

“HackXplore-A Unified Platform for Hackathons and Internships”

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Abstract— In the current technological era, hackathons and internships have become essential for students and aspiring developers to gain practical knowledge, industry exposure, and problem-solving skills. However, information regarding these opportunities is fragmented across multiple platforms, creating difficulties in tracking and applying on time. This research introduces **HackXplore**, a centralized web-based platform designed to aggregate hackathons, internships, and scholarships into a single user-friendly dashboard.

HackXplore collects real-time data from APIs such as Devpost and Remote while integrating curated scholarship datasets. The system provides advanced features including skill-based filtering, bookmarking, team formation, AI-powered assistance, and automated reminders. Built using React, TypeScript, Tailwind CSS, Supabase, and deployed on Render, the platform reduces manual effort and improves opportunity accessibility. The proposed system demonstrates how modern web technologies and API integrations can simplify opportunity discovery for students and professionals.

1. INTRODUCTION: Hackathons and internships are important components in the professional development of students. They provide practical exposure, teamwork experience, and technical knowledge that cannot always be achieved through academic learning alone. However, students face significant challenges in discovering these opportunities due to the scattered nature of information.

Existing platforms such as Devpost, Unstop, Internshala, and LinkedIn operate independently, forcing users to visit multiple websites and manually monitor updates. This often leads to missed deadlines and incomplete awareness of available opportunities.

HackXplore addresses this issue by providing a unified platform that centralizes hackathons, internships, and scholarships. It simplifies opportunity discovery by aggregating data from multiple sources and presenting it in a standardized format.

3. PROBLEM STATEMENT

The current ecosystem of opportunity discovery suffers from:

- Fragmented information spread across multiple platforms.
- Manual searching causing time consumption.

- Lack of centralized comparison of opportunities.
- High probability of missing deadlines.
- Difficulty in team formation for hackathons.

These limitations create “platform fatigue,” reducing user efficiency and participation. instrument with state-of-the-art generative AI to deliver a holistic mental health support experience.

A. 4. 5.1 System Architecture Overview

The **HackXplore** platform is designed using a **three-layer client-side architecture** that ensures modularity, scalability, and maintainability. The architecture separates the concerns of data fetching, state management, and presentation, enabling efficient communication between the frontend and backend systems.

The system architecture consists of the following layers:

1) 1. Presentation Layer

This is the user-facing layer responsible for rendering the application interface. It is developed using **React 18**, **Vite**, and **TypeScript**, providing a fast and interactive Single Page Application (SPA). Styling is implemented using **Tailwind CSS** and **Shadcn UI**,

1) 2. State Management Layer

This layer handles asynchronous data fetching, caching, and synchronization. **TanStack React Query** is used to manage API states efficiently. It reduces unnecessary API calls through caching and improves performance by storing temporary data.

1) 3. Data Layer

The data layer integrates external APIs and database systems. Live hackathon data is fetched from the **Devpost API**, while internship data is collected using the **Remote API**. Team collaboration data is stored in **Supabase PostgreSQL**, enabling cross-device accessibility.

. 5.2 Technology Stack

The HackXplore platform utilizes a modern and scalable technology stack to support frontend development, backend integration, and deployment.

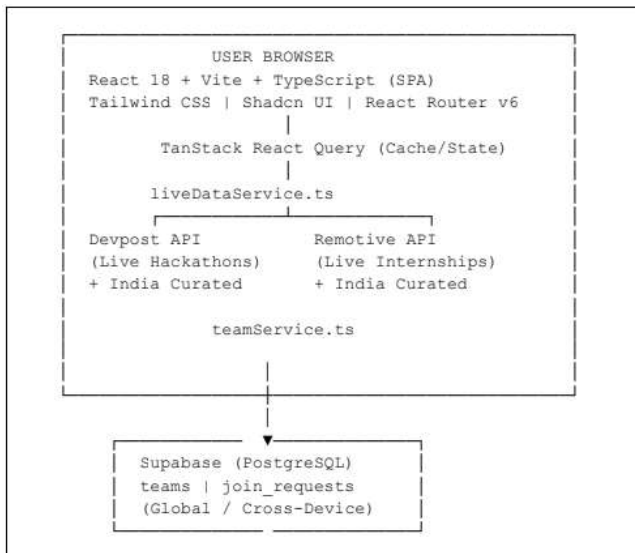
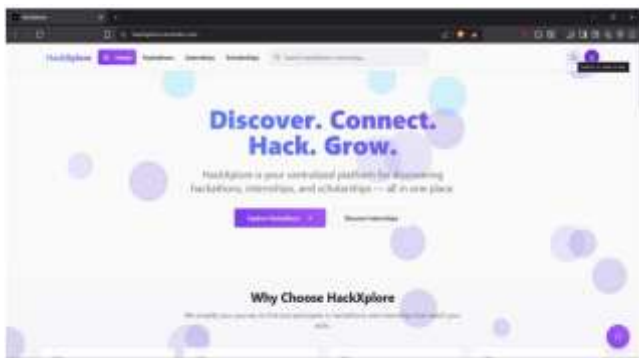


Figure.6: HackXplore System Architecture

5. INPUT SCREENS

5.1 User Registration Screen



Light Mode implementation of the primary dashboard, showcasing dynamic theme

adaptability and visual consistency.5.2 User Login Screen

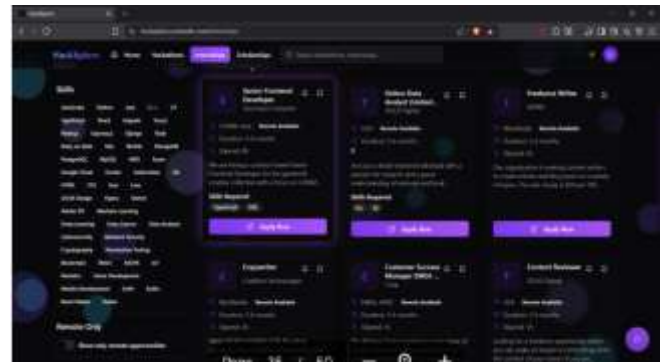
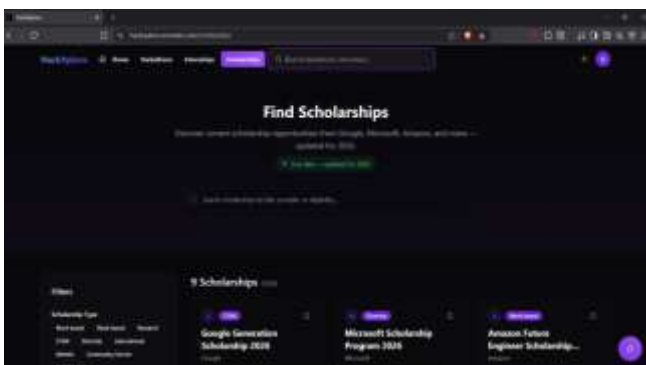


Figure 4: The Internships view, demonstrating the successful extraction and normalization of

6. SYSTEM OUTPUTS

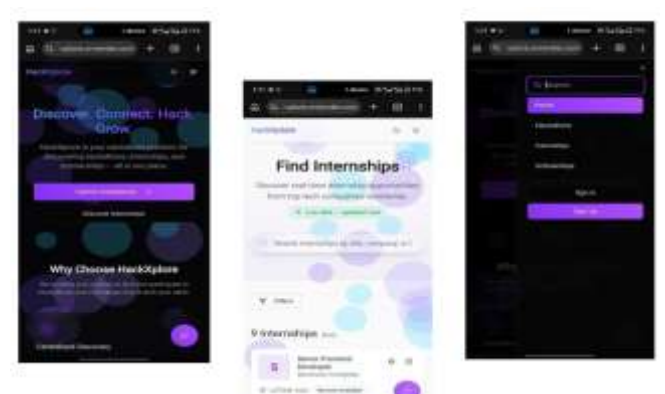


Figure : Mobile viewport rendering of the application, demonstrating responsive grid adjustments and preserved functionality on smaller devices.

CONCLUSION: The HackXplore project successfully addressed the critical issue of information fragmentation within the technical opportunity landscape. Prior to this system, students and developers were burdened with the manual, time-consuming process of monitoring isolated platforms, which frequently led to missed deadlines and "platform fatigue." By architecting a robust, decoupled full-stack application, this project demonstrated that automated web data extraction is a highly viable solution. The implementation of headless browser automation using Puppeteer successfully bypassed the restrictions of closed APIs, enabling the reliable extraction of dynamic, client-rendered data—such as stipends, technical tags, and deadlines—from major platforms like Devfolio, Unstap, and Internshala. Furthermore, the integration of a modern presentation layer using Vite, React, and Tailwind CSS—backed by Supabase for persistent data storage—delivered a highly performant and accessible user interface. The platform successfully centralized disparate data into a unified dashboard, featuring real-time search capabilities, dynamic theming (Light/Dark modes), and a frictionless toggle between hackathons and internships. Ultimately, HackXplore proves that complex, multi-platform data aggregation can be seamlessly translated into a lightweight, user-centric tool. It drastically reduces the cognitive load required for developers to discover their next career-accelerating opportunity, shifting the burden of discovery entirely from the human to the machine.

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