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CareerSync: An Integrated AI-Based Platform for Internship Matching, Resume Optimization, and Smart Skill Enhancement

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Abstract: *The CareerSync Portal is an AI-powered web application designed to simplify and improve the internship and career management process for students, recruiters, and administrators. It provides a centralized digital platform where students can create professional profiles, upload resumes, explore internship opportunities, and apply for internships easily. The system is developed using modern technologies such as React.js, Java Spring Boot, MongoDB, and Python FastAPI to ensure efficient performance, scalability, and secure data management.*

The portal also includes an AI-based recommendation system that analyzes resumes, technical skills, qualifications, certifications, and user interests to suggest suitable internships to students. This intelligent recommendation feature improves internship matching accuracy and helps students discover opportunities aligned with their career goals.

Keywords: *CareerSync Portal*

I. INTRODUCTION

In today's highly competitive digital economy, graduating students face significant hurdles when navigating the transition from academic environments to professional domains. Securing a suitable internship and preparing for complex, multi-tiered corporate recruitment workflows are crucial yet stressful tasks. Traditional methods for discovering opportunities and evaluating interviews are becoming increasingly inefficient, fragmented, and time-consuming..

The platform seamlessly unifies internship discovery with structured technical and analytical preparation tools in a single environment. The system then analyzes these explicit parameters to dynamically suggest relevant internship opportunities mapped directly to individual skills and domain interests.

Additionally, the system optimizes overall career readiness by offering features like asynchronous application tracking pipelines, visual performance feedback diagnostics, and guided learning tracks.

II. RELATED WORK

Many colleges and educational institutions use different systems to manage internships, recruitment activities, and student career development. Some of these platforms offer basic features such as internship listings, online applications, resume uploads, and profile management. These systems help store student and recruiter information in a centralized manner and allow administrators to manage recruitment activities more efficiently. However, most of these solutions are web-based and do not provide advanced features like personalized internship recommendations, skill analysis, or real-time preparation tracking for students.

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Several research works have introduced internship management and recruitment systems developed using technologies such as Java Spring Boot, React.js, and MongoDB. These systems mainly focus on managing internship details, user registration, application tracking, and recruiter activities. While they improve data organization and simplify the recruitment process, they still rely heavily on manual filtering and candidate selection.

With the growth of technology, modern career systems are becoming smarter and more user-friendly. . Some applications now include features such as online resume management, application tracking, coding practice, aptitude tests, and technical MCQs. These improvements make career preparation easier, but many systems still lack proper personalization and

II. LITERATURE REVIEW

1. AI-Based Internship Recommendation System Authors: A. Sharma, P. Gupta, R. Singh, K. Verma, S. Patil
Explanation:A web-based internship portal that helps students find internship opportunities based on their academic profile and skills
Additional Issues: Needs improved recommendation accuracy and better real-time internship updates.

2. Smart Internship Recommendation Application Authors: M. Joshi, N. Kulkarni, S. Desai, R. Pawar,
Explanation:An application that recommends internships to students based on skills, interests, and previous activities. .
Additional Issues: Integration with advanced resume analysis and AI-based matching needs improvement.

3. Online Recruitment and Resume Management System
Authors: K. Deshmukh, V. Patil, A. Sharma, R. Kulkarni, M. Naik
Explanation:
An online recruitment platform that allows students to upload resumes, apply for internships, and track application status digitally.
Additional Issues:
The system requires advanced AI-based resume screening, and better internship recommendation mechanisms to improve matching accuracy and user experience.

4. AI-Driven Resume Screening and Internship Matching System
Authors: S. Kulkarni, A. Mehra, P. Joshi, R. Sharma Explanation:
An AI-powered internship and recruitment platform
developed to automate resume screening
Additional Issues: The system requires enhanced real-time internship synchronization

III. PROBLEM STATEMENT

In the current digital era, students face several challenges in finding suitable internship opportunities and preparing effectively for recruitment processes. Most existing internship and recruitment platforms focus only on providing internship listings, while preparation platforms mainly concentrate on aptitude tests or coding practice separately. Due to this lack of integration, students are forced to use multiple systems for searching internships, uploading resumes, preparing for interviews, and tracking applications. This creates confusion, increases time consumption, and reduces overall efficiency in career preparation.

Ensures real-time updates, secure communication, and simplified processes to improve event management and increase student participation. The proposed AI-Based Event Aggregator System connects students and staff on a single digital platform. It aims to reduce manual effort, improve event discovery, and enhance the overall efficiency of event management. The system includes a web-based application, a centralized database, and an AI recommendation service. Users can register as students or staff, explore events, and receive real-time updates. Event and user data are securely

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stored in the database, and activities such as registration, attendance, and feedback are managed through the system. Staff members create events, students register and participate, the system provides recommendations, attendance is recorded, and notifications are sent to users. Key features include real-time updates, AI-based recommendations, secure data storage, and role-based access control. This platform provides a reliable, technology-based solution.

IV. SYSTEM ARCHITECTURE

The AI-Based Event Aggregator System is a web-based platform that connects students and staff within a single integrated system. Its main objective is to simplify event management, improve student participation, and securely manage all event-related data using modern technologies and centralized database systems.

V. PROPOSED SYSTEM OVERVIEW

Modules

1.1 Student Module

In the CareerSync Portal, students can register and securely log into the system. After authentication, they can browse available job opportunities, internships, and career-related events. Students can view detailed information such as job title, company name, location, eligibility criteria, and description.

1.2 Admin Module

Administrators (HR teams or recruiters) can log into the system and manage all career-related activities. They can create and post job listings or internship opportunities by entering details such as role, company, requirements, location, and deadlines.

1.3 Database Module

The CareerSync Portal uses a centralized SQL Server database to securely store all system data, including user profiles, job listings, applications, interview status, and feedback. The database ensures reliable data storage, fast retrieval, and efficient management of career-related information.

1.4 AI Recommendation Module

The AI Recommendation Module analyzes student data such as skills, qualifications, interests, resume details, and previous applications to recommend suitable internship opportunities. It helps students discover relevant internships easily and improves internship matching accuracy. The module works automatically in the background and provides personalized recommendations

1. Backend Architecture (Firebase Integration)

The CareerSync Portal uses modern technologies to manage authentication, data storage, internship management, and system operations efficiently.

- Authentication System:Ensures secure login and user verification for students, recruiters.
- MongoDB Database: Stores user profiles, resumes, internship details, applications, and preparation data.
- Java Spring Boot API: Handles frontend-backend communication and manages system operations efficiently.

2. Approval and Notification Workflow

- Admin or recruiters add and publish internship opportunities in the system.Students view internship details and apply through the portal.
- If the application is submitted successfully, a confirmation notification is sent to the student.
- If the application fails or the internship deadline is over, an alert message is displayed.
- The system updates the application status in the database and displays it to both students and recruiters.

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VI. IMPLEMENTATION DETAILS

The implementation of the proposed CareerSync Portal consists of four main steps: User Registration and Authentication, Internship Management and Application Tracking, Preparation and Skill Development Modules, and Notifications and Performance Analysis.

User Login and Registration

Users, including students and admins, securely log into the CareerSync Portal. Students can register, create profiles, upload resumes, and access internship and preparation modules, while admins manage internships and user activities. All user information is securely stored in the database, and JWT authentication ensures safe and role-based access to the system.

Event Management and Registration

When staff creates an event, the system stores event details such as title, date, venue, and available seats. Students can view these events and register based on their interests. The system checks seat availability before confirming registration. AI-based recommendations are also provided to help students find relevant events easily.

Attendance and Feedback Handling

During the event, students mark attendance using QR code scanning, which automatically updates their status in the system. After attending the event, students can submit feedback and ratings. This information is stored in the database and helps staff analyze event performance and improve future events.

Notifications and Updates

The system sends real-time notifications to users regarding event registration, updates, and important announcements. Students receive alerts about new events, recommendations, and registration status, while staff are notified about student participation and feedback. This ensures smooth communication and timely actions.This stepwise implementation ensures a secure, efficient, and real-time event management process, improving coordination between students and staff while reducing manual effort and delays.

History and Reusability

The system stores all past event records, registrations, attendance, and feedback for future reference. Students and staff can track previous activities, which helps in planning and decision-making. This feature ensures continuity in event management and allows better analysis by providing access to past data efficiently.

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SYSTEM AECHITECTURE

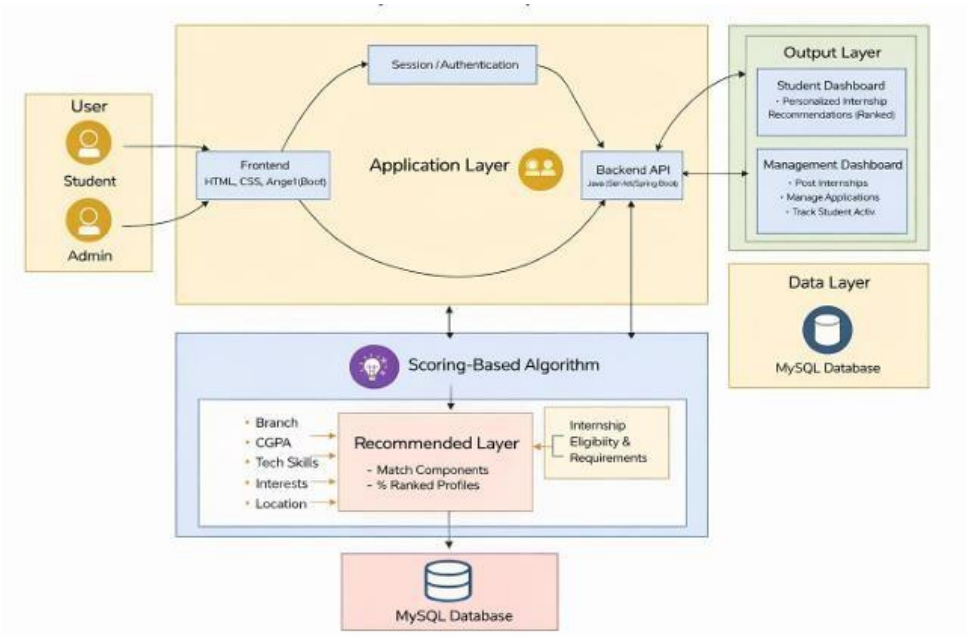

Figure 1: System architecture

VII. PROPOSED SYSTEM

System Architecture :

System Architecture is shown in Figure 1.

Our proposed system will function in following steps:

Step 1: User Login and Registration

Students and admins register and log into the system using their credentials. The system securely stores user details and provides access based on user roles.

Step 2: Authentication & Access Control

The system verifies users using JWT-based authentication. Role-based access ensures that students and admins can access only their authorized features.

Step 3: Internship Creation and Viewing

Admins add and manage internship opportunities with complete details such as company name, role, skills required, and deadline. Students can browse and view available internships easily.

Step 4: Internship Application and Tracking

Students apply for internships through the portal. The system stores application details, tracks application status, and updates users about their progress.

Step 5: Preparation and Performance Analysis

Students access aptitude tests, technical MCQs, and coding practice modules for interview preparation. The system stores scores, tracks progress, and provides performance analysis for improvement.

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VIII. ANALYSIS OF PROPOSED SYSTEM

1. Enhanced Efficiency and Real-Time Communication:

The proposed CareerSync Portal improves the efficiency of internship management and career preparation by integrating modern web technologies with a centralized database. The system provides real-time updates on internship applications, preparation progress, and notifications, reducing delays and improving communication between students and recruiters.

2. Intelligent Internship Recommendation System

The system uses AI-based recommendation techniques to analyze student profiles, skills, interests, and resumes. Based on this analysis, the portal suggests suitable internships and learning resources, helping students discover relevant opportunities more efficiently compared to manual searching methods.

3. Secure Role-Based Access :

The platform uses role-based access control where students and admins have different permissions. This ensures data security and privacy by allowing users to access only the features related to their role.

MODULES

The proposed AI-Based Event Aggregator System is divided into five main modules: Authentication, Event Management, Student Interaction, AI Recommendation, and Notification. Each module handles specific functionalities and ensures smooth system operation.

1. Authentication Module

This module manages user login and security. It verifies user credentials and provides secure access to the system. It also controls user roles and permissions for students and admins.

2. Internship Management Module

This module allows admins to create, update, and manage internship opportunities. It stores internship details such as company name, role, required skills, duration, and application deadlines, making it easy to organize and track opportunities.

3. Improved Coordination and System Reliability:

Compared to traditional systems, the proposed system centralizes internship opportunities, applications, preparation modules, and user data in a single platform.

3. Student Interaction Module

This module allows students to create profiles, upload resumes, search internships, apply for opportunities, and track application status. It also provides access to aptitude tests, technical MCQs, and coding practice modules.

4. AI Recommendation Module

This module suggests internships and learning resources to students based on their skills, interests, resume details, and previous activities. It helps students discover suitable opportunities easily and improves career guidance.

5. Notification Module

This module sends real-time notifications to users. Students receive updates about internship applications, deadlines, and preparation activities, while admins receive updates about applications and system activities. It ensures smooth communication across the platform..

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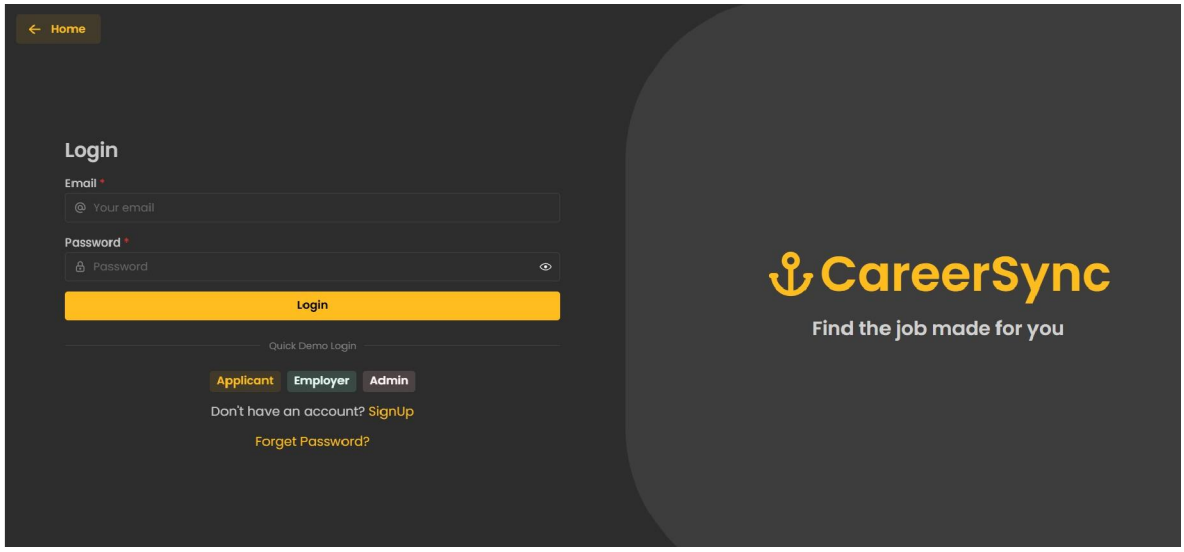
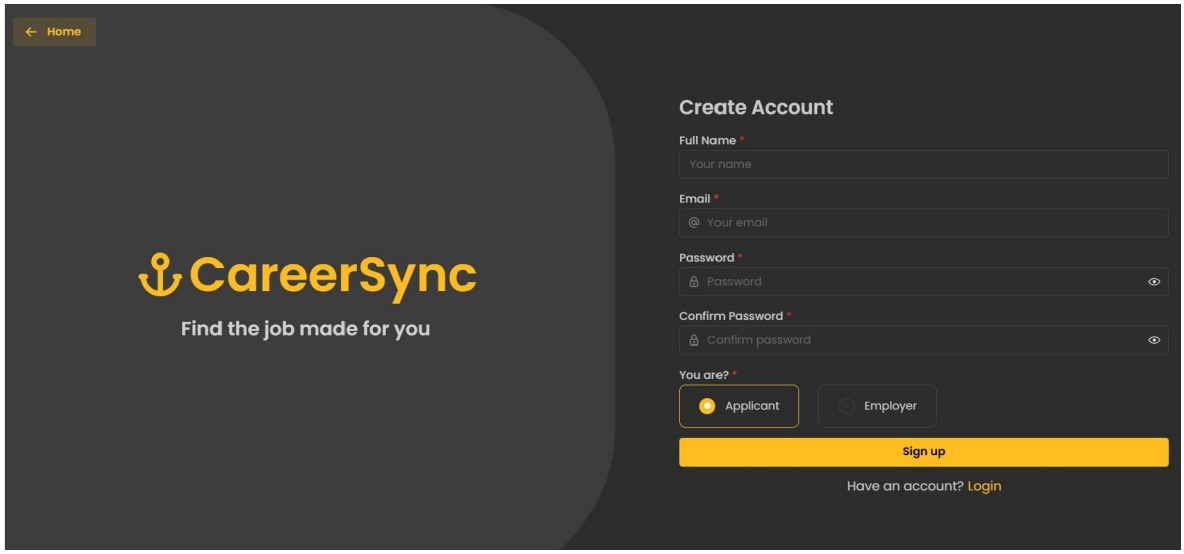
RESULTS



LOGIN PAGE

REGISTRATION PAGE



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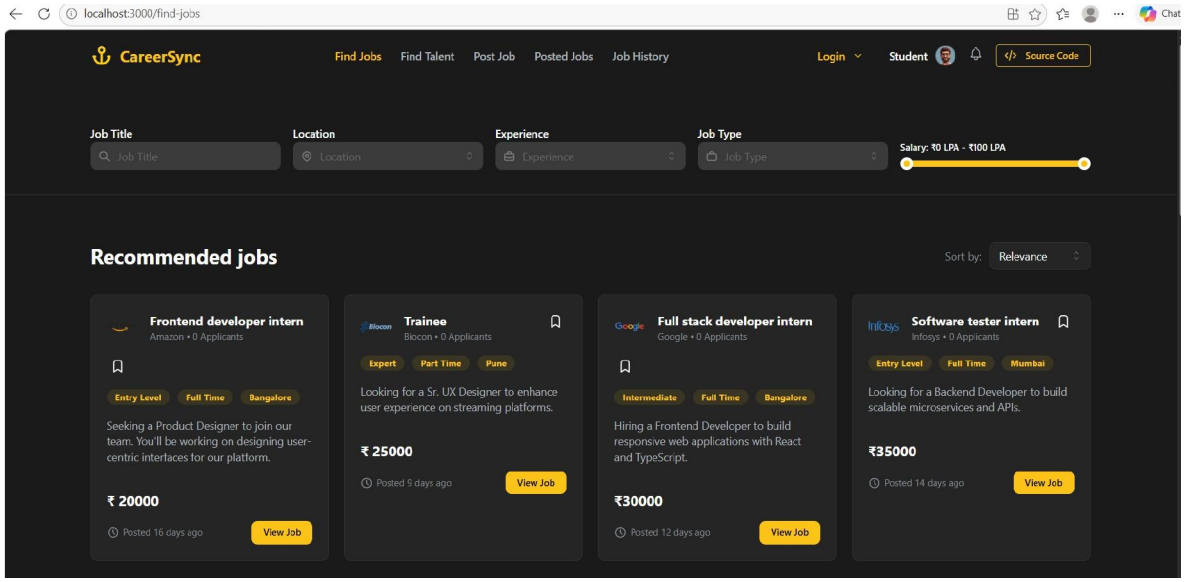
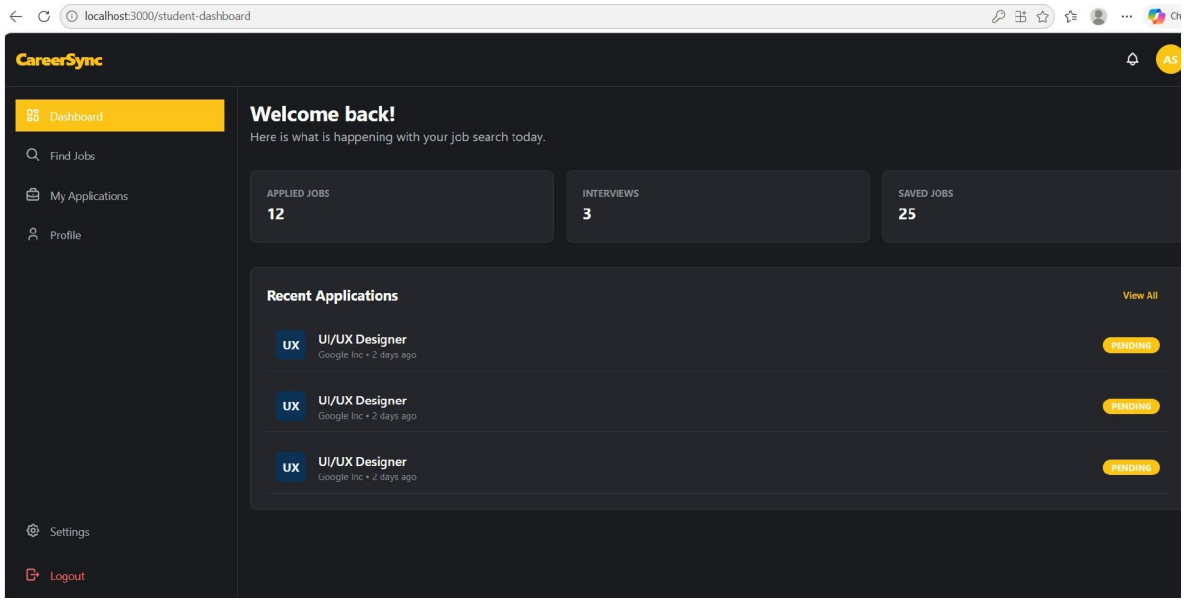


Student Dashboard



IX. CONCLUSION

The CareerSync Portal provides a reliable and efficient platform for managing internship opportunities and career preparation activities. By maintaining accurate student profiles, internship details, application records, and preparation data, the system reduces manual effort and improves the overall recruitment preparation process. Features such as internship tracking, resume management, coding practice, and aptitude preparation help students enhance their skills and stay organized throughout their career journey. Real-time updates, secure authentication, and centralized data management improve communication and transparency between students and recruiters.

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