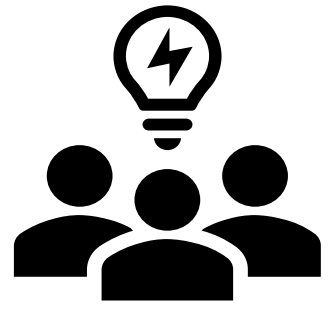




Student Grade Prediction

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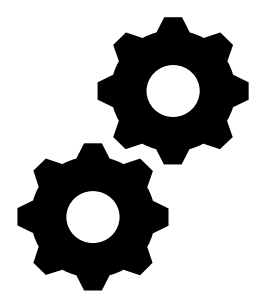


Introduction

When students step into college, they experience a completely new arena of opportunities and experiences, from the disciplined environment of school and coaching institutes, this new home tries to bring a holistic development in them, but in the process do they loosen up their studies?

Student Grade Prediction aims to predict and analyse the grades of students against multiple features of interest, both comprising of their past life and the one they are presently a part of.

It helps to get a better idea as to what are the major reasons for the varied distribution of grades among students and also reveals trends which otherwise are hidden.



Techniques

• Data Collection

For the project, an original dataset was used. A survey was conducted wherein Students were to fill their details. A total of 380 data points were collected during the process from different hostels to make the set homogenous.



• Data Preprocessing and Cleaning

Multiple Functions were defined which Helped with the preprocessing and Cleaning of the data.



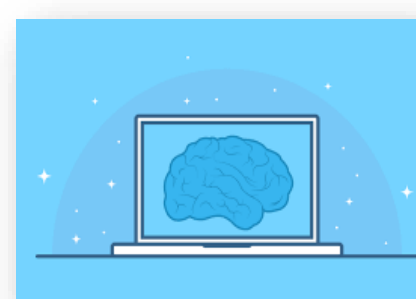
• Model Training and Evaluation

- We used the Sklearn library to split our data into a 25% data test set.
- For training our model we used different modules of Sklearn library like SelectKBest, f_regression, PowerTransformer, Ridge.
- Once the training was complete, the model was evaluated on its score on 5 Cross-validation sets, the root mean square error was also calculated to check the effectiveness



• Deployment

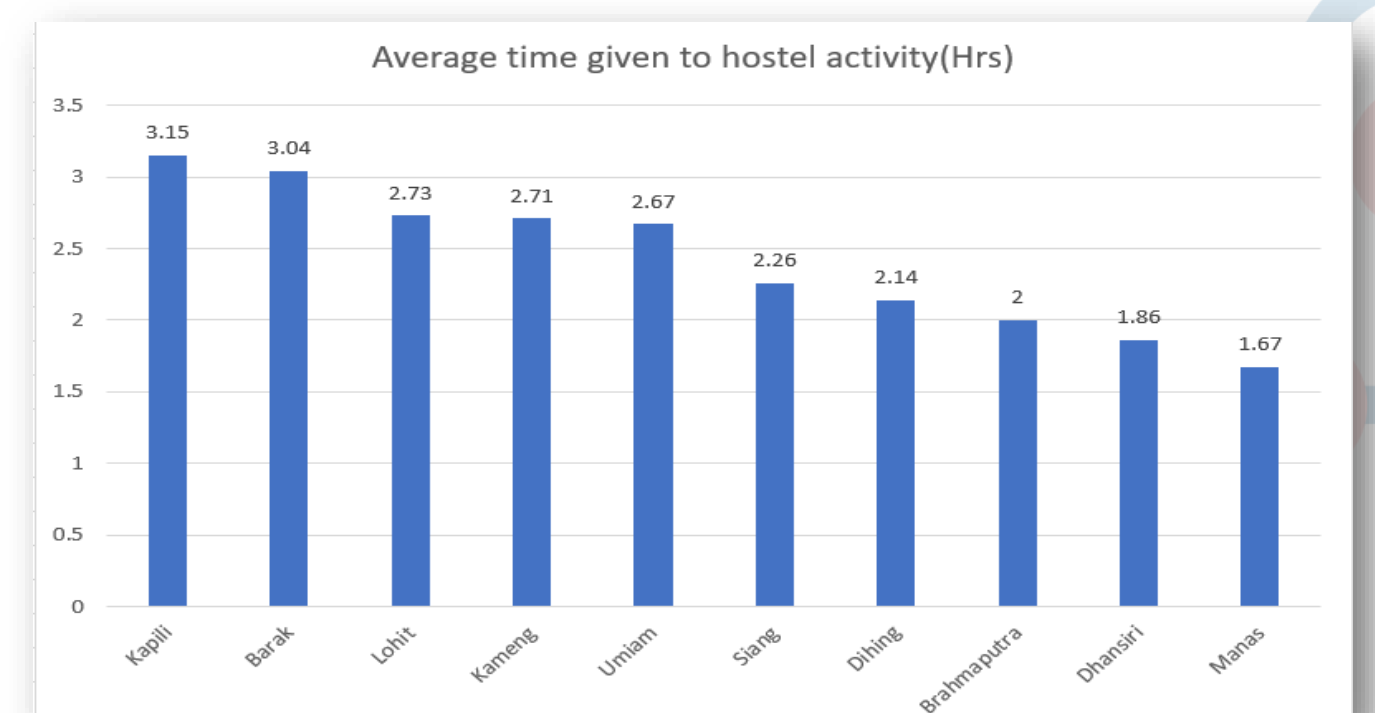
A html form was created wherein the machine learning model was deployed using flask



Observations

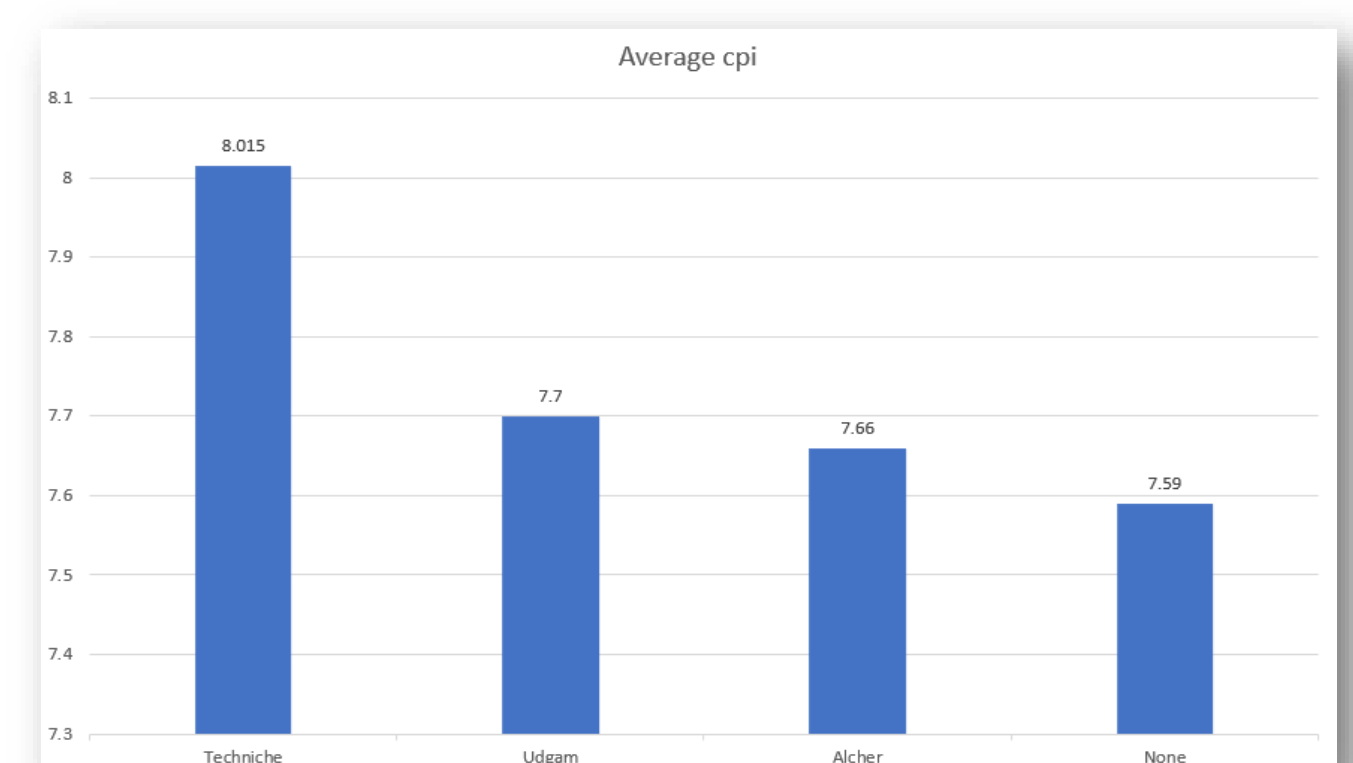
• Hostel – Our New Home!

Students from different hostels were analysed on the time they devote to inter-hostel events like Kriti, following this we also studied the CPI trends for different hostels.



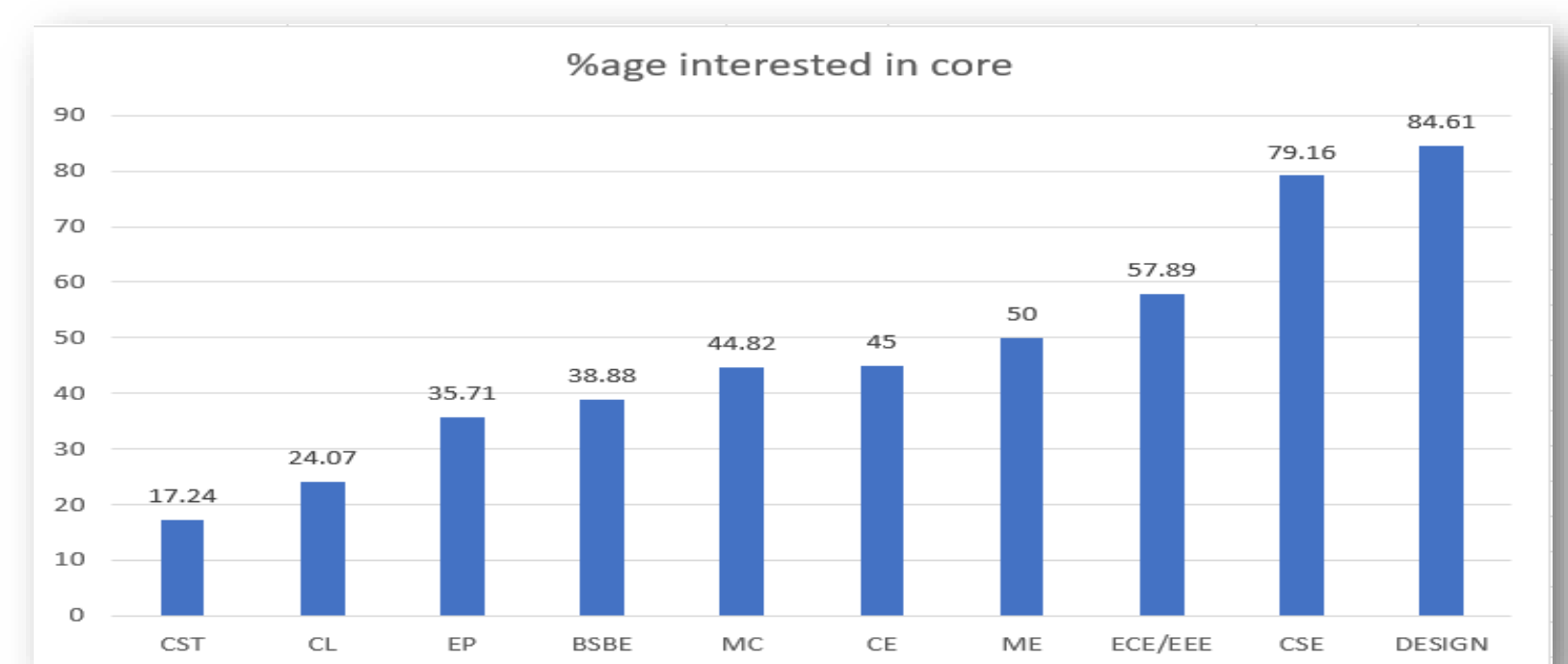
• Festive Mood!

Just after a few months of joining, students are exposed to the different fests of IIT Guwahati, Everyone enjoys them, but a few take the responsibility of working in them, we analysed these trends and also the effect they put on their grades.



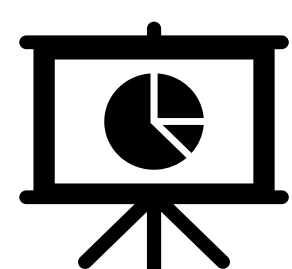
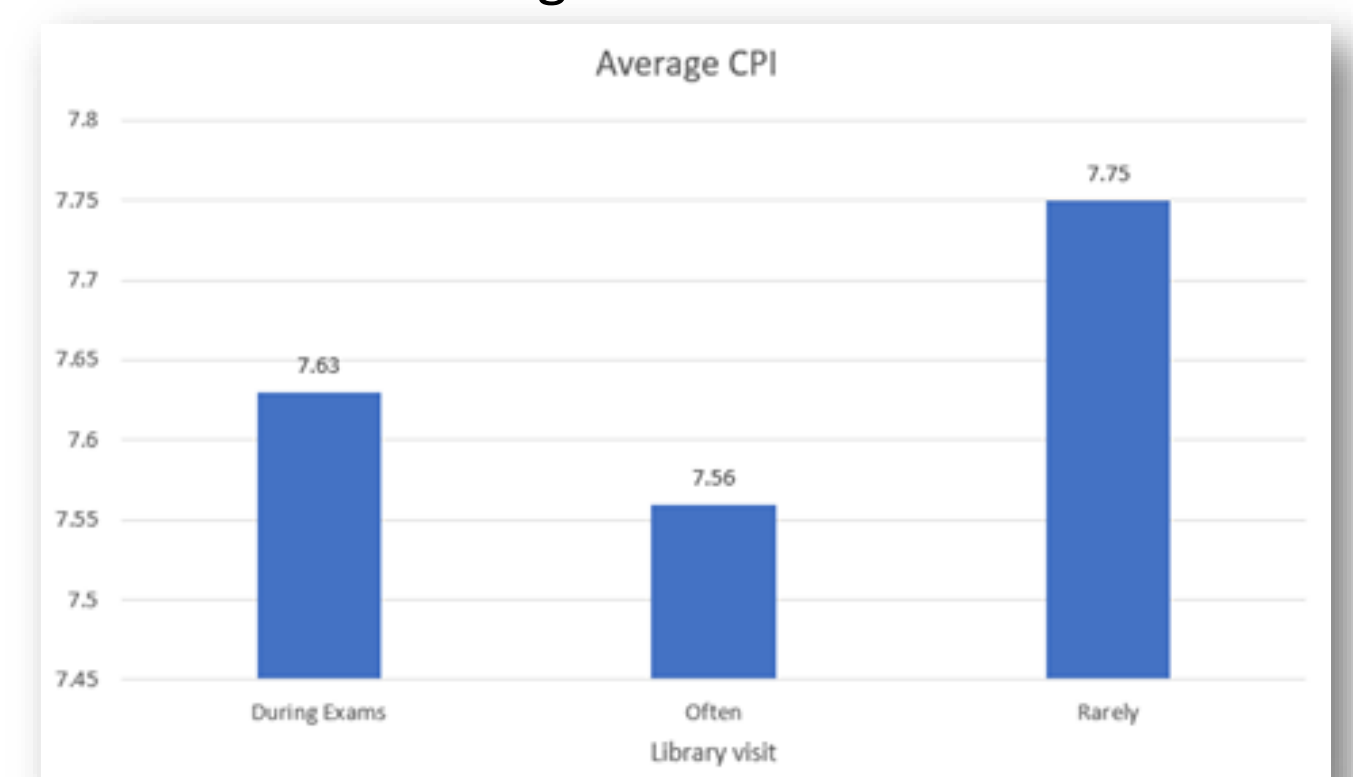
• Core - Non Core

College presents students with multiple opportunities ranging from business roles to even getting into design, some of the students decide to work on fields which are different from what their degree has to offer. We analysed the data and segregated our findings based on different branches.



• Studying my way!

Students have differences in the way they study, some visit the library for the peaceful atmosphere while others find it comfortable to study in their rooms. We analysed these features and found some exciting results.



Results

The Mean score : 0.3506996195656349
Mean Absolute Error: 0.566645382934294
Mean Squared Error: 0.55046751029329
Root Mean Squared Error: 0.7419349771329627



References

<https://www.kaggle.com/dipam7/student-grade-prediction>

<https://scikit-learn.org/>