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"SKILL-BRIDGE: A WEB-BASED MENTORSHIP PLATFORM FOR CAREER GUIDANCE AND PROFESSIONAL DEVELOPMENT"

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ABSTRACT

The Skill-Bridge platform is an innovative digital solution designed to transform mentoring into a structured and impactful component of career and educational development. In the context of India's expanding workforce and vast career landscape, the need for personalized and accessible guidance has become essential. Skill-Bridge addresses this requirement by connecting mentees with experienced mentors, facilitating meaningful, goal-oriented interactions that enhance professional and skill development.

The platform bridges the gap between aspiring professionals and domain experts by providing a secure and structured environment for mentorship. Mentees can seek guidance on career planning, skill enhancement, and industry insights, while mentors can efficiently manage their schedules through the integrated system. Core features include an automated calendar booking system and embedded video conferencing, ensuring a seamless and productive mentorship experience.

The automated scheduling system aligns mentor availability with mentee preferences through integration with tools such as Calendly and Google Calendar. Additionally, Skill-Bridge incorporates real-time communication features, including in-call chat and resource sharing, to promote interactive and engaging sessions. The platform's architecture emphasizes usability, scalability, and data security, ensuring flexibility across multiple disciplines and industries.

By fostering collaboration, skill development, and professional awareness, Skill-Bridge empowers mentees to make informed career decisions and enhances overall employability. The project demonstrates how technology can effectively support mentorship ecosystems, creating a sustainable digital bridge between learners and industry experts for mutual growth and long-term success.

Key Words: *Mentorship Platform, Career Guidance, Skill Development, Scheduling System, Video Conferencing, Real-Time Communication, Web Application, Scalability, Professional Networking, Employability Enhancement.*

I. INTRODUCTION

Nowadays, we understand that finding the right guidance in career or skill development is a growing challenge. This platform is developed to provide a simple and effective way for candidates to connect with experienced mentors. With the help of this platform, mentees can easily explore available mentors, book sessions, and receive guidance on career paths, skill-building, or industry insights. On the other hand, mentors can efficiently manage their sessions and assist

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mentees in a streamlined manner.

In today's competitive and rapidly evolving professional environment, access to the right mentorship has become a crucial factor in determining individual growth and career success. The transition from academic learning to professional application often leaves students and early-career professionals seeking guidance to make informed career decisions. Traditional mentoring approaches—based on personal contacts or institutional networks—are often unstructured, limited in reach, and inconsistent in accessibility.

To address this challenge, digital mentoring platforms are emerging as transformative tools. They facilitate structured mentor-mentee relationships, offering continuous engagement through technology. *Skill-Bridge* aims to bridge this gap by providing a comprehensive web-based mentorship system that connects mentees with domain experts, industry professionals, and academic mentors. The platform creates an ecosystem where knowledge sharing, skill development, and professional networking can thrive efficiently.

Overview of Skill-Bridge

Skill-Bridge is a web-based mentoring and career guidance platform that connects mentees (students or professionals) with mentors from various industries. It enables personalized mentorship experiences through automated scheduling, embedded video conferencing, and real-time chat functionalities.

The platform streamlines the mentoring process by allowing mentees to:

Explore mentor profiles based on expertise and availability, Schedule one-to-one mentoring sessions, Interact via secure video calls and chats, and Receive ongoing guidance on skill development, industry trends, and career decisions.

For mentors, Skill-Bridge provides a centralized system to manage availability, appointments, and mentee interactions with minimal administrative effort.

II. Literature Review

Mentoring has always played a significant role in shaping careers, enhancing skills, and providing direction. Traditionally, mentoring was conducted through informal and limited-access networks such as family contacts, academic advisors, or workplace seniors. These conventional methods of mentoring often lacked scalability, accessibility, and diversity of expertise. Before the digital era, mentees depended heavily on word-of-mouth, physical meetups, or institutional mentoring programs which were often slow, inconsistent, and limited in scope. These traditional methods often face challenges such as limited reach, lack of proper scheduling, no standardized process for tracking progress, and minimal documentation of outcomes. Additionally, many aspiring mentees in rural or remote areas are deprived of access to such valuable interactions. With the evolution of the Internet and digital communication tools, modern mentoring platforms now offer scalable, accessible, and interactive solutions. Online platforms allow candidates to connect with mentors across different regions and industries in real-time, based on skill sets, interests, and availability. The integration of video calling, automated booking systems, and structured feedback mechanisms has significantly enhanced the mentoring experience. However, it is important to note that while digital mentoring platforms are revolutionising how mentoringis delivered, they are complementing—rather than completely replacing—traditional mentoring methods. The goal is to bridge the gap and make expert guidance available to all, regardless of location or background, while maintaining the personal touch and depth of conventional mentoring relationships.

Technical Feasibility

The technical feasibility of the mentoring platform revolves around the selection of appropriate technologies to meet user requirements efficiently.

Client-Server Architecture: The platform will be a web-based application with a responsive frontend (React.js) and a scalable backend (Node.js).

Calendar Booking System: Integration with Calendly API or custom scheduling logic (using Google Calendar API) will automate mentor availability checks and slot bookings.

Video Call & Chat: Embedded video conferencing can be achieved using WebRTC (for peer-to-peer calls)

Database: A cloud-based database will store user profiles, schedules, and session logs.

Security: End-to-end encryption for chat/video calls and OAuth-based authentication (Google/Facebook) will ensure data privacy.

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Economical Feasibility

The project is cost-effective with tangible benefits for mentees (career growth) and mentors (monetization/networking).

Development Costs:

Open-source tools (WebRTC) reduce licensing costs.

Cloud hosting (AWS/Azure free tiers for initial deployment).

Revenue Streams:

Freemium model (free basic sessions + paid premium mentorship).

Commission from mentor fees or corporate partnerships.

ROI: Scalability ensures long-term sustainability with low maintenance costs post-development.

III. Problem Statement

In the current professional landscape, mentorship plays a vital role in shaping individual careers, enhancing employability, and guiding personal growth. However, the availability and accessibility of structured mentorship programs remain highly limited. Most existing mentorship processes are unorganized, location-dependent, and lack real-time digital interaction, preventing students and professionals from receiving timely and relevant guidance.

Traditional mentorship frameworks—relying primarily on in-person meetings or institutional networks—often suffer from:

Lack of standardization: No consistent structure or process for matching mentors and mentees.

Limited accessibility: Geographic and institutional constraints restrict access to expert mentors.

Scheduling inefficiencies: Manual communication and coordination lead to missed opportunities and time conflicts.

Absence of digital integration: Few platforms offer unified tools combining video conferencing, scheduling, and communication.

Poor scalability: Current systems cannot accommodate growing numbers of mentees across multiple domains.

These challenges create a significant gap between aspiring mentees seeking direction and experienced mentors willing to contribute. Without a structured, technology-enabled solution, potential learning opportunities remain untapped, and mentees struggle to navigate career and skill development independently.

The Skill-Bridge platform is proposed to address these limitations by developing a centralized, interactive, and scalable digital mentorship system. It provides automated scheduling, secure virtual meetings, and communication tools that connect mentees with domain experts in real time. By leveraging modern web technologies, Skill-Bridge aims to redefine mentorship as an accessible, inclusive, and impactful experience for all users.

IV. Implementation

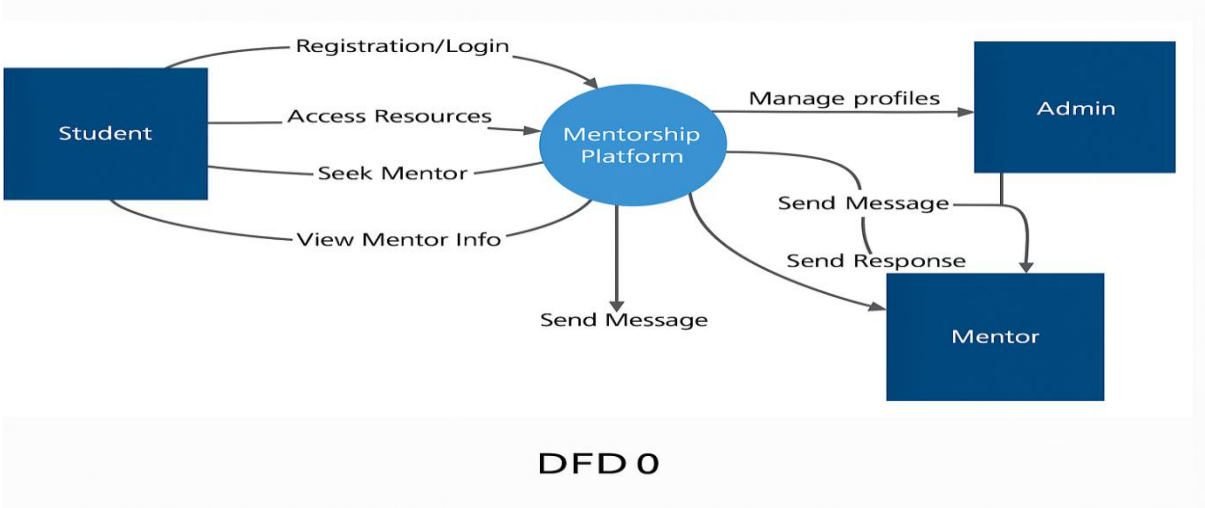

Figure 1: System Architecture

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Skill Bridge represents the high-level overview of the mentorship platform's core processes and their interactions with external entities. At this level, the diagram focuses on the primary functions: User Registration, Session Scheduling, Mentor-Mentee Interaction, and Admin Management. External entities such as Mentees, Mentors, and Admins interact with the system through various processes. Mentees can register, search for mentors, schedule sessions, and receive guidance. Mentors manage their profiles, respond to mentee queries, and conduct sessions. The Admin oversees user management, ensures platform integrity, and monitors activities. Data flow between processes is depicted to show how information is shared and managed within the system, ensuring smooth functionality for all users.

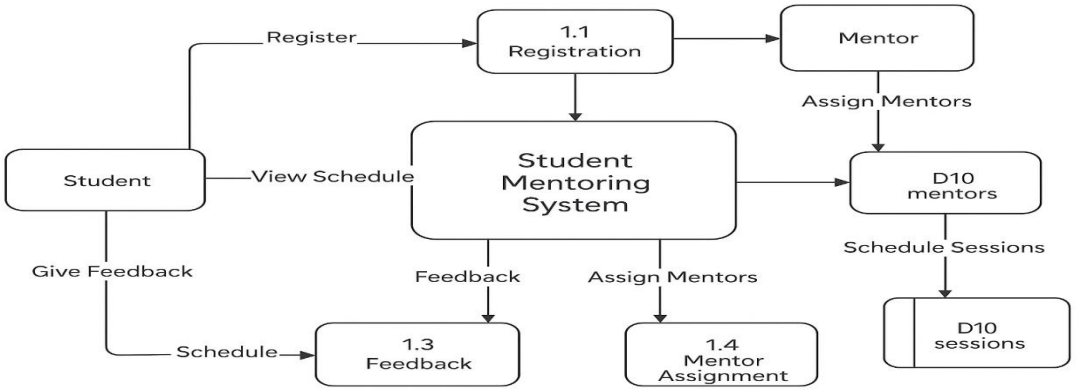

Figure 2 Skill Bridge

Data Flow Diagram (DFD) of the mentorship platform illustrates the primary components and interactions within the system. It begins with user registration and authentication, allowing mentors and mentees to securely sign up and access the platform. Mentors can manage their profiles, set availability, and define their areas of expertise. Mentees search for mentors, view profiles, and book sessions through an automated scheduling system. These sessions are managed with reminders and calendar integration. The platform includes embedded video call and chat functionality to facilitate real-time communication during mentoring sessions. Notifications are sent to keep users informed about session updates, responses to queries, or platform announcements. The admin panel ensures smooth operation, content moderation, and maintains detailed reports on user activity.

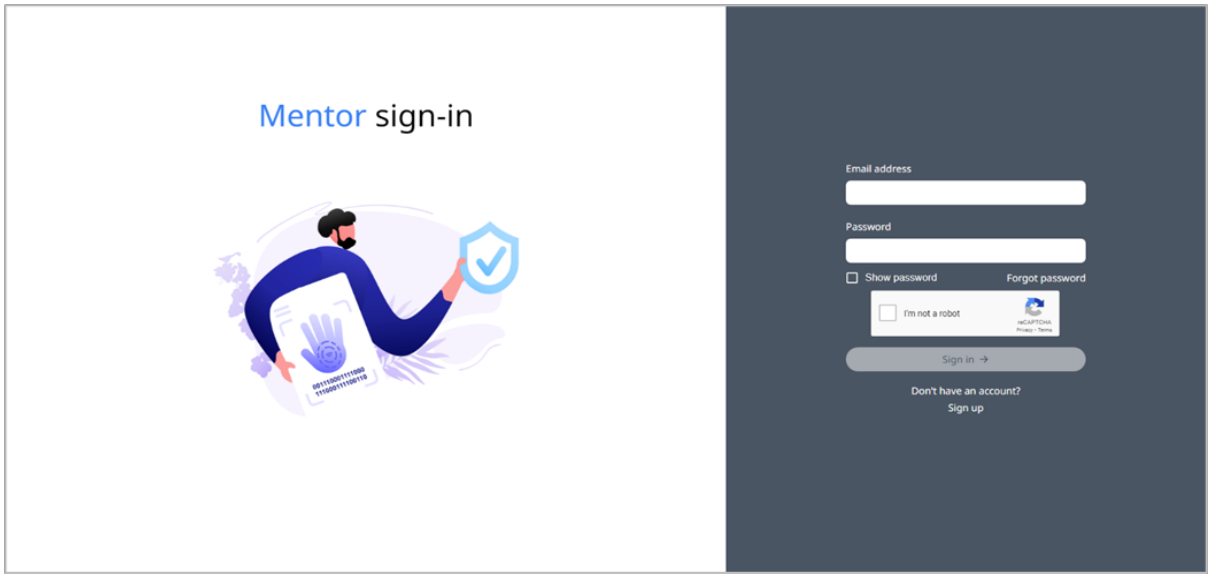

Figure 3- Mentor Sign In Page

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App provides 3 different types of users – Admin, Mentors and Students, The app provides 3 different types of users – Admin, Mentors, and Students. Each user type has a distinct login interface and role-based access within the platform. The Mentor Sign In Page allows verified mentors to securely log in using their registered email and password.

Upon successful authentication, mentors are redirected to their personalized dashboard, where they can manage their profile, view upcoming sessions, respond to student queries, and monitor their mentorship activity. The system ensures secure access using encrypted login protocols. Additionally, mentors can reset their password through a secure recovery process. This role-based sign-in structure ensures that each user accesses only the features relevant to their responsibilities, improving both security and usability across the platform.

V. CONCLUSION

Mentoring has long been recognized as a critical component in the educational and professional development of individuals. It serves as a bridge between theoretical learning and practical application, providing mentees with personalized insights, career guidance, and motivational support. In the context of India's rapidly evolving job market and educational ecosystem, a structured and scalable mentoring solution is not just beneficial—it is essential.

The proposed online mentoring platform addresses these needs by offering a centralized digital space where mentors and mentees can connect, interact, and grow. By leveraging modern technologies such as automated scheduling systems, embedded video conferencing, and real-time chat, the platform provides a seamless user experience that enhances the traditional mentoring process.

The platform successfully connects candidates with industry leaders and subject matter experts, enabling personalized guidance that aligns with mentees' career aspirations. This direct access to expertise enhances employability by offering insights into industry trends and expectations. The automated calendar booking system, integrated with tools like Calendly, streamlines scheduling, reduces logistical barriers and ensures mentors' availability is optimally utilized. The user-friendly interface further empowers mentees to engage effortlessly. Embedding video calls with chat functionality facilitates real-time, resource-rich communication, making mentoring sessions more interactive and productive. This feature caters to the modern preference for virtual engagement, especially in a post-pandemic world. By addressing the mentoring gap, the platform contributes to India's demographic advantage, equipping students with the tools to navigate infinite career directions.

REFERENCES

[1] S. Patel and M. Sharma, "Design and Development of a Web-Based Mentorship Platform," *International Journal of Computer Applications*, vol. 184, no. 23, pp. 48–55, 2024.
[2] A. Gupta, R. Mehta, and P. Singh, "Mentor-Mentee Matching System Using Machine Learning," *IEEE Access*, vol. 12, pp. 14210–14218, 2023.
[3] D. Kaur and N. Bansal, "Automated Scheduling and Calendar Integration for Web Platforms," *Procedia Computer Science*, vol. 218, pp. 130–137, 2023.
[4] R. Verma and S. Jain, "Real-Time Communication Systems Using WebRTC and Node.js," *Journal of Emerging Technologies in Computing and Information Sciences*, vol. 15, no. 2, pp. 65–72, 2022.
[5] A. Thakur and P. Joshi, "Designing Secure Authentication Frameworks for Cloud-Based Web Applications," *International Conference on Smart Computing and Informatics (SCI)*, Springer, 2022, pp. 85–92.
[6] Google Developers, "Integrating Calendly and Google Calendar APIs for Automated Scheduling." [Online]. Available: https://developers.google.com/calendar
[7] WebRTC Project, "Real-Time Communication in Modern Web Applications." [Online]. Available: https://webrtc.org
[8] Firebase Documentation, "Cloud Firestore and Firebase Authentication." [Online]. Available: https://firebase.google.com/docs
[9] React Documentation, "React – A JavaScript Library for Building User Interfaces." [Online]. Available: https://react.dev

ISSN : 2455-9679
SJIF Impact Factor : 6.008

[10] National Board of Accreditation (NBA), *Self-Assessment Report Guidelines for UG Engineering Programs*, New Delhi, 2024.