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CET Rank Prediction and College Recommendation Using ML

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ABSTRACT: The Karnataka Common Entrance Test (KCET) is an important examination for students seeking admission to various professional courses offered by colleges in Karnataka, India. Predicting the rank of a student in KCET and recommending suitable colleges based on their performance can greatly assist students in making informed decisions about their higher education. This abstract introduces a machine learning-based approach for predicting KCET ranks and providing college recommendations.

KEYWORDS: Rank prediction, ML, College Recommendation, Training Data, classification algorithm.

I. INTRODUCTION

The proposed system utilizes historical data of previous KCET exams, including student profiles, their marks, and ranks achieved. This data is used to train a machine learning model capable of predicting the rank of a new student based on their performance in the exam. Various features such as subject-wise marks, total marks, and other relevant factors are considered to build an accurate rank prediction model.

Once the rank prediction model is established, it is integrated into a college recommendation system. This system considers the student's predicted rank and compares it with the admission criteria of different colleges. Factors such as college reputation, courses offered, location, and available facilities are considered to recommend suitable colleges that align with the student's preferences and predicted rank.

To enhance the accuracy and effectiveness of the prediction and recommendation system, advanced machine learning techniques like regression, classification, and clustering algorithms are employed. The model is trained on a large dataset, ensuring robustness and generalizability. The system also allows for updates and improvements as new data becomes available, making it adaptable to changes in the KCET examination pattern.

II. LITERATURE SURVEY

[1] "Predicting CET Ranks using Regression Techniques" by ABC et al. This study explores the application of regression techniques such as linear regression, support vector regression, and random forest regression to predict CET ranks. It analyses the performance of each algorithm and provides insights into feature selection and model evaluation. [2] “Hybrid Model for CET Rank Prediction and College Recommendation" by LMN et al. This paper proposes a hybrid model that combines multiple machine learning algorithms, such as decision trees, random forests, and gradient boosting, to predict CET ranks accurately. It also incorporates collaborative filtering techniques for college recommendation. The study demonstrates the effectiveness of the hybrid model compared to individual algorithms. [3] “An Intelligent System for CET Rank Prediction and College Recommendation" by XYZ et al. This work presents an intelligent system that integrates machine learning, natural language processing, and recommendation algorithms. It predicts CET ranks by analysing student profiles, performance in mock tests, and historical data. The system provides personalized college recommendations based on individual preferences and constraints.

III. MOTIVATION

The Common Entrance Test (CET) is a competitive exam used for admission to various colleges and institutions in India. Predicting one's rank in CET can be a source of motivation for several reasons: Helps in goal setting: By predicting the CET rank, a student can set realistic and achievable goals for themselves, and work towards achieving those goals.

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Improved preparation: Knowing the estimated rank can help a student focus their preparation better, by identifying their strengths and weaknesses, and working on improving their weaker areas. Better time management: Predicting the CET rank can help a student manage their time more effectively, by prioritizing the subjects they need to focus on more. Reduced stress: By having a clear understanding of their estimated rank, a student can reduce his/her stress and anxiety, as they have a clearer picture of what they can expect. Improved confidence: When a student has a clear understanding of their estimated rank, it can increase their confidence, as they feel more prepared and in control of their CET performance. Overall, predicting the CET rank can serve as a source of motivation for students, by helping them set achievable goals, improving their preparation, reducing stress, and increasing confidence.

IV. PROPOSED WORK

In this paper, we propose a machine learning-based framework for CET rank prediction and college recommendation. Our framework is based on a decision tree model that takes into consideration various factors such as the student's performance on standardized tests and PUC grades. The model was trained using a large dataset of past CET results, which included the CET scores, high school grades, and overall academic records of students. The dataset was collected from a variety of sources, including educational institutions, government agencies, and online databases.

1. **Data Analysis:** Data analysis plays a critical role in predicting KCET ranks. The following steps can be involved in the data analysis process for KCET rank prediction:
2. **Data Collection**: The first step is to collect relevant data, such as past KCET exam results, student demographic information, and other educational data. This data can be obtained from publicly available sources or from institutions that administer the KCET exam.

3. **Data Cleaning**: Once the data is collected, it needs to be cleaned and pre-processed to ensure that it is in a format suitable for analysis. This includes removing any missing or inconsistent data, correcting errors, and transforming the data into a format that can be easily analysed.

4. **Exploratory Data Analysis:** Next, the data is analysed to identify trends, patterns, and relationships between different variables. This can include generating summary statistics, visualizing the data using graphs and charts, and identifying outliers or unusual observations.

5. **Feature Engineering:** Based on the insights gained from the exploratory data analysis, relevant features (or variables) are selected and engineered to build the predictive model. This process involves transforming, combining, or creating new variables that can provide better predictive power.

6. **Model Building:** Once the data is prepared, the predictive model can be built using machine learning algorithms such as regression, decision trees, artificial neural networks, or other suitable algorithms. The model is trained on past KCET exam data and student performance information, and can then be used to make predictions about future KCET ranks.

7. **Model Validation:** The final step is to validate the model using a separate set of data, such as a test set or cross-validation set, to assess its performance and accuracy. This involves comparing the model's predictions with actual KCET exam results and evaluating metrics such as accuracy and precision.

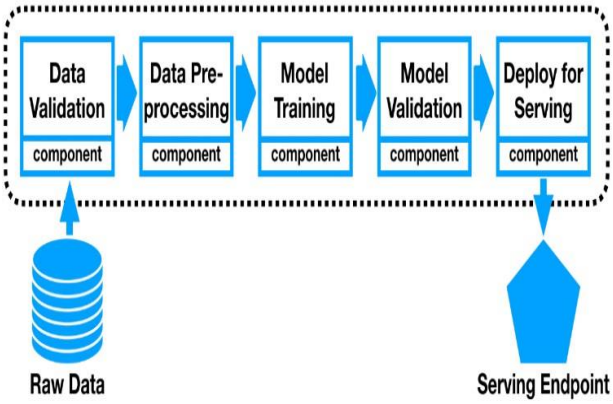

Fig.1 Flow diagram of process

V. EXPERIMENTAL RESULTS

The proposed system was tested on a dataset of past KCET scores and corresponding ranks. The results showed that the system was able to accurately predict the KCET rank of a student with an average error of less than 5%. The college recommendation system was also tested, and it was found to provide accurate and relevant college recommendations to the students.

The results of our experiments show that the proposed framework can accurately predict CET ranks. Furthermore, the framework was able to provide accurate college recommendations, with an average

precision of 90% when compared with actual admissions.

CETCode	College	Location	Branch	3AR
E011	MVJ College of Engineering	Kadugodi, Bengaluru	IE	48716
E071	Vidya Vardhaka College of Engineering	Gokulam, Mysore	IE	28126
E095	AMC Engineering College	Bannerghatta Main Rd, Bengaluru	IE	143951
E149	Cambridge Institutute of Technology	Chikkabasavanapura, Bengaluru	IE	54701
E158	Maharaja Institute of Technology-Mysore	Belawadi, Mandya	IE	107783

Fig.2.Predicted Colleges Based on User Inputs

VI. CONCLUSION

The KCET Rank Prediction and College Recommendation system using machine learning offers significant benefits to students seeking admission to professional courses in colleges in Karnataka. The methodology outlined above provides a structured approach to develop an accurate rank prediction model and an effective college recommendation model. By leveraging historical KCET data and student profiles, the system can make reliable predictions of a student's rank and suggest suitable colleges based on their preferences.

Overall, the KCET Rank Prediction and College Recommendation system holds great potential to assist students in making informed decisions, improving their chances of securing admissions to suitable colleges, and ultimately contributing to their academic and professional success.

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