

Edu Verse an Education based Web Application with College Prediction using Machine Learning

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Abstract— This website proposes comprehensive information about educational scope and possibilities in the Arts, Science, and Commerce streams. This platform serves as a dynamic hub where students can explore various academic options, empowering them to make well-informed decisions about their educational journey. It mainly aims toward career scope in Arts, Science, and Commerce, Entrance exams that are available for engineering degrees, and different engineering courses available in India. Prospective students can easily search for institutions based on factors such as location, field of study, admission criteria, and more. Additionally, information about scholarships, entrance exams, and application procedures streamlines the often complex and overwhelming process of applying to colleges and universities. It is an education based website with college prediction using machine learning algorithm like linear regression and random forest with Tkinter library. EduVerse main aim is to help students to get information about the courses, entrance exam, scholarships and colleges' admission criteria and all this thing at one place is the main motive of this website. Our application "EduVerse" is aimed to help students understand and know all the career opportunities and to make confident choices about their educational pursuits.

Index Terms— Student admission predictor, Machine learning, learning management system, courses, entrance exams, and scholarships, B.E/B.Tech, 10th, 12th. College prediction system, Cut-off, Ranks, Preference list.

I. INTRODUCTION

"Life is a matter of choices, and every choice you make makes you"- John C Maxwell. EduVerse will be a website that will help students from classes 10, junior college, and Degree College with all information regarding her/his educational needs. The website will contain all information regarding the streams after 10th, career path after 12th, colleges providing that stream, the college admission process, and courses and syllabus for that particular career path. Many students make mistakes in their college preference lists today for a variety of reasons, including faulty college analysis, a lack of understanding, and apprehension about predictions. They later regret the decision after allotment. Our application solves this issue within the student admissions community. The program employs data mining and analytical techniques. Rank, category, preferred branches, preferred district, and preferred colleges are used to construct the preference list, which is based on a detailed review of the cut-off data from the previous five years. This study attempts to construct an automated web application prediction model for a college admission

system, which may be utilized to make an informed college choice prior to allotment. The following are the paper's objectives.

- To assist students in appropriately completing their preferences during the option-entry process.
- To make it easier to select a superior college before allocation.
- To launch a web application for a system of college admission.

Students who want to study engineering after intermediate school sometimes struggle to find a reputable university in their desired field. Common Entrance Tests are typically used for admission to engineering colleges in all of India's states (CET). Through a centralized admission process, each state's examination authority handles admissions. Several rounds of this admissions process are required, depending on the number of available seats. The pupils must first have the authorities verify their documentation. Subsequently, the authorities make available the college cut-offs by category and branch. During the option-entry procedure, students will be permitted to provide a list of institutions and branches that they choose. The authorities will then assign the students to a college and branch depending on their rank, category, and preference list.

Approximately one lakh seats are available in almost 300 colleges across more than 35 distinct engineering specialties in each state. The percentage of seats at colleges varies according to the category. Even after careful examination of the cut-off statistics from the previous few years, students still find it challenging to determine which college and branch they are most likely to get admitted to because there are approximately 15 different categories. When it comes to students from reserved groups, this issue gets worse. Many students make mistakes when creating their preference lists or entering options because they lack the necessary information or because the cut-off data for the previous five years was analyzed incorrectly. As a result, these pupils lament not earning their rightful seat in the end. Our proposal will assist in resolving this issue for the student body. With just one click, students can obtain their preferred list of all universities where they are accepted, reducing stress levels through the use of computers.

II. LITERATURE REVIEW

[1] This paper is planning for innovative teaching and learning technologies incurs more than just budgeting and coming up with figures that serves well in the top management's eyes. This paper describes the concerns of a group of International Islamic University Malaysia (IIUM) lecturers regarding a technological innovation. Hall & Hord's stages of concern questionnaire (SoCQ) is employed for the purpose of gauging the participants' concerns about the use of a learning management system.[2] The purpose of this paper is to share a student's experience using the LMS mobile app. This article investigates the use of a mobile app with an LMS. The study examines how LMS is used both before and after the mobile app is implemented, how students use the web interface and mobile app, and which functions they utilize most frequently. The value of this paper is to provide a concrete example for developers in considering the design and development of m-learning for the higher education institutes.[3] The goal of this article is to identify the critical usability elements, acceptance and implementation challenges, and barriers and facilitators in the LMS domain, with a focus on workplace contexts. A study of the literature has been conducted to accomplish these goals, taking into account 23 research articles that were published between the years 2014 and 2018. The discussion highlighted current issues in the field, as well as gaps and possibilities for further research. [4] In this they had design an efficient cloud-based learning management system for programming instruction can improve student learning and interaction. Three distinct platforms comprise the learning management system: the SaaS, PaaS, and IaaS learning platforms. For programming learning, the SaaS learning platform offers a lesson system, learning system, examination system, document system, forum system, and programming system. For learning to program, the PaaS learning platform offers Visual Studio 2015 Community, C-free, Eclipse, SQL Server, Oracle, IIS, and Apache. IaaS learning platform provides network infrastructure, computing infrastructure, storage infrastructure for programming learning. [5] To solve the previously mentioned issue, the author of this study suggested an online teaching management system that is geared for public universities and is also known as Tsinghua University Online Judger (THUOJ). The system is appropriate for variations across various modules and can offer customized programming grading services because, aside from a few basic management functions, its primary focus is on programming assignment grading and program assessment customization for various programming courses. In this article, the author made his design according to the potential users of the system, and proposed a design of the system's structure on the basis of the frame using Linux+Apache+MySQL+PHP(LAMP).[6] This approach might use information about prior applicants to different universities to determine their admittance or rejection status. Previous iterations of these prediction systems have a number of flaws, including the omission of crucial elements like research experience or

GRE (Graduate Record Exam) results. Moreover, the accuracy that previous models provided is likewise insufficiently high. This research presents a stacked ensemble model that forecasts a student's likelihood of admission to a specific university. The proposed model takes into consideration various factors related to the student including their research experience, industry experience etc. [7] this application deals with the community's problem of student admission. Data mining and data analysis techniques are used in the application. Preferred colleges, preferred districts, desired branches, and rank are all considered inputs. After carefully examining the cut-off statistics for the previous five years, a preference list is produced. In this paper, an attempt has been made to develop an automated web application prediction model for a college admission system which can be used to make a wise choice of college before allotment. [8] This paper aims to build a model that can help students to pick the right universities based on their profiles. We can judge across a wide variety of domains that include MS (international), MTech (India) and MBA (India and International). For the accurate predictions we plan on training a machine learning model in order to provide results. The dataset contains information on the student profile and the university details with a field detailing if the admission was positive or not. Various algorithms have been used i.e. Ensemble Machine Learning and the predictions have been compared using key performance indicators (KPIs).

III. PROPOSED METHODOLOGY

The proposed EduVerse model seeks to enhance the existing college search and guidance resources available online, aiming to create a comprehensive and centralized platform for students from the 10th grade through their graduation. This platform goes beyond the scope of traditional college search engines like collegedunia.com and offers a more holistic approach to educational guidance and support. The platform caters to students from the 10th grade, providing them with a detailed roadmap for their entire educational journey, including guidance on choosing the right courses, selecting suitable extracurricular activities, and making informed decisions about their academic and career paths.



Fig. 1. System Architecture of Proposed model

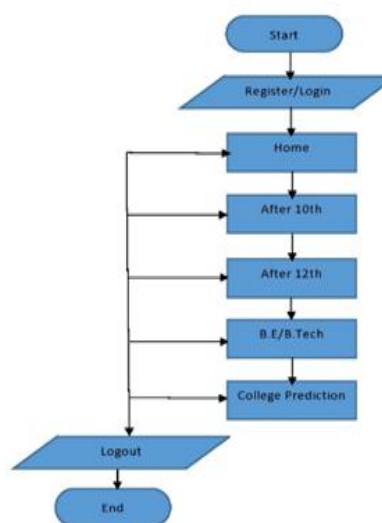


Fig. 2. Flowchart of User interaction

An individual can enter their scores in the corresponding fields in the suggested system. Following the data entry, the system generates an output that includes a list of universities an individual may be eligible to attend along with their respective scores. This saves time and money and is comparatively rapid. We have put forth a novel approach that makes use of machine learning techniques to do this. In order to optimize our model's accuracy, we have considered multiple machine learning approaches. Neural networks, decision trees, random forests, and linear regression are some of these techniques. We shall discuss these algorithms in more detail in this paper's Algorithms section. The prediction system will be developed using the algorithm that has the best key performance indicators once these algorithms are compared. Additionally, we are excited to group institutions according to a profile and categorize them as less likely, very likely, etc. to be accepted. We have included the Python machine learning packages pandas and NumPy in our suggested prediction technique. The stream light package was utilized in the development of the online application and user interface (UI).

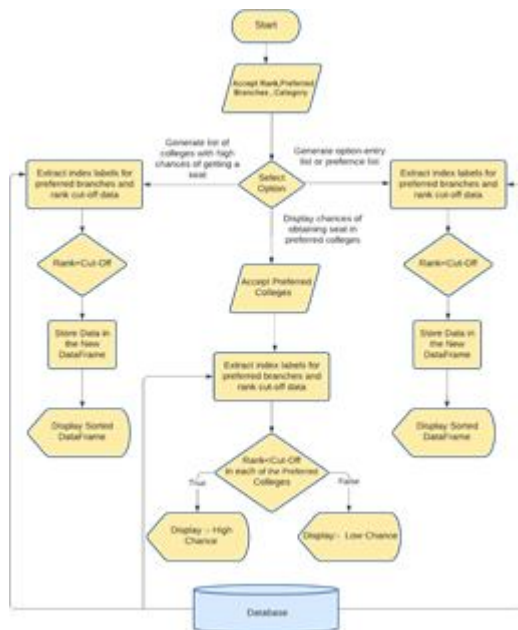


Fig. 3. Flowchart of college prediction model

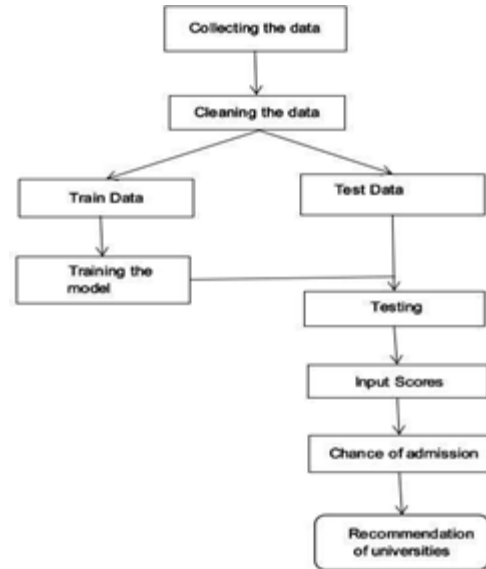


Fig. 4. System Architecture of college prediction model

The dataset includes many criteria that are associated with selecting the best college. It includes data from numerous branches, including CS, IT, EXTC, and others. Several criteria are used to classify the dataset: branch, category, college name, rank, percentile, and college code.

IV. CONCLUSION

Millions of students apply to universities each year to start their academic careers. The majority of them lack the necessary tools, background information, and caution, which leads to a number of issues like applying to the incorrect school or institution and wasting more of their time, money, and energy. We have made an effort to assist these students who are having trouble selecting the best university for them with the aid of our initiative. Applying to universities one has a strong probability of being accepted into is far more significant than applying to universities one may never be accepted into.

FUTURE WORK

Expanding the platform's scope to include information and resources about global education opportunities, such as international exchange programs, study abroad options, and global internship placements. This could enable students to explore diverse cultural experiences, gain international exposure, and broaden their perspectives on global issues and trends. Implementing a personalized learning path feature that adapts to individual students' learning styles, interests, and abilities. This could involve leveraging artificial intelligence and machine learning algorithms to provide tailored educational recommendations and adaptive learning experiences for students. In future we can add prediction of other streams, courses, degrees, other universities, and information related to foreign universities.

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