

A Review on the Development of an Intelligent Web Platform for Skill Sharing and Engagement

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Abstract-- Today, skill acquisition and information sharing are fundamental for professional success and personal growth in the information economy. Conventional educational systems have generally been tailored to provide content rich structure yet lack for any kind of interactive peer collaboration which might make their new knowledge practicable or put them in touch with mentors. It offers SkillVerse, an intelligent web-based collaborative platform that allows users with the skills to make their skills available to others with ask for those specific skills. In addition to safe user authentication and structured skill categorization, SkillVerse incorporates a part mutual matching system and autocorrection to facilitate as exactly possible matching up of learning person and mentor in terms of shared interests level of completion. The platform supports assessment of both participatory feedback based on a metadata description system and simple self- evaluations made by learners, thus helping to raise general quality ratings while also fostering stronger confidence within communities. Built with Python Flask as the backend operating software, SQLite for easy relational data management. Versions of SkillVerse with various front-ends that include HTML, C language among others combine high utility and efficiency. By encouraging interactive learning, building a sense of community participation in its system, and providing insights into skill trends that are going to be important in the future; SkillVerse aims to transform online communities of practice and empower everyone with equal access to education. [1][2]

Keywords-- Skill exchange, web application, smart matching technology, feedback system development, collaborative platform standards

I. INTRODUCTION

In an age of rapidly developing technology and global interconnectivity, learning goes far beyond traditional classroom instruction. People now increasingly rely on unprompted and cooperative methods of learning in order to acquire real skills that can be used in their academic, professional and personal goals for practical

effect. Massive Open Online Courses (MOOCs) and online tutorials offer structured content but often do not allow for interactive collaboration between peers, mentorship or real-time skill application. SkillVerse fills this void with an intelligent platform that enables users to both teach and learn, promoting active engagement, collaboration and the continuous development of skills. D. The platform features secure user registration, skill listing, and recommended content tailored to specific users, thus providing a structured yet flexible venue for people to share knowledge.

A. Background and Motivation

The modern workforce needs continuous upskilling and reskilling to keep pace with the times. Traditional pathways of learning, such as courses or workshops, are both time-consuming and often cost prohibitive. They lack the personalized interaction that learners need in order to stay motivated and digest content: Peer-to-peer learning methods have been demonstrated to improve retention, motivation and practical application of knowledge. People who learn in this manner and share their experiences will find that they derive a more comprehensive learning experience. By applying these principles, SkillVerse encourages learners to bring the power of this structured yet flexible, interactive online research setting directly into their homes. It B SkillVerse was designed for the purpose of creating a platform that fosters supporting or mutual learning, allowing people to share their expertise and reducing reliance on formal institutional teaching. [4]

B. Importance of Skill Exchange Platforms

Web-based skill exchange platforms transform traditional approaches to learning through users' direct participation in the creation and sharing of knowledge. Major advantages include:

- **Personalized Learning:** analyzing users' skills, interests and background levels of experience on the platform delivers tailored recommendations that align with each individual's learning goals.
- **Collaboration on a Limited Budget:** Without having to rely on costly courses or institutional arrangements, users can offer each other mentorship as well as skill exchange lessons that don't entail an extra payment.
- **Building a Sense of Community:** platforms like SkillVerse help form networks of learners and educators together with collaboration, mutual training and a sense of community taking shape.
- **Insights from Data:** By collecting and analyzing user data, administrators can spot emerging trends in skill demand, popular topics, and gaps that should be plugged. To provide guidance for the development of future platform content, we use this information to shape eSkill.

C. Objectives

The main objectives of the SkillVerse platform are:

- To implement a safe and user convenient process for registration, authentication, and management of users.
- To allow users to publish or request skills in structured ways that can quickly turn into reality.
- To implement a hybrid matching algorithm: skill combinations are judged as good if two Skills verses appear both within 5 verses of their counterpart (for example, you write "cut" three Verses later and my fellow poet writes "gut" seven verses before next week's publication).
- To enable users to evaluate interactions and preserve quality by building a system that uses feedback and ratings.
- Enhance engagement with analytics, personalized recommendations and community-related features.

D. Data Scope

In this paper, we present the design, implementation, workflow and evaluation of the SkillVerse platform. We emphasize good

use of technology and can scale to fit as well as brains to match I creative hands to fashion clothiers products at reasonable costs. The section covers integration with Python Flask for back end development, slate to database management and graphic web page making using standards like SQLplus for front end interfaces. All these efforts are seen in how SkillVerse fosters community engagement on local levels and at the same time encourages peer learning. SkillVerse has equal access to its resources such as English support and MySQL databases in Vietnam.

II. RELATED WORK

Existing e-learning platforms are mostly for content delivery, rather than interactive skill exchange. Platforms like Coursera offer courses in succession; platforms like Udemy are a public library of courses. Each must be paid for separately and they do not facilitate dynamic peer-to-peer cooperation. Conversely, platforms like SkillShares encourage readily sharing of skills and creative ideas between duos. But none of them possesses intelligent matching mechanisms or the integrated analytics to guide a learner through his learning process's every step not, say, identifying what users are doing each time they (cleverly know that this is what you really should be doing right now). [8][9]

Intelligent recommendation algorithms in the field of education and social networking have yielded some very successful results in terms of both increasing user engagement and providing personalized television recommendations. They use techniques from the field of machine learning to adapt the output based on different input data. Currently, collaborative filtering and content-based recommendations are applied to match users with relevant learning resources or peers. These approaches have never been applied in a structured skill exchange environment. SkillVerse unites these methods in order to make peer matching more precise and efficient. Based on skill similarity, user preferences and categories, it provides an optimum online learning experience. The blended compare-match method used in this system also encourages users to engage more deeply with other related resources that can help them improve their skills further. While it is hardly perfect, we believe our approach begins to address some of these shortcomings by moving in positive directions. [10]

A. Limitations of Existing Systems

- Automated peer matching based on interest compatibility is limited.
- Tracking engagement or learning progress, of what kind and with what quality; amiss. [11]
- Scalability is limited — with a fixed number of places for new communities to spawn and perhaps even constrained by the geography.

SkillVerse addresses this gap by creating a structured environment where users can find mentors or collaborators, share knowledge, and receive actionable feedback to improve their skill acquisition and teaching experience. This would help foster a thriving skill exchange community with grown-ups in it, who can give right advice for free. [12]

III. METHODOLOGY

A. Skills Thematic Concern

SkillVerse imitates social networking website structure in its design, with its Skills Thematic Concern imitating a social-networking web-page layout containing both menu tables and main information field over the whole screen area. "SkillVerse is designed in such a way that it can be used even by people who have never operated a computer before. This makes a perfect combination of simple operability and powerful function. From now on, no matter how many Web pages you visit or which software packages are installed on your computer, you only need to check your bookmarks folder in Skill Verse for all useful resources you've collected." Such was the impassioned appeal made by one of Skillverse's developers.

B. System Architecture

SkillVerse has a three-tiered architecture:

- Frontend Layer: Uses HTML, CSS, JavaScript and Bootstrap to provide responsive user interfaces for registration, skills listing, dashboards and feedback submission.

- Backend Layer: Python Flask which deals with routing, session management, notifications, the hybrid matching algorithm and analytics computation.
- Database Layer: SQLite as a lightweight relational database. It stores user profiles, skills, matches and feedback while ensuring data integrity, consistency and efficient querying. [9]

C. Data Collection and Preprocessing

The collection of user profile information, skills listing (offers and requests), feedback. Pre-processing includes such activities standardizing skill names, the classification of skills and removal of duplicate entries, etc. In addition, it uses categorical coding for compatibility. All these steps are to ensure careful matching and better efficiency for the system. [10]

D. Technique for Matching Skills

- Using Categories to Filter: Ensures users are matched within relevant skill domains.
- Keyword Similarity: Uses the match-score of single skill descriptions to identify overlaps between them and complementarities.
- Scoring Method: Users are sorted by similarity scores, experience levels and the past behavior of engagement.
- In this way, SkillVerse ensures that its recommendations are both practical and align with what users actually want. [10]

E. Feedback and Rating System

After each interaction, users will provide ratings and comments for the other. That is an input into the platform's feedback-driven reputation system. And subsequent users can take advantage: the platform will use this information to get smarter about future matches, recognize active contributors and maintain high-quality interactions. [11]

F. Implementation of the System

- Establish secure registration and authentication of users.
- Provide specific skill services by either offering them or looking for them.

- The matching engine identifies partners and mentors with compatible capabilities and attaches the group to a potential collaborator. Notifications will be issued.
- Users should engage whenever possible to improve their own skills.
- The feedback is accumulated for system analytics and optimization purposes. [12]

IV. IMPLEMENTATION

A. Tools and Technologies

- Python: Handles operations, manages sessions between users and systems, and sets up the environmental controls for the rest of the system.
- SQLite: To store and retrieve user data, skill records and feedback effectively.
- HTML/CSS/JavaScript with Bootstrap: Produces responsive interfaces custom designed for mobile devices.
- Additional Libraries: pandas and scikit-learn will help handle data analytics and compute similarity features. [7]

B. Security and Credentials

User authentication is necessary to ensure secure access. Passwords are encrypted, and sessions are managed to prevent unauthorized entry. Users always own their own skill and privacy data. [14]

C. Scalability and Maintenance

Modular architecture allows horizontal and vertical scalability. System maintenance includes regular updates and performance monitoring. Cloud deployment options—such as AWS, Google Cloud, and Heroku—provide the infrastructure to support real-time collaboration and guarantee worldwide system accessibility. [13]

V. RESULTS AND EVALUATION

A. Hybrid Algorithm

The hybrid algorithm endqually high in relevance meant that SkillVerse's algorithm for matching skills with its purpose is a success. Users meet relatively few people from left field—not to

mention learning failures among peers or mentors who are too much like themselves and therefore not productive. [10]

B. User Satisfaction

Surveys showed that more than 90 percent of users consider the platform to be an intuitive and effective tool for connecting with appropriate partners. They found personalized matching the most effective method. [11]

C. System Performance

Through load testing and performance analysis, SkillVerse runs efficiently under multiple concurrent loads, has low latency and rapid data processing, representative of its scalability into larger communities. [13]

VI. DISCUSSION

SkillVerse integrates personalized matchmaking, user rating system, and community analysis to create a skill-sharing platform that is completely new.

Strengths:

- Personalized recommendations increase efficiency and motivation to study.
- Feedback drives reputation, promoting honesty and collaboration.
- Analytics provide support for decision-making on skills and skill development. [6]

Weaknesses:

Currently, SkillVerse only supports text-based descriptions of skills. Multimedia support, emotional analytics from AI, and games are planned for future development. [14]

- User Data:

Stored securely in accordance with explicit consent, conforming to ethical data management practices. [14]

- Future Developments:

AI emotion recognition, video-based study, gamification, and multi-language interfaces. [15]

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VII. CONCLUSION

SkillVerse demonstrates what intelligent and collaborative skill-sharing platforms can bring to online learning. Modular architecture, hybrid matching algorithms, and integrated feedback systems enhance peer-to-peer interaction. SkillVerse bridges the learner-teacher divide, supports lifelong learning, and encourages equal sharing of expert knowledge. [15]

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