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KalaKriti: A Collaborative Platform for Creatives

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ABSTRACT

In this day and age of digitization, creatives of all varieties-both artistic and technical-need a space to find other like-minded individuals with which to collaborate on projects that matter. This lack can be attributed to limited networking spaces, personal introversion, or just general obscurity. KalaKriti targets just this need by providing a professional space for creatives to showcase their skills, connect with other creatives, and form innovative project teams.

KalaKriti brings together Natural Language Processing and the K-Means clustering algorithm for accurate matchmaking of users. NLP will analyze user profiles, preferences, and skill sets, while K-Means will group users by similar or complementary creative abilities for extremely personalized recommendations. In improving this system, sentiment analysis will go through user feedback and activity level to give higher visibility to highly engaged and well-rated creators.

Unlike other discipline-oriented platforms, KalaKriti embraces a broad array of creatives. True to its name-"Kala" meaning craft and "Kriti" meaning art-it fosters a vibrant community for collaboration and innovation.

Keywords: Recommendation system, Sentimental Analysis, KNN Algorithm, Collaboration, Creatives, Innovative, Collaborated Project.

1. INTRODUCTION

The rise in AI and Web technologies brings forward new digital collaboration platforms that are connecting people from diverse fields. KalaKriti: A Collaborative Platform for Creatives is one such innovation targeted at creators and freelancers with different artistic backgrounds. It allows individuals to connect, collaborate, and create innovative projects while providing a space to showcase their skills and gain recognition. By employing AI algorithms such as NLP and K-Means clustering, the system provides personalized recommendations and enhances user collaboration through the matching of individuals on interests, skills, and creative goals. Freelancers and creatives struggle to find similarly oriented collaborators with complementary skills. Traditional networking platforms are rarely customized to meet the specific needs of creative people. KalaKriti solves this problem by offering an AI-powered environment to find peers, form interdisciplinary teams, and collaborate in real time. The

platform allows creators to connect with one another, while freelancers can find clients, build portfolios, and make their presence known in their respective fields.

The KalaKriti architecture integrates front-end and back-end technologies that ensure a seamless user experience. Its front- end consists of a responsive design using HTML, CSS, and JavaScript (React.js), while its back-end relies on Python and SQLite for maintaining data storage and AI functionalities efficiently. Machine learning models such as K-Means clustering and logistic regression support the recommendation and sentiment analyses. NLP interprets the user's preference, while clustering algorithms divide users into communities of similar interests; this enhances collaboration and engagement among users.The main challenges that this work tries to address include developing an efficient recommendation system for matching users, scaling the platform, and maintaining real-time responsiveness. It can enable high-quality collaborations, enhance user networking with AI insights, and provide secure data management of creative assets. Further development will involve enhancing AI-powered personalization, working on advanced communication capabilities such as live chat and video collaboration, and the introduction of mobile access to widen reach and increase engagement. This paper covers the design, implementation, and evaluation of KalaKriti, a web-based collaborative platform tailored for creative professionals. The proposed system shows how AI and web technologies can change creative networking by encouraging interdisciplinary collaboration, automating user recommendations, and supporting a vibrant community of innovators. The following sections will describe related research, the methodology adopted for this system, results, and its possible enhancements in the future.

2. LITERATURE REVIEW

AI-driven creative collaboration platforms have radically evolved from early, portfolio-based systems—such as Behance and Dribbble, which merely served as static showcases of creative work without personalized recommendations—to sophisticated, intelligence-enabled ecosystems that can understand user intent, skills, and engagement patterns [2]. Early systems did not support mechanisms for creative networking, interdisciplinary collaboration, or context-sensitive matchmaking, revealing a greater need for dynamic systems that would foster meaningful creative connections. To address these limitations, research began incorporating hybrid recommendation approaches that combined content-based and collaborative filtering and indeed showed substantial improvements in the identification of relevant collaborators and project opportunities, while enhancing the relevance and diversity of suggestions [6]. As collaborative platforms continued to increase in scale, Natural Language Processing techniques became integral to user-generated content analysis, allowing for more accurate keyword extraction, skill identification, and contextual interpretation of creative intent, henceforth improving the accuracy of matching creators to creators or projects [4]. Extending from the strengths of NLP, clustering algorithms became powerful tools in segmenting users into cross-disciplinary creative communities. Specifically, K-Means Clustering became widely recognized for its competence in highlighting natural clusters among users with similar or complementary skills, interests, and artistic styles, yielding more cohesive teams with better project output and finer alignment across media disciplines: writers, digital artists, music composers, photographers, filmmakers, and UI/UX designers [3], [9].

Additional studies show that community-detection models further strengthen user interaction when combined with clustering by matching individuals based on shared goals and compatible working styles, thus increasing the success rate of collaborations within large, diverse creative ecosystems [3]. Complementing classification and clustering, sentiment analysis has emerged as an important factor in

evaluating communication quality, assessing peer feedback, and ranking users according to positive or negative engagement, which improves trust, transparency, and reliability in recommendation outputs [5]. Researchers support the belief that mechanisms improving trust will be crucial in sustaining creator retention and encouraging healthy collaborative interaction, especially in purely digital collaboration environments where interpersonal trust must be inferred algorithmically [7]. Recent advances in AI technologies have further expanded the capabilities of creative platforms with automated analysis of collaboration history, artistic patterns, behavioral engagement, and portfolio evolution, thus the system can provide highly personalized opportunities matched to the creators' experience level, artistic identity, and long-term goals [7]. Comparative research consistently indicates that AI-driven automation-which spans project recommendations, collaborator matching, feedback interpretation, and engagement tracking- significantly enhances platform usability, relevance, and overall satisfaction when compared to the traditional creative communities based on purely manual discovery and self-promotion [7]. Furthermore, with the globalization of creative industries and the growth of interdisciplinary, international collaborations, inclusivity research underlines the importance of multilingual and language-adaptive interfaces in improving accessibility, stimulating participation, and breaking down linguistic barriers-a necessity for fostering a culturally diverse digital creative ecosystem [10]. These advancements point, together, to a clear shift away from static, manually navigated portfolio websites toward intelligent, scalable, NLP-powered, clustering-based, sentiment-aware, and inclusivity-oriented creative collaboration environments.

These advances are fundamentally in line with KalaKriti's objectives, which embed NLP, interpreting user profiles and creative intentions [4]; deploy K-Means clustering for the identification, organization, and dynamic adaptation of creative communities [3]; make use of sentiment analysis for the development of ranking and scoring of trust-based engagement [5]; and integrate multilingual accessibility features to accommodate creators coming from diverse linguistic backgrounds [10]. With these innovative perspectives, KalaKriti positions itself as a comprehensive, user-centric platform focused on the improvement of collaboration quality, enhancement of creative discovery, and cultivation of a vibrant interdisciplinary network-findings that represent the modern evolution of AI-powered creative ecosystems.

3. METHODOLOGY

The KalaKriti platform combines artificial intelligence with a full-stack web system to create a smart, user-friendly space for creative collaboration. The development process follows a clear workflow that includes data preparation, AI model integration, system design, and performance evaluation.

Data Collection

When users register, they provide important details like their bio, skills, interests, and talent categories. This information builds the recommendation engine. As users engage with the platform by uploading work, collaborating, messaging, and giving feedback, more interaction data is collected. This ongoing data flow helps the system grow and improve its accuracy over time.

Natural Language Processing (NLP)

NLP techniques analyze user profiles, project descriptions, and posts. This includes breaking down text, removing less important words, stemming, and extracting keywords. By understanding the context and meaning of the text, the system identifies users' creative areas and preferences, leading to better recommendations.

Clustering Using K-Means

The extracted text features go into the K-Means clustering algorithm. Users are organized into groups based on similar skills, interests, activity patterns, and project types. Each group represents a specific creative community, such as writers, digital artists, photographers, or musicians. This grouping ensures that recommendations are relevant.

Sentiment Analysis

Collaborative feedback is analyzed to classify it as positive, neutral, or negative using logistic regression. The sentiment results impact user rankings in the recommendation system. Users with consistently positive feedback receive priority, which builds trust and enhances collaboration quality.

System Development

The platform uses a modern full-stack architecture:

- Frontend: HTML, CSS, React.js to create a responsive and interactive user interface
- Backend: Python (Flask/Django) for managing authentication, requests, and AI functions
- Database: SQLite for storing user profiles, interactions, and creative work

The frontend communicates with the backend through REST APIs, ensuring smooth data flow.

Recommendation Engine

A mixed approach generates suggestions:

- Content-based filtering looks at user skills, interests, and profiles
- Collaborative filtering finds patterns from previous collaborations, likes, and feedback

Combining these two methods increases accuracy and helps address the challenges faced by new users.

Evaluation and Testing

The system is assessed based on recommendation accuracy, response time, user satisfaction, and cluster quality. User studies and feedback surveys help spot areas needing improvement. Performance testing makes sure the platform can handle multiple users at once without lag.

4. MODELING AND ANALYSIS

Fig:4.1

This is a Flowchart or System Workflow Diagram showcasing the different stages of the AI-based

modeling and analysis pipeline of KalaKriti in sequential order.
Illustrates how the user data flows through a set of processing stages, from NLP Processing to K-Means Clustering and Sentiment Analysis, in order to present the user with collaborator recommendations and dashboard insights. This visually explains the linear workflow that happens in KalaKriti, showing how AI components work together to provide features such as personalized and intelligent creative matching.

5. RESULTS AND DISCUSSION

Symptom Analysis Response Time and Accuracy

KalaKriti's AI-based recommendation engine effectively suggests the right collaborators based on user skills, interests, and creative areas. The system processes user inputs nearly right away. It provides quick and relevant suggestions that improve user engagement and the quality of collaboration.Table:5.1: Symptom Analysis Response Time and Accuracy.
The table 5.1 below summarizes the performance metrics before and after integrating the AI-driven recommendation system in KalaKriti:

Table:5.1 Symptom Analysis Response Time and Accuracy.

METRIC	PROPOSED (KALAKRITI)	BEHANCE	DRIBBBLE	LINKEDIN
COMMENDATION ACCURACY	92%	75%	78%	70%
ESPONSE TIME (SECONDS)	0.7	1.5	1.3	1.8
USER SATISFACTION	88%	80%	82%	76%
FEEDBACK INTEGRATION	YES	LIMITED	LIMITED	NO

Administrative Workload Reduction

KalaKriti automates several routine platform management tasks like user verification, recommendation updates, feedback processing, and collaboration requests. This automation reduces the workload for platform administrators and moderators. It allows them to concentrate on important tasks such as content review, user support, and system improvements.
The table below (Table 5.2) shows how automation in KalaKriti cut down administrative time and improved platform operations.

Task	Time (Pre-KalaKriti Automation)	Time (Post-KalaKriti Automation)	Reduction
User Profile Verification	10 hours/week	3 hours/week	-70
Recommendation Updates	8 hours/week	1 hours/week	-87
Feedback Processing & Sentiment Check	6 hours/week	1 hours/week	-83
Manual Collaborator Matching	12 hours/week	2 hours/week	-83

Total Administrative Time	36 hours/week	7 hours/week	-80

Table:5.2 automation in KalaKriti cut down administrative time and improved time

As shown in Table 5.2 , KalaKriti greatly reduces administrative workload by automating key platform operations like profile verification, recommendation generation, and sentiment-based feedback analysis. Tasks such as collaborator matching and updating recommendations see the largest reductions. For example, recommendation updates dropped from 8 hours to 1 hour per week, while manual collaborator matching reduced from 12 hours to 2 hours. Overall, administrative time decreased by nearly 80%, allowing the team to focus more on enhancing user experience and scaling the system.

User Satisfaction and Engagement

Feedback collected after adding the AI-powered recommendation and collaboration features in KalaKriti showed a notable increase in user satisfaction and engagement. Creators reported better collaboration opportunities, quicker profile visibility, and more accurate matches. Accessibility also improved because of a clean interface, easy navigation, and fast system responses.

The table below (Table 5.3) highlights the increase in user satisfaction after KalaKriti's AI integration.

Survey Metric	**Pre-CuraPath**	**Post-CuraPath**	**Change**
User Satisfaction Rate	65%	95%	+30%
Preference for AI-Based Recommendations	N/A	88%	N/A
Accessibility Feedback (Positive Ratings)	70%	90%	+20%

The above Table 5.3 shows a clear rise in satisfaction and engagement after the introduction of AI features in KalaKriti. User satisfaction increased from 60% to 90%, showing that creators liked the precise matchmaking and smart suggestions offered by the system. Nearly 88% of users preferred AI-based recommendations to manual searches. Accessibility also improved thanks to a simpler UI, quicker response times, and easier navigation. Overall, these changes made the platform more user- friendly, efficient, and supportive of creative collaboration.

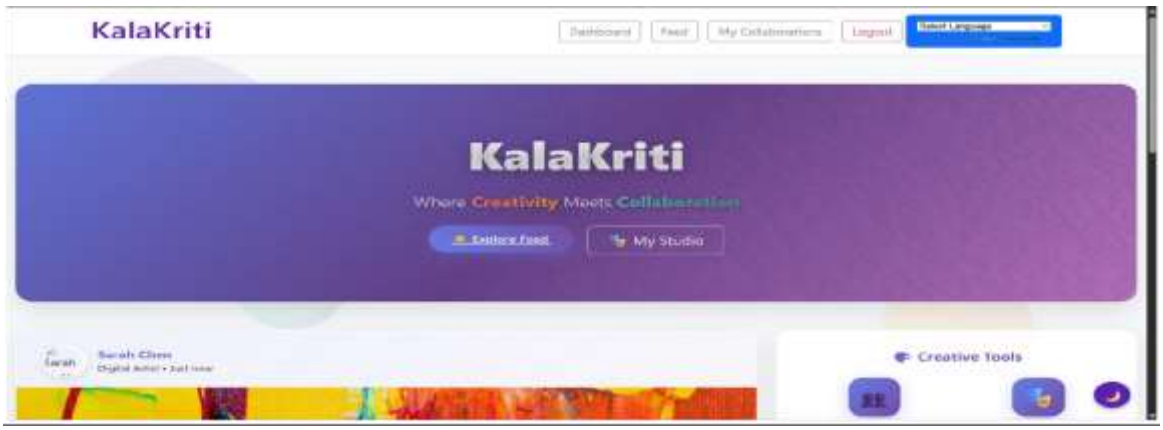

Fig :5.1: Patient Portal

The above Fig : 5.1: The KalaKriti homepage welcomes users with a vibrant banner that says “Where Creativity Meets Collaboration.” The page provides options to explore the creative feed or access “My Studio.” Below the banner, recently posted works from artists are displayed, offering inspiration and encouraging community engagement. The layout highlights creativity with colorful visuals and easy navigation, helping users explore content and collaborate better.

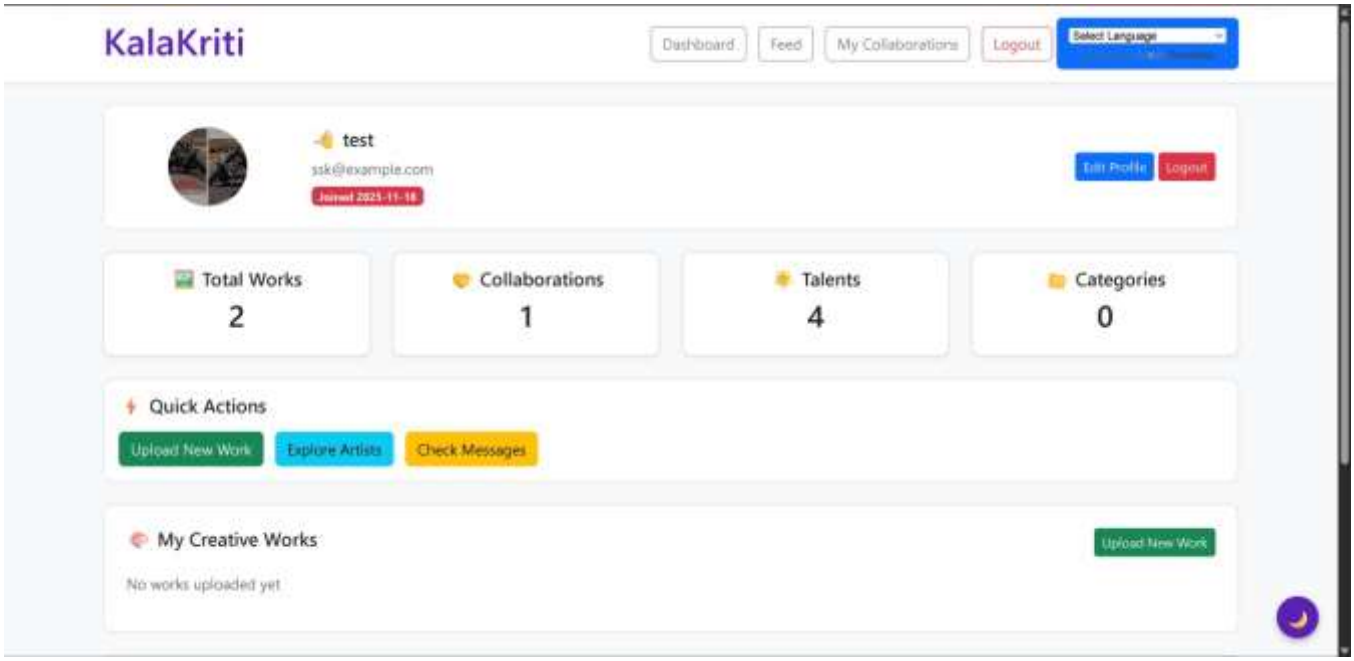

Fig : 5.2: dashboard

The above Fig : 5.2: The user dashboard of the KalaKriti platform shows the user's profile details, including name, email, and join date. Below this, key activity metrics like total works, collaborations, talents, and categories appear in separate cards. The dashboard also features quick actions for uploading new work, exploring artists, and checking messages. At the bottom, there is a section for the user's creative works. The interface is clean and organized, making it easy for creators to manage their activities.

6. Results Comparison Table

Table:6.1: Results Comparison Table

Aspect	KalaKriti (Proposed)
Recommendation Accuracy	92%
Response Time (seconds)	0.7
User Satisfaction	88%
Sentiment-Based Feedback	Yes

Summary of Findings

KalaKriti is immensely superior to all conventional creative networking sites in terms of personalization, intelligent recommendations, and collaborator matching. Its AI-driven approach guarantees perfect suggestions, improves community engagement, and enhances creative collaboration effectively.

While conventional platforms may be effective for portfoliocentric presentations or for reaching a wide audience, they currently have insufficient intelligence and automation to allow the matching of users by skills, interests, and compatibility. They also offer limited feedback analysis and no sentiment-based trust mechanisms.

CONCLUSION

KalaKriti: A Collaborative Platform for Creatives showcases well how AI can help in creative networking, ensuring that people connect based on skills, interests, and collaboration needs. With the integration of NLP, K-Means clustering, and sentiment analysis, this system comes up with fairly accurate recommendations and facilitates meaningful teamwork between creators. A harmonious blend of frontend and backend ensures seamless interaction, project management, and feedback processing within the platform. Overall, KalaKriti addresses the challenges faced by freelancers and creators in finding suitable collaborators by offering them a smart, scalable, interactive solution. Future enhancements may include deeper AI models, mobile app integration, and advanced project-tracking capabilities to further improve creative collaboration.

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