

Enhancing Online Learning through Mentor- Based Skill Development: A Case Study on Upskillink

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ABSTRACT: Online learning has transformed the education sector, but it still faces challenges such as lack of personalized mentorship, limited engagement, and difficulty in doubt resolution. Upskillink is an innovative platform designed to address these gaps by providing students with live online classes and a unique bidding system where mentors assist students in resolving their doubts. This research paper explores the development of Upskillink using the Agile model, analysing its impact on student learning and mentor engagement. The study highlights the effectiveness of mentor-driven learning and discusses potential future enhancements to the platform.

KEYWORDS: Online Learning, Skill Development, Mentorship, Agile Model, Student Engagement

I. INTRODUCTION

The shift towards online education has opened numerous opportunities for students to learn new skills. The rapid advancement of digital learning platforms has made education more accessible; however, many of these platforms focus solely on pre-recorded courses, leaving students with limited options for real-time interaction and mentorship. This lack of personalized guidance often leads to difficulties in understanding complex concepts, reducing overall learning efficiency.

Mentorship plays a crucial role in effective learning by providing students with direct access to experienced professionals who can offer tailored support and insights. Traditional classroom learning often benefits from such mentorship, whereas online education struggles to replicate this experience. The absence of real-time doubt resolution and interactive problem-solving sessions creates gaps in knowledge retention and practical application.

Upskillink bridges this gap by offering live mentorship sessions and a bidding system for resolving student doubts. Through this approach, students can seek personalized guidance from industry experts and experienced mentors, improving their learning outcomes. Additionally, the platform provides an opportunity for mentors to engage with learners dynamically, creating a collaborative educational environment. This paper investigates the significance of mentorship in online education and how Upskillink enhances the learning experience for students by addressing the shortcomings of conventional e-learning platforms.

Paper is organized as follows. Section II describes automatic text detection using morphological operations, connected component analysis, and set of selection or rejection criteria. The flow diagram represents the step of the algorithm. After detection of text, how text region is filled using an inpainting technique that is given in Section III. Section IV presents experimental results showing results of images tested. Finally, Section V presents conclusion.

II. LITERATURE SURVEY

Several existing platforms provide online learning opportunities, such as Coursera, Udemy, and Khan Academy. However, these platforms primarily focus on pre-recorded lectures and self-paced learning, often lacking real-time mentor interactions. Studies have shown that mentorship-driven learning improves knowledge retention and practical understanding. According to Garrison and Vaughan (2008) in [5], blended learning that combines structured courses with interactive mentorship fosters deeper engagement and better comprehension. In [9] Research by Siemens (2005) suggests that connectivism—where students learn through networks and interactions—plays a significant role in modern e-learning. However, many platforms fail to leverage mentorship effectively, leading to passive consumption rather than active engagement. Further, Allen and Seaman (2013) in [3] highlight that while online learning adoption has increased significantly, student satisfaction levels remain variable due to the lack of personal support and real-time assistance. In [10] Rovai (2002) discusses the importance of building a sense of community in online learning environments, which mentorship programs can enhance. Upskillink aims to combine structured learning with flexible, mentor-guided assistance to offer an interactive educational experience. However, as a platform still in **beta**, its effectiveness in real-world application is yet to be fully measured. Future improvements should focus on refining the mentor-student interaction model and addressing engagement challenges.

III. METHODOLOGY

The development of Upskillink follows an iterative methodology, integrating Agile and Lean Startup principles to ensure continuous improvements, user feedback integration, and scalability. The approach consists of the following key stages:

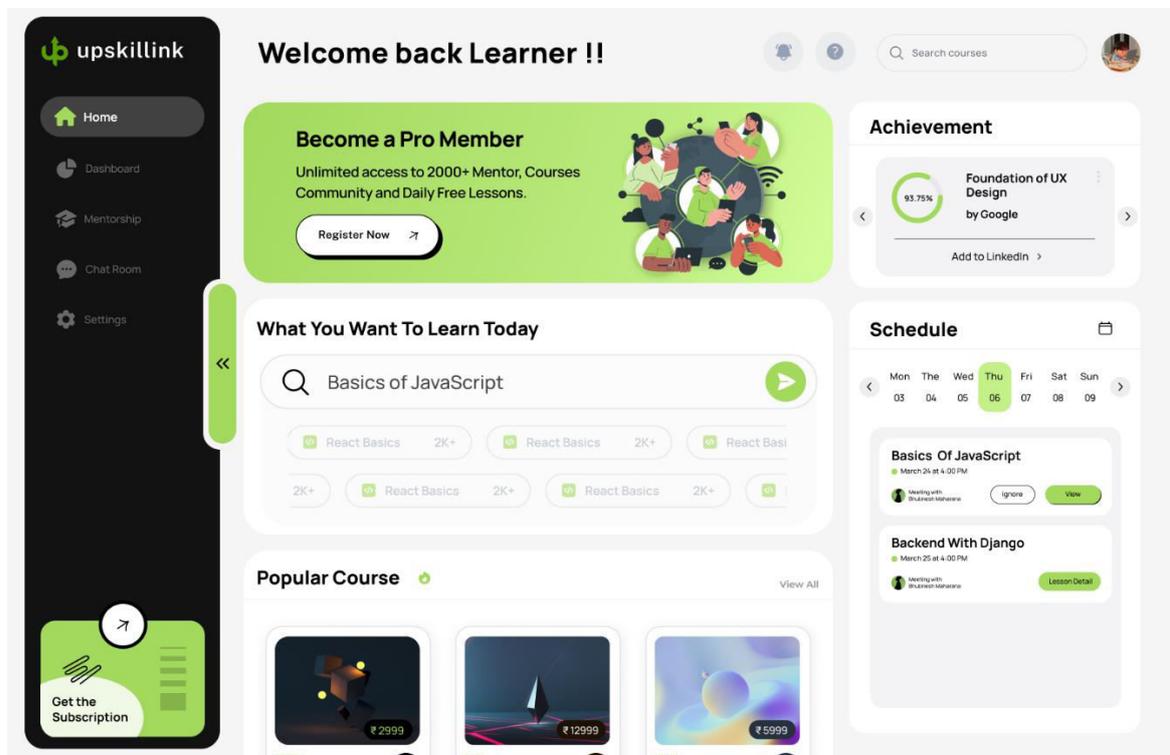
1. Conceptualization and Problem Identification – Conducting market research, user surveys, and competitor analysis to understand student learning challenges and gaps in existing online education platforms.
2. Lean Development and Minimum Viable Product (MVP) – Building an initial prototype with essential features, including live mentorship sessions and the bidding system for doubt resolution, ensuring minimal yet functional implementation for early testing.
3. Agile Development and Iterative Testing – Implementing features using Next.js, MongoDB, and Tailwind CSS, focusing on modular design and scalable architecture. Continuous testing is performed with Postman for backend API validation, ensuring secure and optimized performance.
4. User-Centric Enhancements – Gathering feedback from beta users, analysing engagement patterns, and implementing improvements such as mentor profile verification, enhanced UI/UX, and streamlined communication tools.
5. Performance Optimization and Security Measures – Enhancing platform performance by optimizing database queries, improving server response times, implementing caching mechanisms, and integrating OAuth-based authentication for secure access.
6. Testing and Quality Assurance – Conducting various testing methods, including unit testing for individual components, integration testing for seamless functionality across services, and load testing to evaluate performance under high traffic conditions. Automated test scripts are used to ensure stability and reliability.
7. Deployment and Cloud Infrastructure – The platform is deployed on a cloud-based architecture using containerized solutions like Docker and Kubernetes to ensure scalability and fault tolerance. Continuous Integration/Continuous Deployment (CI/CD) pipelines facilitate seamless updates and bug fixes without downtime.
8. Beta Testing and Feedback Loop – Running extensive beta tests with a diverse group of students and mentors, tracking user behaviour with analytics tools, and refining features based on feedback. A/B testing is utilized to compare different versions of features and optimize engagement.
9. Future Roadmap and Scaling Strategy – Planning the integration of AI-driven mentor matching, machine learning-based recommendation systems, gamification features, and blockchain for verifiable skill certifications to improve platform usability and credibility.

The iterative development approach ensures that Upskillink evolves dynamically based on real-world user needs, reducing inefficiencies, and enabling quick adaptations. The integration of Agile sprints, user-driven feature enhancement cycles, and lean testing methodologies maximizes platform reliability and user satisfaction. Moreover,

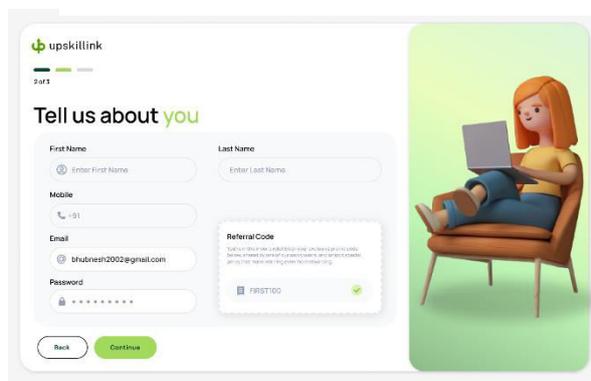
scalability considerations, including horizontal scaling through microservices and efficient database indexing strategies, are implemented to accommodate future growth.

IV. EXPERIMENTAL RESULTS

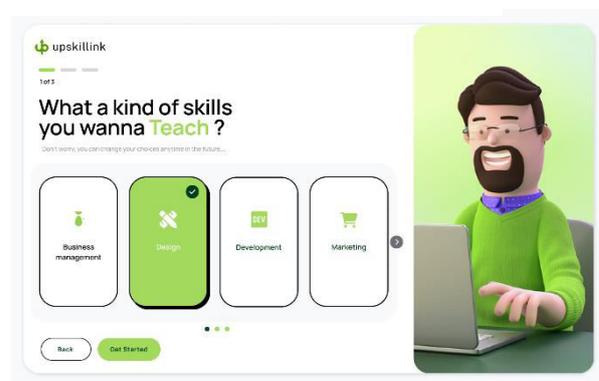
Figures show the results of different stages of the Upskillink platform's UI and functional development. The five figures demonstrate key screens of the platform. a. Home Screen showcases the initial interface where users can explore the platform's offerings b. Register Screen displays the onboarding process for new users, ensuring ease of access c. Onboarding screen guides users through the platform features and mentor interaction process d. Dashboard is the main interface where students and mentors manage their sessions, track progress, and interact e. 1:1 video screen demonstrates the core functionality of live mentorship sessions, enabling real-time engagement and knowledge sharing.



(a)



(b)



(c)



(d)



(e)

V. CONCLUSION

Upskillink serves as an innovative solution for bridging the gap between students and mentors in online learning. However, as it is still in beta launch, several aspects of the platform remain under development. While the concept of live mentorship and a bidding-based doubt resolution system holds promise, further testing and refinement are necessary to achieve full functionality. Future improvements should focus on stability, scalability, mentor-student engagement strategies, and AI-driven enhancements to optimize the platform's effectiveness.

REFERENCES

- [1] Anderson, T., & Dron, J. (2011). Three generations of distance education pedagogy. *The International Review of Research in Open and Distributed Learning*.
- [2] Sun, A., & Rueda, R. (2012). Situational interest, computer self-efficacy, and self-regulation: Their impact on student engagement in distance education. *British Journal of Educational Technology*.
- [3] Allen, I. E., & Seaman, J. (2013). *Changing course: Ten years of tracking online education in the United States*. Sloan Consortium.
- [4] Laurillard, D. (2013). *Rethinking university teaching: A conversational framework for the effective use of learning technologies*. Routledge.
- [5] Garrison, D. R., & Vaughan, N. D. (2008). *Blended learning in higher education: Framework, principles, and guidelines*. Wiley.
- [6] Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies*. U.S. Department of Education.
- [7] Goodyear, P., & Retalis, S. (2010). *Technology-enhanced learning: Design patterns and pattern languages*. Sense Publishers.
- [8] Mayer, R. E. (2009). *Multimedia learning (2nd ed.)*. Cambridge University Press.
- [9] Siemens, G. (2005). Connectivism: A learning theory for the digital age. *International Journal of Instructional Technology and Distance Learning*.
- [10] Rovai, A. P. (2002). Building sense of community at a distance. *The International Review of Research in Open and Distributed Learning*.



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