

***Express is used to connect Frontend , Backend and Database Connectivity.**

Implementation Timeline:

Phase	Deadline	Status	Notes
Stage 1	03/05/2024	In progress	Planning and Requirement gathering
Stage 2		Not started	Design and Prototyping
Stage 3		Not started	DB Designing
Stage 4		Not started	Backend Implementation
Stage 5		Not started	Testing & Implementation

Skill Training Portal Project Documentation (MEVN Stack)

1. Introduction

This document outlines the design and functionalities of the SKILL TRAINING PORTAL, a web application developed using the MEVN stack (MongoDB, Express.js, Vue.js, Node.js) to address the current inefficiencies in skill training registration and management at our college.

1.1 Problem Statement

Our college currently relies on a decentralized system for skill training management, primarily through email communication and Google Forms. This approach leads to several challenges:

- **Limited Accessibility:** Information about available skills and registration deadlines is scattered across various email threads.
- **Inefficient Registration:** Students lack real-time data on available slots for their desired skills, potentially leading to missed opportunities or second-choice selections.
- **Manual Attendance Tracking:** Faculty members mark attendance through Google Sheets, requiring manual distribution and increasing workload.
- **Limited Transparency:** Students have no centralized platform to access their attendance records and marks.
- **Resource Management Issues:** Skill administrators lack a dedicated tool to manage skill availability, venue allocation, and faculty assignments.

1.2 Proposed Solution

The Skill Training Portal aims to streamline the skill training process by providing a centralized platform with the following functionalities:

- **Transparent Skill Information:** Students can readily access a comprehensive list of offered skills, including detailed descriptions and pre-requisite requirements.
- **Seamless Registration:** Students can seamlessly register for their desired skills with real-time availability checks to ensure successful enrolment.
- **Automated Attendance Tracking:** Instructors can mark student attendance directly within the application, eliminating the need for manual spreadsheets.
- **Centralized Data Management:** Students can view their attendance records and marks (if applicable) in one place for easy reference.
- **Simplified Skill Management:** Administrators can efficiently manage skill availability, create and manage slots for each skill, assign venues, and allocate instructors.

2. System Design

2.1 Technology Stack

- **Frontend:** Vue.js (JavaScript framework) with HTML and CSS
- **Backend:** Node.js (JavaScript runtime environment) with Express.js (web framework)
- **Database:** MongoDB (NoSQL document database)
- **API:** REST full services for data communication between frontend and backend

2.2 User Roles and Access

The portal will have three user roles with distinct access levels:

- **Student:**
    - Login using their college email ID.
    - View a comprehensive list of available skills.
    - Register for desired skills with real-time availability checks.
    - View registered skills, daily tasks, and syllabus.
    - Access allocated venue information for each skill training session.
    - View attendance records and marks.
    - Provide feedback on instructors and skills training sessions.

- **Instructor:**
    - View a list of students registered for their assigned skills.
    - Access information on assigned venue and skill to be taught for each session.
    - Mark attendance for students during skill training sessions.
    - Award marks (out of 10) for student performance.
    - Upload skill training syllabus documents for student access.
    - Upload test materials (questions and answer keys) for skill assessment.
- **Skill Team Administrator:**
    - Manage available skills for student registration (add, edit, delete).
    - Define Day and Night Skill options based on program requirements.
    - Create and manage skill training slots, specifying skill, date, time, and venue.
    - Allocate venues and instructors for each skill training session.
    - View student attendance and marks for all skill training sessions.
    - Access and review student feedback on instructors and skills training.
    - Manage syllabus content and test materials for each skill.
    - Define criteria and point allocation rules for attendance and marks (reward points).
    - Monitor system performance and address any technical issues.
    - Implement user access control mechanisms to ensure data security.

3. Stages of Development

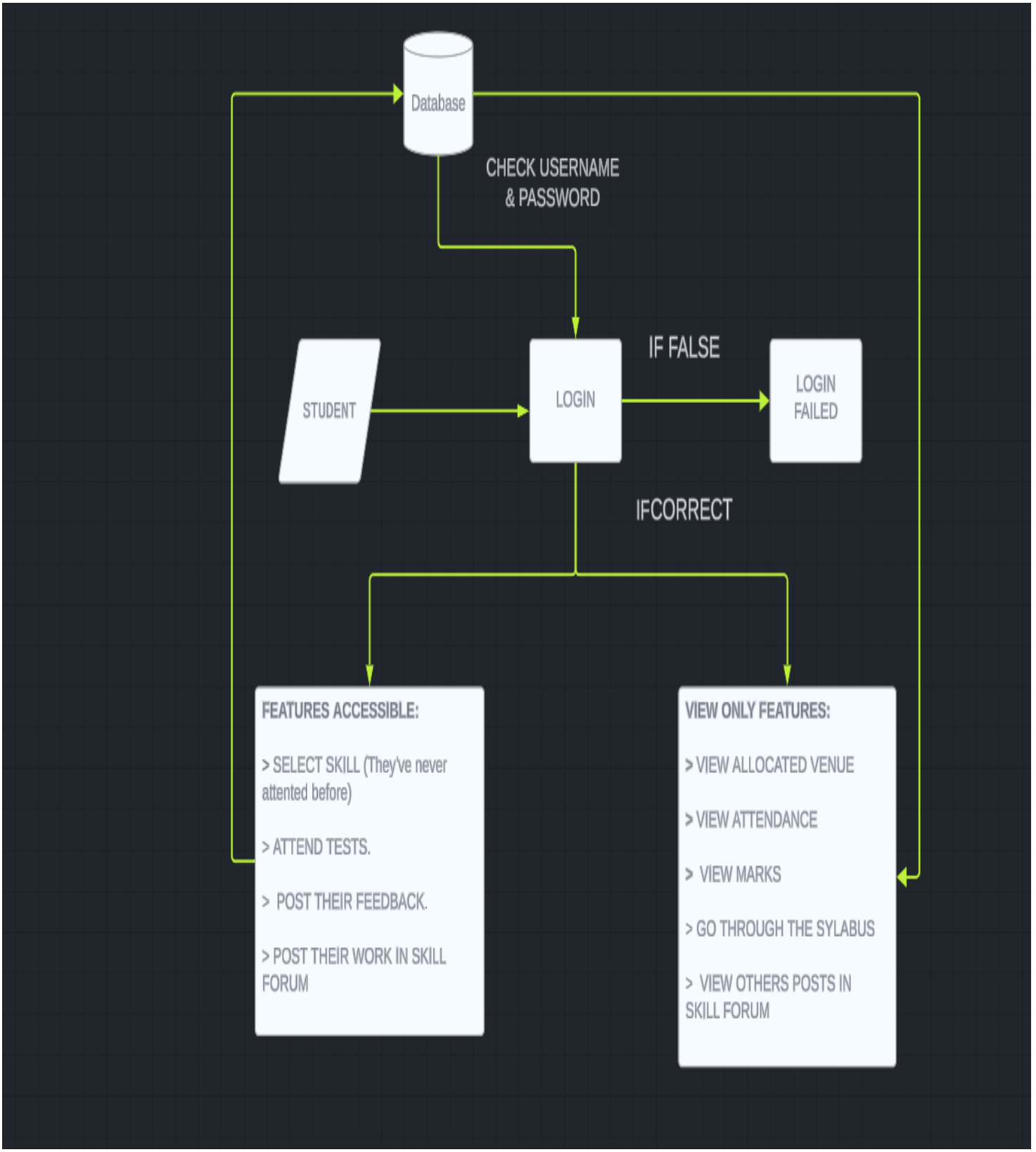
The development process will involve several stages:

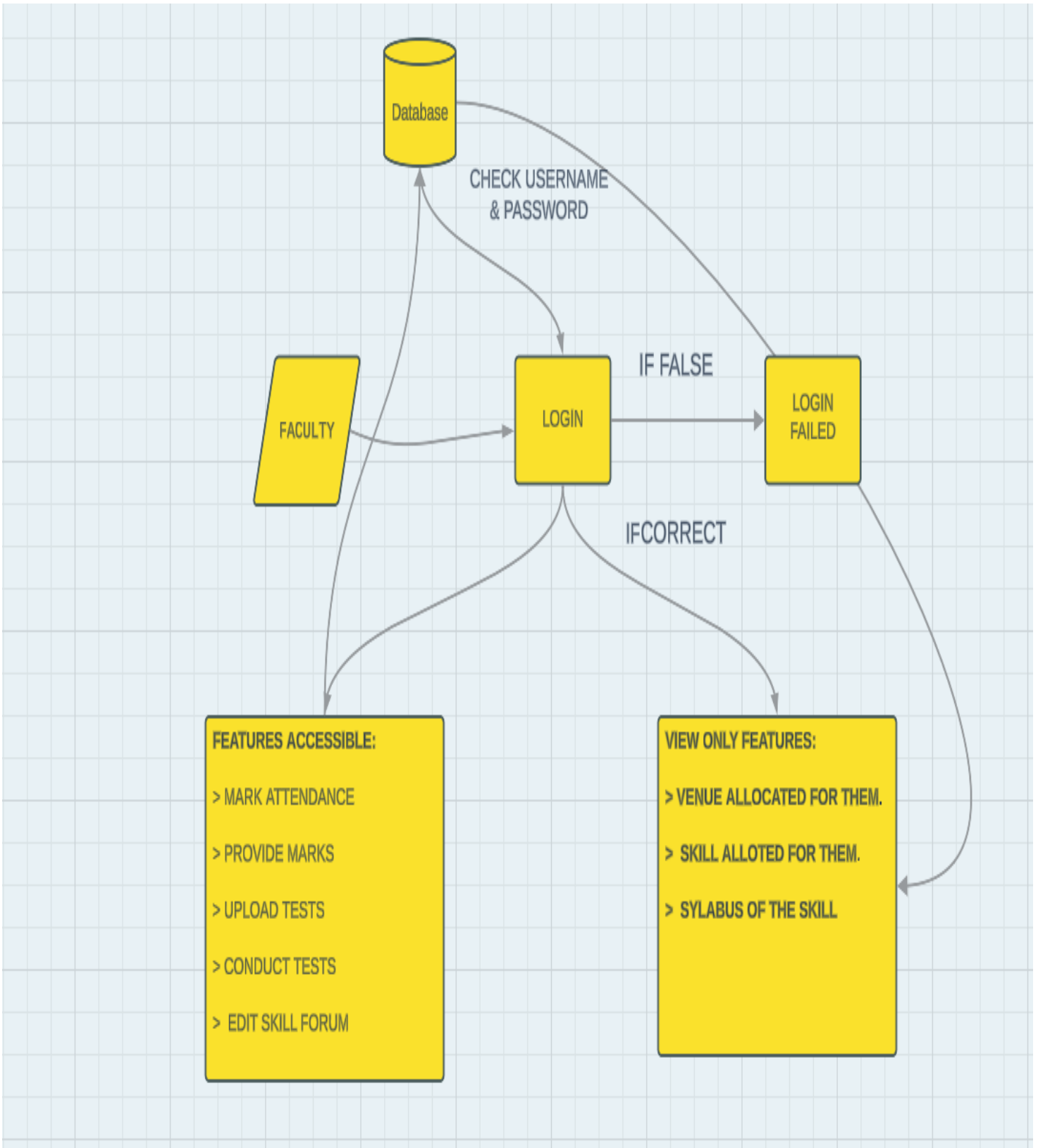
1. **Planning and Requirement Gathering**:
    - Define project goals, objectives, and scope.
    - Conduct stakeholder interviews to gather requirements and understand user needs.
    - Create a detailed project plan outlining timelines, milestones, and deliverables.
    - Identify key features, functionalities, and user roles based on requirements.
2. **Design and Prototyping**:

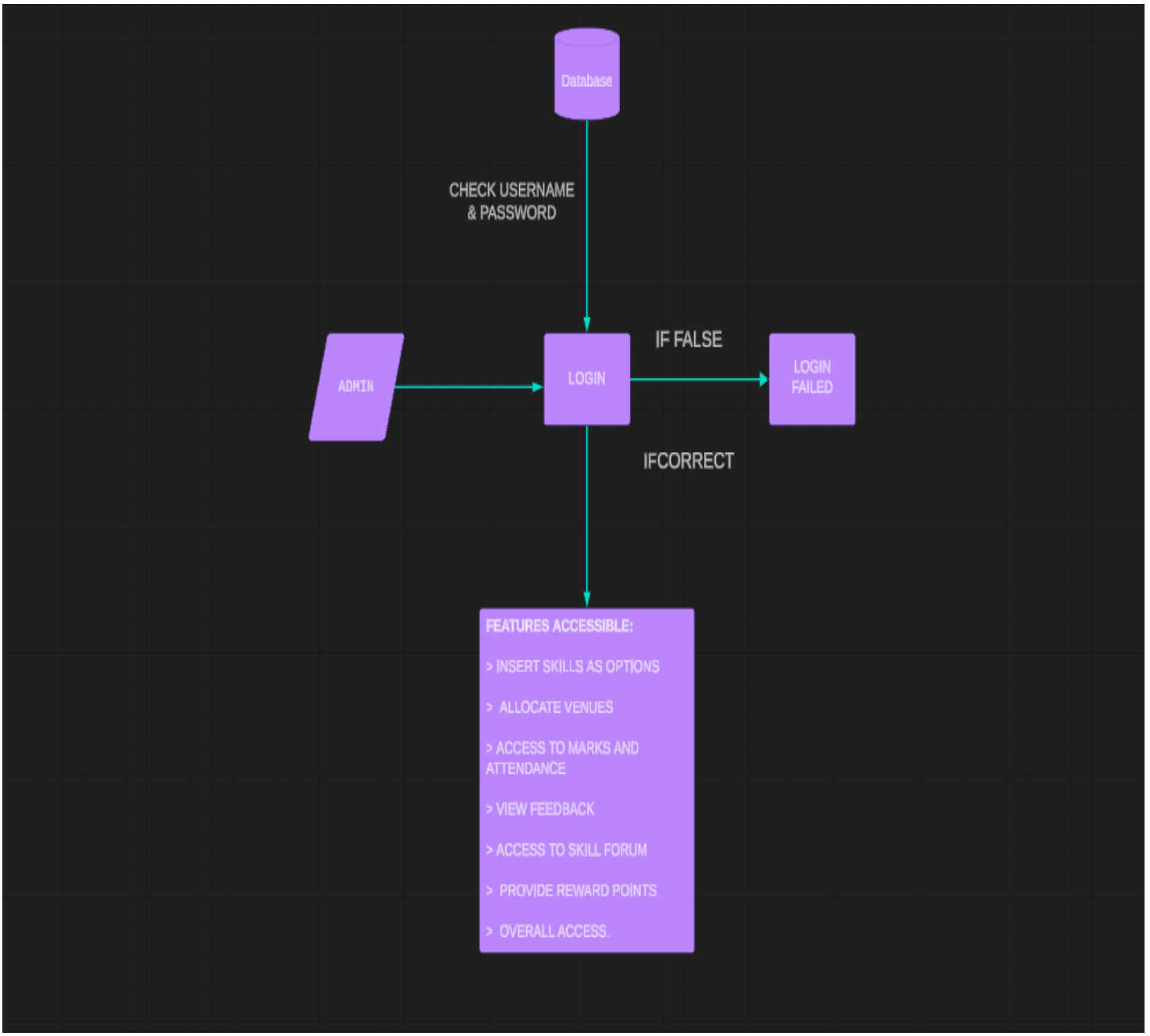
- Develop UI/UX mock ups and wireframes to visualize the application's layout and navigation.
- Design the user interface using design principles such as responsiveness, accessibility, and aesthetics.
- Review and refine prototypes based on feedback from stakeholders and usability testing.

3. **Database Design**:
    - Define the MongoDB database schema including collections, documents, and relationships.
    - Determine data storage requirements, indexing strategies, and data access patterns.
    - Optimize the database design for efficient data retrieval, storage, and scalability.
4. **Backend Development**:
    - Set up the Node.js environment and install necessary packages/modules.
    - Develop server-side logic using Express.js for routing, middleware, and API development.
    - Implement user authentication using JWT (JSON Web Tokens) for secure access control.
    - Create RESTful APIs for CRUD (Create, Read, Update, Delete) operations on skills, users, sessions, etc.
    - Integrate the backend with the MongoDB database for data storage and retrieval.
5. **Frontend Development**:
    - Initialize a Vue.js project structure and configure necessary plugins/libraries.
    - Develop frontend components, views, and layouts using Vue.js, HTML, and CSS.
    - Implement state management using Vuex for managing application-wide state and data.
    - Ensure responsiveness and cross-browser compatibility for a seamless user experience.
    - Integrate frontend components with backend APIs for data fetching and manipulation.
6. **User Acceptance Testing (UAT)**:
    - Conduct UAT sessions with representative users including students, faculty, and administrators.
    - Validate system functionalities, usability, and performance against predefined acceptance criteria.
    - Gather feedback from users to identify bugs, usability issues, and areas for improvement.

STUDENT MODULE:




Database
CHECK USERNAME
& PASSWORD
FACULTY
LOGIN
IF FALSE
LOGIN
FAILED
IFCORRECT
FEATURES ACCESSIBLE:
> MARK ATTENDANCE
> PROVIDE MARKS
> UPLOAD TESTS
> CONDUCT TESTS
> EDIT SKILL FORUM
VIEW ONLY FEATURES:
> VENUE ALLOCATED FOR THEM.
> SKILL ALLOTED FOR THEM.
> SYLABUS OF THE SKILL


Database
CHECK USERNAME
& PASSWORD
ADMIN
LOGIN
IF FALSE
LOGIN
FAILED
IFCORRECT
FEATURES ACCESSIBLE:
> INSERT SKILLS AS OPTIONS
> ALLOCATE VENUES
> ACCESS TO MARKS AND ATTENDANCE
> VIEW FEEDBACK
> ACCESS TO SKILL FORUM
> PROVIDE REWARD POINTS
> OVERALL ACCESS.