EduSelect: A College Recommendation System

Atharva Amol Raut[1]; Rushikesh M. Shete[2]

[1,2] St. Vincent Pallotti College of Engineering and Technology, Nagpur, India

Abstract: By using input from users about their academic qualifications or interests and preferred geographic location, EduSelect makes finding a college a custom process. With the increasing number of colleges and programs, students have many opportunities, but can often confuse choice with decision. EduSelect allowed students to navigate the ever-increasing number of choices when attending college. Moreover, EduSelect offers the user a research process that includes college profiles with detailed parameters and filters to information - application requirements, school information, rental housing costs, and scholarship opportunities. This report will discuss A) the platform's objectives; B) the technologies that were used to develop the application; C) the challenges that we faced; and D) the potential of EduSelect to guarantee that users are making an informed choice regarding their educational opportunities.

I. INTRODUCTION

Students face a major academic moment when choosing their college because this decision establishes their professional pathways while shaping their individual growth. There exist thousands of colleges that present a wide range of programs, so students face large difficulties in their selection process. Students need to assess three essential elements that include their academic standing, as well as their desired location and entry requirements. The process of acquiring and assessing this information through manual methods turns out to be excessively time-consuming and leads to confusion for users.

We developed the College Recommendation Site as a web-based platform that simplifies the steps involved in college selection. Students receive custom college suggestions that match their unique profiles through data processing algorithms provided by the platform. The application examines academic information and selected major preferences along with desired locations to generate suitable college recommendation results.

The system aims to allow students to avoid intricate search requirements and save time, and improve student decision-making abilities. With its simplistic interface, the students have to provide certain information to provide a personalized list of colleges from which to choose. A personalized recommendation mechanism allows students to obtain college options that align with their academic goals and career objectives.

The platform builds an efficient system that works on massive data, alongside providing user-friendly services and scalable functionalities. This system showcases the recommendation system's strength for educational applications by providing students with tailored college choices.

➢ *Problem Statement*

Choosing a college can be difficult. Factors, including the number of colleges, the number of programs, and admission criteria, can all consume considerable time and become overwhelming if you let them. There can be much searching and comparing in order to select a college. For many students, it is often very challenging to even narrow down what colleges will be the best fit for their academic profile, prospective career plans, and their financial circumstances without trustworthy personalized information and a trusted source. EduSelect will make the process quicker by giving prospective students personalized college recommendations based on individual preferences and unique, qualified characteristics.

➢ *Key Challenges*

• *Personalization and Matching Accuracy:*
Developing an algorithm that can process diverse user inputs, including academic scores, preferred location, budget, and intended major. Balancing multiple criteria while generating accurate and personalized recommendations.

• *Scalability and Performance:*
Handling large datasets and processing requests efficiently as the user base grows. Ensuring system reliability and minimal response time for a seamless user experience.

• *Integration and Real-Time Updates:*
Integrating real-time updates for admission deadlines, entrance exam results, and changing eligibility criteria.

Providing notifications and alerts to keep users informed about relevant opportunities.

By addressing these challenges, EduSelect aims to provide a comprehensive, accurate, and personalized college search experience, helping students make well-informed decisions with minimal effort.

II. LITERATURE SURVEY

Sharma et al. (2020) examine student challenges with college selection based on an excessive number of institutions, together with the absence of tailored recommendation services in the paper [1]. Niche and College Board provide necessary information, yet their systems cannot recommend based on users' academic qualifications and personal career targets, plus financial circumstance information. The analysis underlines how students require dynamic, individualized recommendations for their college decision-making process, which must work efficiently.

The existing college recommendation platforms face difficulties regarding scalability, together with data management, according to Gupta and Reddy (2021). The study shows that expanding user bases and institution numbers leads to platform difficulties in maintaining real-time operation and exact data delivery to students. They support a design strategy that connects a flexible database system through real-time update processes, which keeps users updated with recent educational data. EduSelect meets these suggestions through its implementation of an advanced database structure that provides immediate data delivery to enhance user satisfaction.

Paper [3] from Desai et al. (2022) investigates college search platform operational weaknesses that stem from the inadequate connection between user preferences and college data. The authors state that establishing a unified platform that permits students to add their preferences along with their academic information, alongside enhanced search filters and immediate match functions, leads to better decision outcomes. As a solution, EduSelect implements customized recommendations together with complete college information, coupled with sophisticated search tools that minimize navigation difficulties in college selection.

III. PROPOSED SYSTEM

EduSelect is useful to Users because it is a technology-based web application that has five consumer wrappers supporting students to navigate the college assessment completion process. EduSelect is a shortened digital-access platform for students to receive customized college recommendations with access to their parents and/or counselors using the same platform. EduSelect built a system that assists students as they explore universities and colleges, pinpointing those that match the students' overall academic history, career aspirations, and financial aid conditions.

EduSelect has many features to manage the search for colleges or universities, as it surveys a vast range of higher education institutions with many studies and entry requirements. EduSelect platform uses advanced filtering algorithms, increased college data entities, and usable dropdown search features to improve students' usability and decision-making. EduSelect also provides immediate updates and customization, so a user can confidently make educated decisions about their options, and research and evaluation time are reduced.

➢ *Need for the Proposed System:*
The multiple college selection platforms that exist today encounter several issues that reduce their operational efficiency. Multiple obstacles appear in present-day systems that limit their ability to function effectively.

• *Overwhelming Choices***:**
Many current platform services display an extensive list of educational institutions, which creates challenges for students trying to select their preferred institutions through specific criteria.

• *Lack of Personalization:*
Students encounter difficulties because current platforms do not offer filtered suggestions, which forces them to search many college options independently.

• *Outdated Information:*
The information displayed on various platforms regarding college admission profiles sometimes becomes outdated, making students vulnerable to confused choices.

• *Complex Decision-Making Process:*
When students select a college, they need to compare various aspects like their location choice and program availability in addition to admission requirements and educational costs, which demands considerable time dedication from them. EduSelect addresses these challenges by offering a centralized platform with features that simplify and personalize the college selection process:

• *Tailored College Suggestions:*
EduSelect creates tailored college recommendation lists that match students' academic details and occupational aspirations while taking their budget matters into account. The recommendation system ensures that suggestions match individual student needs precisely.

• *Advanced Search & Filter Options:*
The search engine lets students locate colleges through specific criteria, including geographic location, educational programs, and financial support opportunities, as well as admission protocols, so they can pinpoint suitable institutions without delay.

• *User Accounts***:**
Students can build accounts to maintain their preferred college listings while monitoring application advancement, along with restudying essential information about each school they evaluate.

- *College Profiles:*

  Complete profiles available on EduSelect display essential information about every listed college, featuring academic programs with details about campus activities, as well as financial aid possibilities and admissions criteria.

- *Communication Channels:*

  Through its contact form system, EduSelect provides students straightforward access to obtain information about college programs and admissions procedures, and funding opportunities.

- *Real-Time Updates:*

  Through its platform, the platform provides current information regarding college rankings and program schedules, as well as application deadlines and admission requirements for students to make well-informed choices.

- *Project Planning*

  A Gantt chart is a visual tool used to plan, coordinate, and track project tasks. It provides a graphical illustration of the schedule, showing which tasks need to be completed and when.

- *The Gantt chart for EduSelect would include tasks such as:*

  - Phase 1: Requirements Gathering and Design   (2weeks)
  - Phase 2: Frontend and Backend Development (4 weeks)
  - Phase 3: Database Integration (2 weeks)
  - Phase 4: Testing and Debugging (3 weeks)
  - Phase 5: Final Deployment and Monitoring (1 week)

IV. SYSTEM ANALYSIS

The primary tasks of system analysis for EduSelect focus on establishing student college search methods and evaluation criteria for institutions, together with decision-making participation and timing for college selection. System analysis of EduSelect allows organizations to define the platform's functional requirements, including personalized college suggestions together with user data processing steps and interactions between system components. The system supports appropriate delivery of targeted, trustworthy, time-sensitive information to users who will use it, thereby ensuring an effective match between system requirements and user needs.
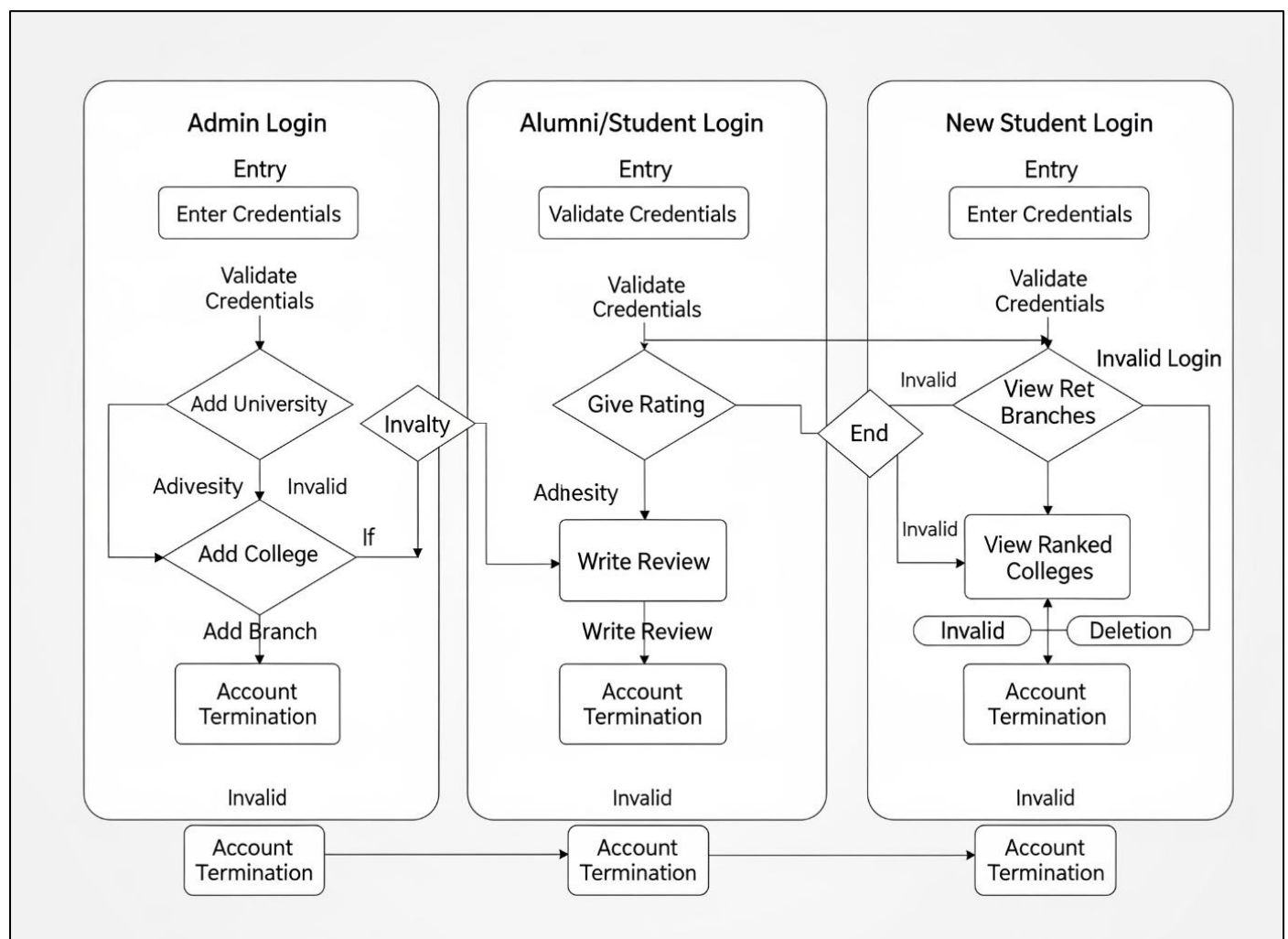
- *Flowchart*

Fig 1. Flowchart of the Proposed System

V. CONCLUSION

The EduSelect project produced essential findings about its effective deployment of a data-driven centralized system, which matches students to colleges based on academic records and professional objectives, and financial resources. These findings include: The system enables an uncomplicated and easy-to-use interface that simplifies student access to college searches and personalized recommendations, and search filters. The algorithm used by EduSelect produces distinctive educational institution suggestions that match the student profile, starting from academic background through professional orientation and budget requirements, leading to straightforward college selection. Users can utilize the search features to filter colleges according to specific locations, together with program types, and both cost and further criteria to match their individual preferences. Students can securely create accounts through the authentication system to both sign in and sign up for accessing their profile information and following their college applications. Students receive real-time data-based recommendations through the platform to access contemporary information about college programs and admission criteria, and financial aid choices.

REFERENCES

[1]. Rajaraman, A. & Ullman, UL Haq, J. D. College of Engineering (2011). Mining of Massive Datasets. Cambridge University Press – Contains useful recommendation algorithms in for EduSelect.

[2]. Matthew E. Peters, Mark Neumann, Mohit Iyyer, Matt Gardner, Christopher Clark, Kenton Lee, Luke Zettlemoyer, "Deep contextualized word representations" Proceedings of NAACL-HLT 2018.

[3]. Kumar, S., & Mehta, P. (2019). AI-Powered College Selection: A Review of Existing Approaches and Future Prospects. IEEE Access.

[4]. Garg, S., & Gupta, A. (2020). A Comparative Analysis of College Recommendation Systems Using Machine Learning. International Journal of Computer Applications, 176(39), 1-6. https://doi.org/10.5120/ijca2020919943

[5]. Niche (www.niche.com) – One of the most popular and comprehensive sources for personalized college recommendations based on user preferences.

[6]. MongoDB Documentation (www.mongodb.com/docs/). This is a reference for using a NoSQL database in EduSelect.

[7]. Jannach, D., & Adomavicius, G. (2016). Recommendation systems: Challenges, insights, and research opportunities. User Modeling and User-Adapted Interaction, 26(1), 1–2. https://doi.org/10.1007/s11257-016-9170-y
This paper discusses modern challenges in recommender systems and approaches to user-centered platforms (e.g., EduSelect).

[8]. Bobadilla, J., Ortega, F., Hernando, A., & Gutiérrez, A. (2013). Recommender systems survey. Knowledge-Based. https://doi.org/10.1016/j.knosys.2013.03.012
This paper offers a broad comparison of collaborative, content-based, and hybrid recommender systems.

[9]. He, X., Liao, L., Zhang, H., Nie, L., Hu, X., & Chua, T. S.(2017). Neural Cooperative Filtering. Proceedings of the 26th International Conference on World Wide Web. https//doi.org/10.1145/3038912.3052569
This paper discusses deep literacy- grounded recommendation models that may be applicable to bodying council recommendations.