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# IIT and NIT College Prediction System

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***Abstract :*** In the present conditions, students regularly have difficulty finding a fitting institution to pursue higher studies based on their profile. There are some advisory administrations and online apps that recommend universities but they ask huge consultancy fees and online apps are not accurate. So, the aim of this research is to develop a model that predict the percentage of chances into the university accurately. This model provides also the analysis of scores versus chance of prediction based on historical data so that students can understand whether their profile is suitable or not. The proposed model uses linear regression and random forest algorithms but cat boost algorithm is giving highest accuracy.

***IndexTerms*** **- IIT and NIT College Prediction System, Web Application, Database**

## I. INTRODUCTION

Anyone pursuing their postgraduate studies, it would be difficult for them to find out what college. People may apply to many universities that look for candidates with a higher score set, instead of applying to universities at which they have a chance of getting in to. This would be detrimental to their future. It is very important that a candidate should apply to colleges that he/she has a good chance of getting into, instead of applying to colleges that they may never get into. The Education Based Prediction System helps a person decide what colleges they can apply to with their scores. The dataset that is used for processing consists of the following parameters: University name, age, percentage, category, gender. The GRE Test (Graduate Record Examinations) is a standardized test used by many universities and graduate schools around the world as part of the graduate admissions process.

## II. MOTIVATION

High Competition: Admission to IITs and NITs in India is extremely competitive, with millions of students using for a limited number of seats. A prediction system can help students understand their chances of admission, reducing anxiety and stress. Time and Resource Efficiency: Applying to multiple colleges is time-consuming and expensive. A prediction system can help students focus their efforts on institutions where they have a higher chance of admission, saving both time and money.

## III. LITERATURE REVIEW

Prediction Probability of Getting an Admission into a University using Machine Learning: A machine learning model for estimating the odds of admission to a university is constructed as part of the project. In an 80:20 ratio, the dataset was split into a training set containing 400 profiles and a testing set containing 100 profiles.

University Admissions Predictor Using Logistic Regression: The approach of machine learning (ML), which enables computers to learn and evolve on their own utilizing data,is discussed in the paper. ML may be used for many things, including identifying patterns and trends, automating decision- making, and reaching large- scale data- driven outcomes.

The proposed system used KNN or K-nearest neighbour machine learning algorithm for the similarities between the data of students who got successful admissions and the student who wants to getthe admission based on the data provided by the willing student The proposed system used KNN or K-nearest neighbour machine learning algorithm for the calculation of top K universities for the N similar users.

## IV. NEED OF WORK

**1. Increasing Competition:** With a limited number of seats available in prestigious institutions like the Indian Institutes of Technology (IITs) and National Institutes of Technology (NITs), competition among students to secure admission is intense. A prediction system can help students gauge their chances of admission based on various factors.

**2. Complex Admission Criteria:** Admission to IITs and NITs is based on multiple criteria, including performance in entrance exams (such as JEE Main and JEE Advanced), academic records, category-wise reservation policies, and state-specific quotas. Understanding these criteria and their weightage can be challenging for students.

**3. Geographical Diversity:** IITs and NITs admit students from across the country, leading to geographical diversity among applicants. Students often need guidance on how their location of residence may affect their chances of admission, especially in state-specific quota systems.

**4. Information Asymmetry:** Students and parents may lack access to comprehensive and accurate information about admission trends, cutoff scores, seat allotment processes, and other relevant factors. A prediction system can bridge this information gap and provide insights into admission probabilities.

**5. Strategic Planning:** For students preparing for entrance exams, having insights into their likelihood of securing admission to their desired institutions can help them make informed decisions about their preparation strategies, course selections, and target scores.

**6. Resource Optimization:** By providing students with personalized predictions based on their profiles and preferences, a prediction system can help optimize their resource allocation, including time, effort, and financial investments, towards achieving their academic goals.

**7. Decision Support for Institutions:** Admission authorities at IITs and NITs can also benefit from prediction systems by gaining insights into applicant demographics, admission trends, and the impact of policy changes. This information can aid in decision-making processes related to admissions, infrastructure planning, and diversity initiatives.

## V. PROBLEM STATEMENT

In the current educational landscape, choosing the right engineering college is a challenging task for aspiring students. The plethora of options, varying admission criteria, and the competitive nature of institutions like Indian Institutes of Technology (IITs) and National Institutes of Technology (NITs) make the decision-making process complex. To address this issue, there is a need for an intelligent system that can assist students in predicting their chances of admission to IITs and NITs based on their academic performance, extracurricular activities, and other relevant parameters.

## VI. PROPOSED SYSTEM ARCHITECTURE

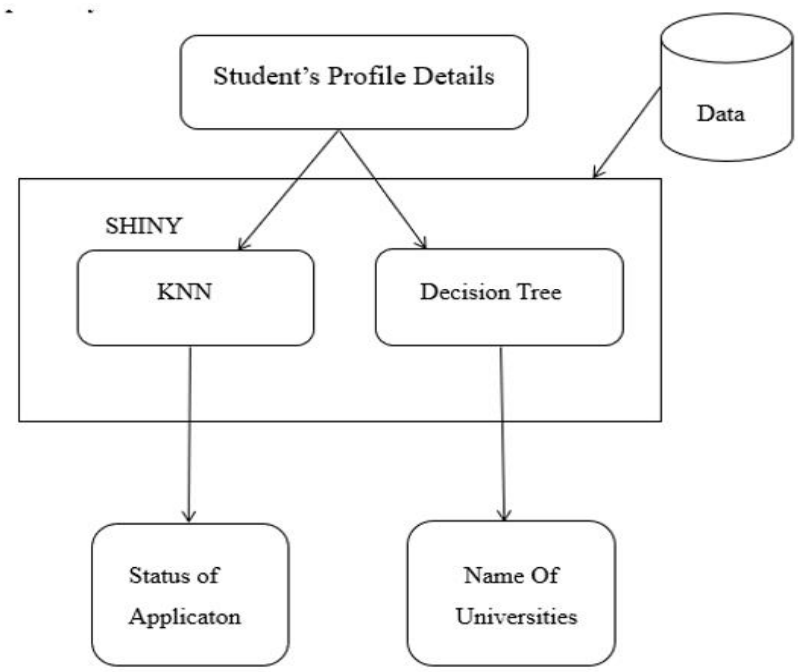



**Fig:** Proposed System Architecture

## VII. METHODOLOGY

The "College predictor and analyzer" project aims to predict which colleges a student is likely to get admitted to, based on their academic credentials and other relevant factors.

The different module includes,

Module1: Exploratory Data Analysis
Module 2: Pre – Processing
Module 3: Data Visualization
Module 4: Training and Testing Dataset
Module 5: Creating Model

Module 6: Optimizing the model
Module 7: check accuracy

***Module1: Exploratory Data Analysis***

Exploratory Data Analysis, or EDA, is a crucial step in the data analysis process that involves studying, exploring, and visualizing information to derive important insights. To find patterns, trends, and relationships in the data, it makes use of statistical tools and visualizations. This helps to formulate hypotheses and direct additional investigations.

How to perform EDA

Step 1: Import Python Libraries
Step 2: Reading Dataset
Step 3: Data Reduction
Step 4: Feature Engineering
Step 5: Creating Features
Step 6: Data Cleaning/Wrangling
Step 7: EDA Exploratory Data Analysis

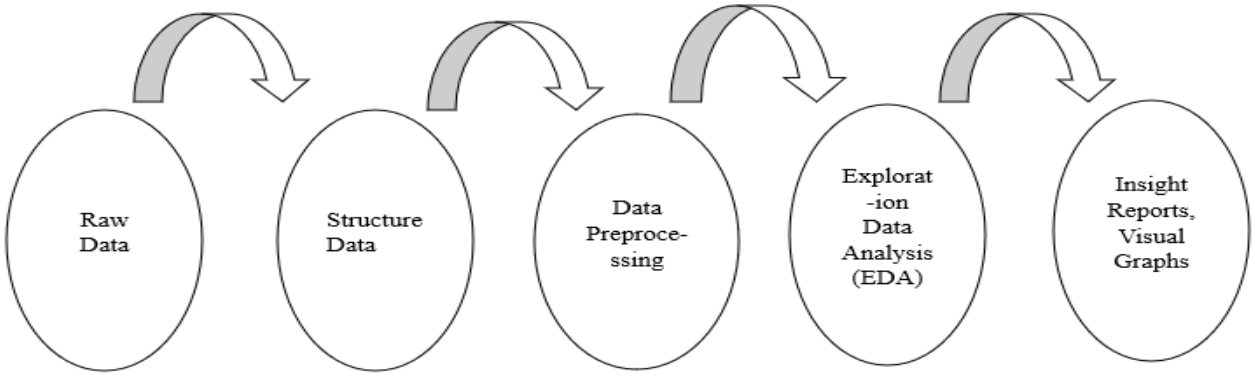



**Fig:** Exploratory Data Analysis

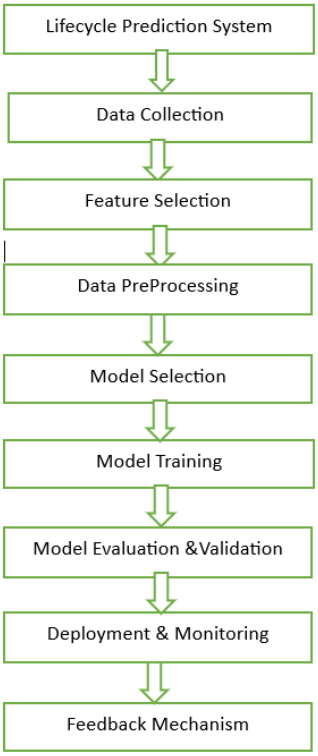
**VIII. REQUIREMENTS**

- Preprocessor: Intel i5, RAM 8gb
- Language: Python
- IDE : Jupyter Notebook
- VS Code

**IX.LIFE CYCLE**

A predictive system for IITs and NITs analyzes past data on academic performance, infrastructure, faculty, and student demographics. Using machine learning, it forecasts future trends in these institutions' lifecycles, assisting in strategic planning and decision-making processes.

## X.PROJECT LIFE CYCLE

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