BANNARI AMMAN
INSTITUTE OF TECHNOLOGY
Stay Ahead

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Autonomous Institution, Accredited by NAAC With 'A' Grade

STUDENT RANKING DASHBOARD

NAME :	**BUVAN T**
ROLL NO :	**7376221EC130**
DEPARTMENT :	**B.E. ELECTRONICS AND COMMUNICATION ENGINEERING**
PROJECT ID :	**38**
PROJECT :	**STUDENT RANKING DASHBOARD**

TECHNICAL COMPONENT :-

MEAN STACK

Component	**TechStack**
Front End	Angular(Js Framework)

Back End	Express.js(Web framework for Node.js)
	Node.js(Javascript runtime environment)

Database	MongoDB(NOSQL Database)
API	OpenAPI

PROBLEM STATEMENT:

Traditional methods of tracking student performance in daily challenges, tasks, and activities lack transparency and actionable insights. This leads to several challenges, including:

- Limited Visibility: Educators and students often lack a clear picture of individual and class performance on daily activities. This makes it difficult to identify struggling students and areas needing improvement.
- Motivation and Engagement Issues: Without a clear understanding of their ranking and progress relative to peers, students may struggle to stay motivated and engaged in daily challenges and tasks.
- Inefficient Feedback Mechanisms: Traditional methods of providing feedback can be time-consuming and lack immediacy. This can hinder student progress and growth.

PROJECT STRUCTURE:

Frontend (Angular):

- Login Page:
    - Implement separate login forms for Students and Admins.
    - Use Angular forms for user input (username/email and password).
    - Authenticate users against the backend API using secure methods (e.g., JWT tokens).
    - Upon successful login, redirect users to their respective dashboards.
- Student Dashboard (Single Page Application):
    - Use Angular routing to manage navigation between different sections (Home, Ranking, Training, Placement).
    - Home Page:
        - Display student details (name, ID, etc.).
        - Show current rank based on predefined criteria.
        - Display Placement FA percentage (if applicable).
        - Include a navigation bar with links to Ranking, Training, and Placement sections.
    - Ranking Page:
        - Display a ranked list of top 100 students (or a customizable number).
        - Allow sorting by rank or other relevant criteria.
        - Clicking on a student should show their detailed marks in various areas.
    - Training Page:
        - Display information on PS skill (C language) progress:
            - Number of completed levels.
        - Full stack project details:
            - Assigned project name.
            - Stages completed within the project.

        - Daily marks received through full-stack project reviews.
        - Consider using charts or graphs to visualize progress.
    - Placement Page:
        - Show a list of companies the student has attended.
        - Display received offers (if any).
        - List upcoming company visits with dates and venues.

Backend (Node.js & Express.js):

- Develop RESTful APIs for user authentication, data retrieval, and (potentially) data manipulation (for admins).
- Implement user authentication logic (e.g., with JWT tokens).
- Connect to the MongoDB database to store and retrieve student data (rank, PS skills, full-stack project progress, daily marks, placement information).
- Implement API endpoints for each section of the dashboard:
    - Login API for user authentication.
    - Student Details API to retrieve user information based on ID/username.
    - Ranking API to fetch the ranked student list (and potentially individual student marks).
    - Training API to retrieve PS skill progress, full-stack project details, and daily marks.
    - Placement API to access companies attended, offers received, and upcoming company visits.

Database (MongoDB):

- Design a schema to store all relevant student data:
    - User credentials (for authentication).
    - Student details (name, ID, etc.).
    - Ranking information (rank, calculation criteria).
    - PS skill progress (completed levels in C language).
    - Full-stack project details (project name, completed stages).
    - Daily marks for full-stack project reviews.
    - Placement data (companies attended, offers received, upcoming visits).

PROJECT FLOW:

Purpose:

To create a web-based student ranking dashboard that provides transparency and insights into student performance in daily challenges, tasks, and activities. This aims to improve student motivation, engagement, and foster a data-driven learning environment.

Scope:

This project includes:

- User authentication for students and admins.
- Single-page application (SPA) frontend built with Angular.
- RESTful API backend developed using Node.js and Express.js.
- MongoDB database for storing student data and ranking information.
- Student dashboard displaying:
    - Student details
    - Current rank based on predefined criteria
    - Placement FA percentage (if applicable)
- Dedicated sections for:
    - Rankings: Top student list with sorting options and detailed marks (optional)
    - Training: Progress on PS skills (C language), full-stack project details (stages, daily marks) with visualizations.
    - Placement: Attended companies, offers received, and upcoming company visits with details.

Business Context:

This dashboard benefits educational institutions by:

- **Enhancing Student Engagement:** Increased visibility into performance motivates students to strive for improvement.
- **Providing Actionable Insights:** Educators can identify areas needing focus and provide targeted feedback.
- **Promoting Transparency:** Students gain a clear understanding of their ranking and progress relative to peers.

Considerations:

- Secure user authentication (e.g., JWT tokens).
- Proper error handling and user feedback mechanisms.
- User access control for Students and Admins (e.g., Admins manage rankings or edit data).
- Data security measures (e.g., password hashing).
- Employ styling libraries or UI frameworks for visual appeal.

Dependencies:

- Angular framework for building the frontend Single Page Application (SPA).
- Node.js and Express.js for developing the backend API.
- MongoDB database for storing and managing student data.
- Potential libraries/frameworks for:
    - User interface design (e.g., Bootstrap, Material Design).
    - Data visualization (e.g., Chart.js).

User Personas:

- **Student:**
    - Needs to track their rank and performance progress.
    - Wants to visualize their PS skill development and full-stack project progress.
    - Desires information on companies they can potentially intern or get placed in.
- **Admin:**
    - Manages student data and ranking criteria (if applicable).
    - Monitors student progress and identifies areas needing improvement.
    - Analyzes trends and provides insights to improve the learning process.

FUNCTIONAL REQUIREMENTS:

User Authentication:

- ❖ Secure login system for Students and Admins:
    - ➢ Implement separate login forms for each user type.
    - ➢ Utilize a secure authentication mechanism (e.g., JWT tokens).
    - ➢ Consider integrating with an existing institutional login system (if applicable).

Frontend Dashboard (Angular):

- **Home Page:**
  - Display essential student information (name, ID, etc.).
  - Showcase current student rank based on defined criteria.
  - Include Placement FA percentage (if applicable).
  - Provide a navigation bar for accessing Ranking, Training, and Placement sections.
- **Ranking Page:**
  - Present a ranked list of top students (customizable number).
  - Allow sorting by rank, criteria, or other relevant factors.
  - Clicking on a student should display their detailed marks for various areas.
- **Training Page:**
  - Track PS skill (C language) progress:
    - Show the number of completed levels.
  - Display full-stack project details:
    - Assigned project name.
    - Stages completed within the project.
  - Present daily marks received through full-stack project reviews.
  - Consider using charts or graphs to visualize progress effectively.
- **Placement Page:**
  - List companies the student has attended placement drives for.
  - Display any offers received.
  - Provide details on upcoming company visits (dates and venues).

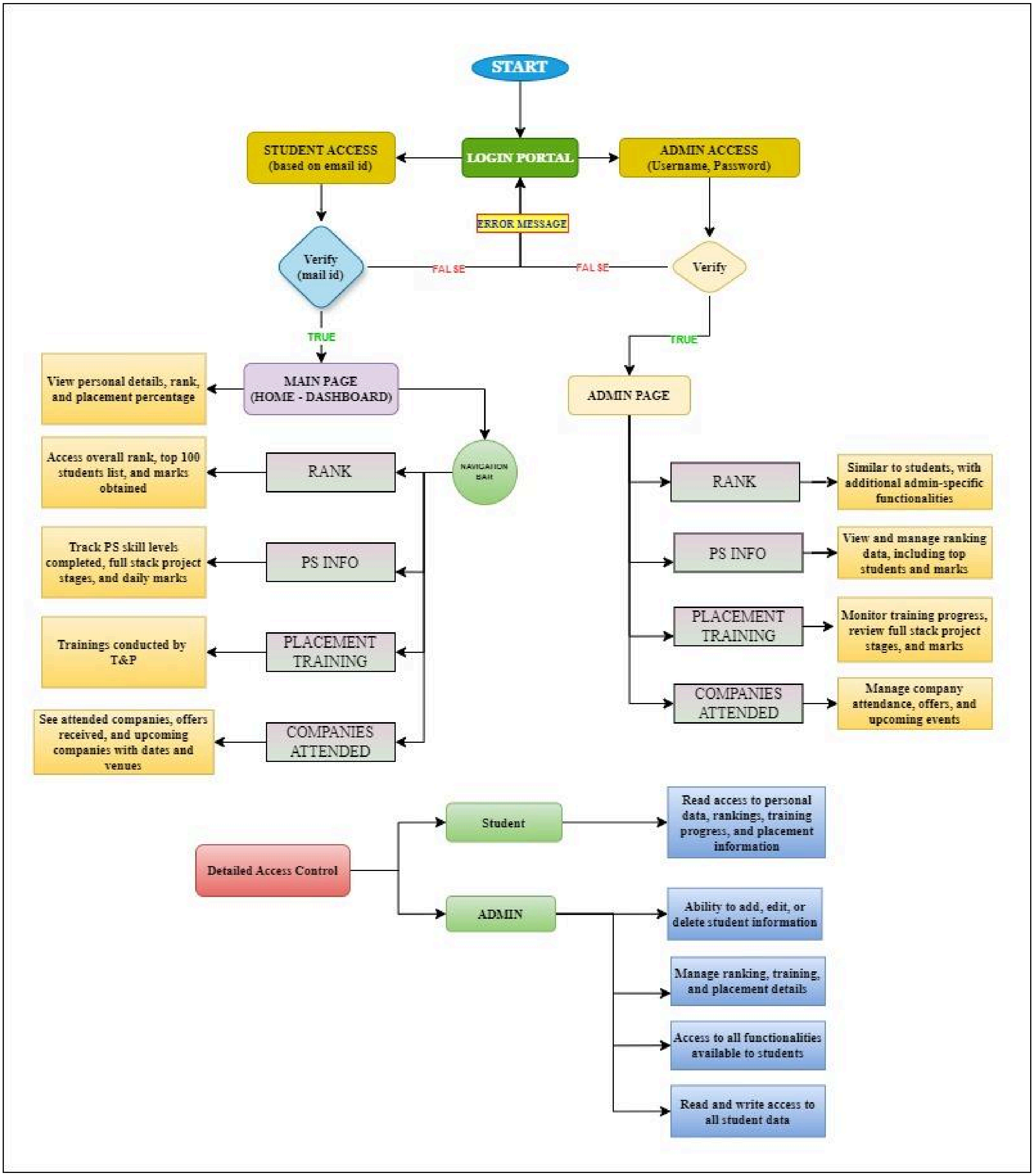
Backend API (Node.js & Express.js):

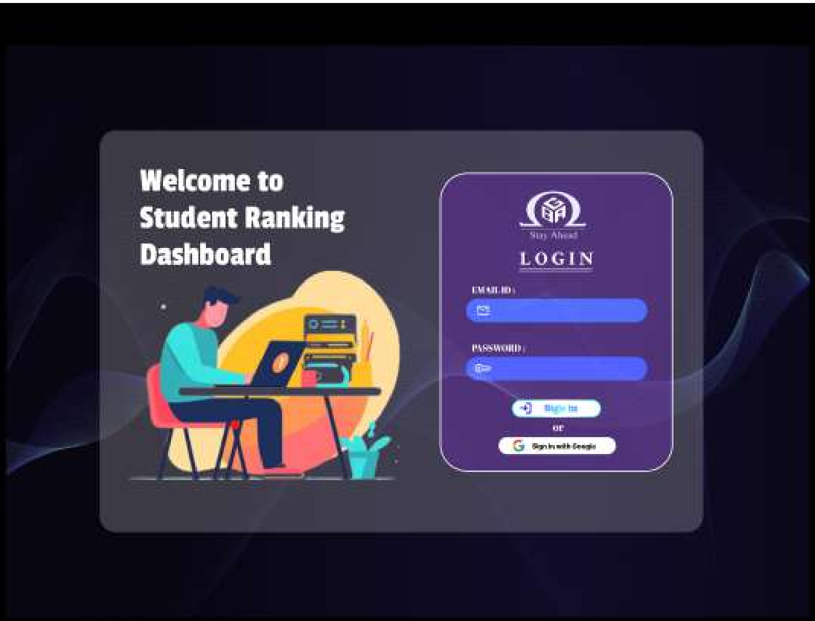
- Develop RESTful APIs to handle:
  - User authentication and authorization.
  - Data retrieval for student details, rankings, training progress, and placement information.
  - Potentially allow data manipulation for authorized users (e.g., Admins editing rankings).
- Connect to the MongoDB database for data storage and retrieval.

Database (MongoDB):

- Design a schema to store all relevant student data:
    - User credentials (for authentication).
    - Student details (name, ID, etc.).
    - Ranking information (rank, calculation criteria).
    - PS skill progress (completed levels in C language).
    - Full-stack project details (project name, completed stages).
    - Daily marks for full-stack project reviews.
    - Placement data (companies attended, offers received, upcoming visits).

FLOW CHART:


START
LOGIN PORTAL
STUDENT ACCESS (based on email id)
ADMIN ACCESS (Username, Password)
ERROR MESSAGE
Verify (mail id)
FALSE
FALSE
Verify
TRUE
TRUE
MAIN PAGE (HOME - DASHBOARD)
ADMIN PAGE
View personal details, rank, and placement percentage
NAVIGATION BAR
RANK
Access overall rank, top 100 students list, and marks obtained
PS INFO
Track PS skill levels completed, full stack project stages, and daily marks
PLACEMENT TRAINING
Trainings conducted by T&P
COMPANIES ATTENDED
See attended companies, offers received, and upcoming companies with dates and venues
RANK
Similar to students, with additional admin-specific functionalities
PS INFO
View and manage ranking data, including top students and marks
PLACEMENT TRAINING
Monitor training progress, review full stack project stages, and marks
COMPANIES ATTENDED
Manage company attendance, offers, and upcoming events
Detailed Access Control
Student
Read access to personal data, rankings, training progress, and placement information
ADMIN
Ability to add, edit, or delete student information
Manage ranking, training, and placement details
Access to all functionalities available to students
Read and write access to all student data



Welcome to Student Ranking Dashboard

Stay Ahead

LOGIN

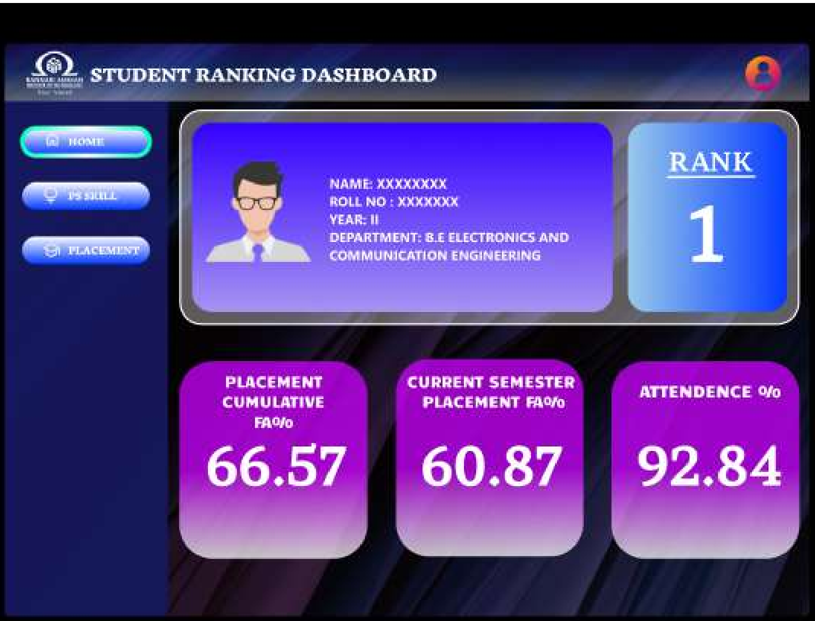
EMAIL ID :

PASSWORD :

Sign In

or

Sign in with Google



STUDENT RANKING DASHBOARD

HOME

PS SKILL

PLACEMENT

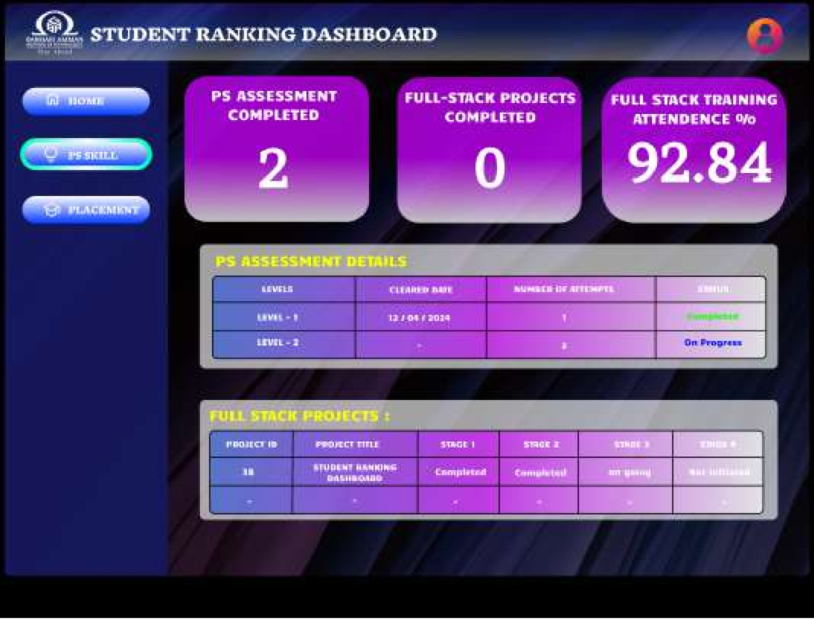
NAME: XXXXXXXX
ROLL NO : XXXXXXX
YEAR: II
DEPARTMENT: B.E ELECTRONICS AND COMMUNICATION ENGINEERING

RANK
1

PLACEMENT CUMULATIVE FA% 66.57

CURRENT SEMESTER PLACEMENT FA% 60.87

ATTENDENCE % 92.84



STUDENT RANKING DASHBOARD

HOME

PS SKILL

PLACEMENT

PS ASSESSMENT COMPLETED 2

FULL-STACK PROJECTS COMPLETED 0

FULL STACK TRAINING ATTENDENCE % 92.84

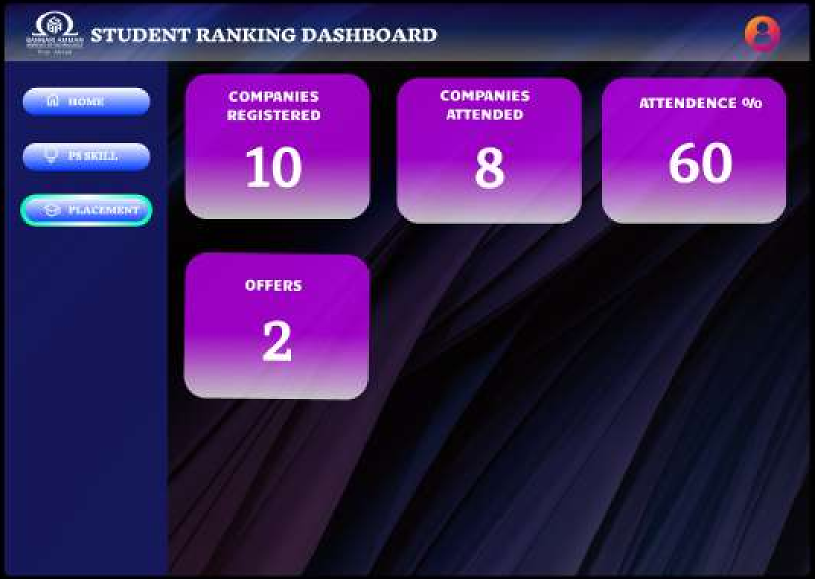
PS ASSESSMENT DETAILS

LEVELS	CLEARED DATE	NUMBER OF ATTEMPTS	STATUS
LEVEL - 1	12 / 04 / 2024	1	Completed
LEVEL - 2	-	2	On Progress

FULL STACK PROJECTS :

PROJECT ID	PROJECT TITLE	STAGE 1	STAGE 2	STAGE 3	STAGE 4
18	STUDENT RANKING DASHBOARD	Completed	Completed	on going	Not Initiated
-	-	-	-	-	-

Frame 4



STUDENT RANKING DASHBOARD

HOME

PS SKILL

PLACEMENT

COMPANIES REGISTERED 10

COMPANIES ATTENDED 8

ATTENDENCE % 60

OFFERS 2