IBM HACK CHALLENGE 2023

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PROJECT NAME:

PrepCamp

Smart Internz

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Introduction

Unemployment in India has been a significant socio-economic issue. The country has faced challenges related to both open unemployment ,where individuals are actively seeking jobs and are unable to find them , and underemployment ,where individuals are working in jobs that are below their skill and education levels.India has a large young population, and providing employment opportunities to this demographic has been a concern. Many educated young people struggle to find jobs matching their qualifications.Economic fluctuations and industrial slowdowns can lead to increased unemployment rates as businesses cut back on hiring. **PrepCamp** is made with a vision to find solution where users can gauge themselves about the chances of getting placed and also provide them with some tips to improve their placement chances.

Using PrepCamp for analyzing placement data, we offer several benefits compared to traditional analysis methods.Placement data is often rich and multidimensional, with various factors affecting placement outcomes. Machine learning algorithms in PrepCamp can identify intricate patterns and relationships among these factors that might not be apparent through manual analysis. The ML models provide data-driven insights, allowing institutions to make informed decisions. They can prioritize strategies based on the model's analysis, leading to better placement strategies and increased placement rates inlined with Skilled India Mission.

Morever, Educational institutions often gather a vast amount of placement-related data over the years. Machine learning models in Prepcamp excel at processing and analyzing large datasets, which would be time-consuming and challenging to handle manually. ML models can identify which factors have the most impact on successful placements. This information can help candidates focus their efforts on strengthening those aspects.

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Literature Survey

This literature survey delves into a range of research endeavors that shed light on the nuanced facets of unemployment in India. By examining themes such as skill mismatch, government policies, sector-specific trends, and the evolving dynamics of the labor market, this survey aims to offer a comprehensive exploration of the scholarship that underpins our understanding of unemployment and its far-reaching implications in the Indian context.

We, at PrepCamp, aim to create a user-friendly platform for students and faculty to make data-driven strategies. Our main motto is to improve the placements by identifying the trends, analyzing data and providing solutions for the same. We would work on it as follows:

Data collection: provided on IBM Hack Challenge 2023 Portal.

Preprocessing: To handle missing values, encode categorical variables.

Data Analysis: Perform exploratory data analysis (EDA) to understand the distribution and relationships between variables by plotting various plots and graphs.

Algorithms: We will use the IBM Watson tool, Machine Learning Data Science Libraries to analyze and to identify the trends and patterns in the data. We will use neural networks to make models such that they can easily predict the status of placement as well as predict the salary of students as per the input parameters. We will also use the clustering model to identify trends and patterns of the data to improvise the placement of the university.

Strategies: Derive valuable insights from the models, identify patterns and trends that influence placement outcomes, and Develop data-driven strategies to improve the placement process. This will help enhance career counseling, optimize internship programs, and offer skill development initiatives.

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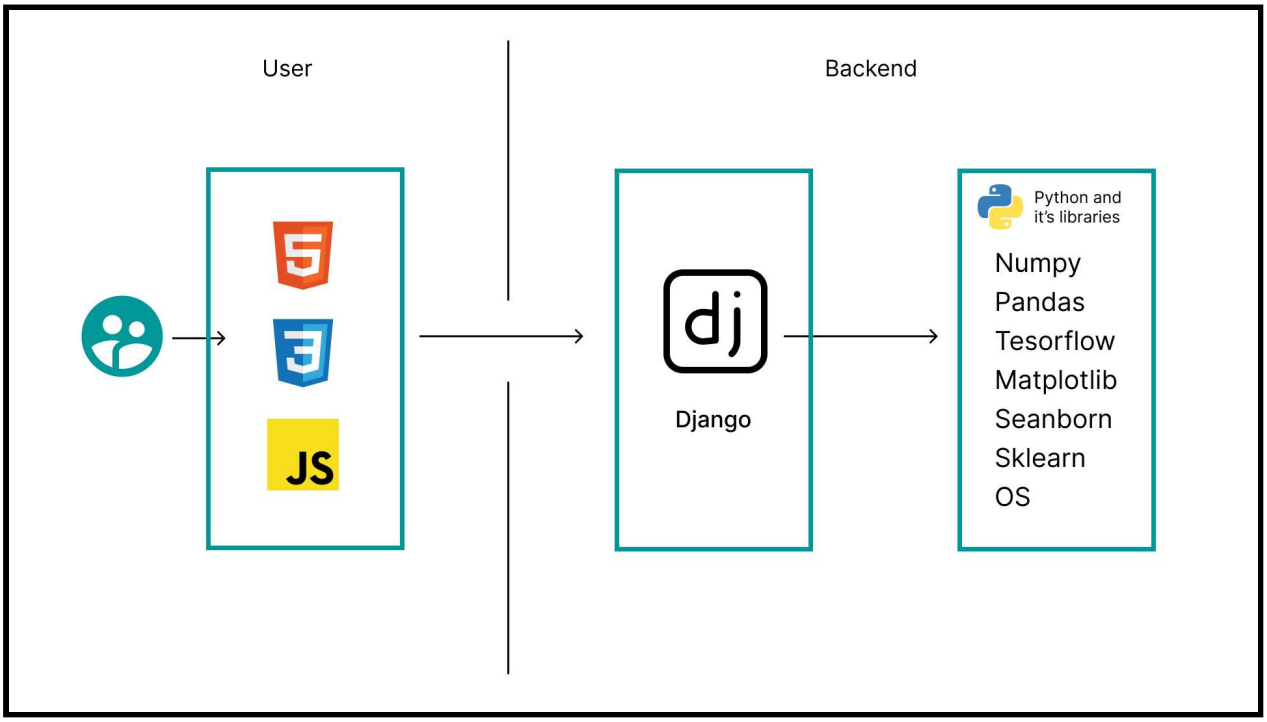
Block Diagram & Requirements



Hardware & Software Requirements

1. IBM Watson.
2. Jupyter Notebook.
3. Google Collab.
4. Firebase.
5.GPU.
6.VS Code.
7.Figma.

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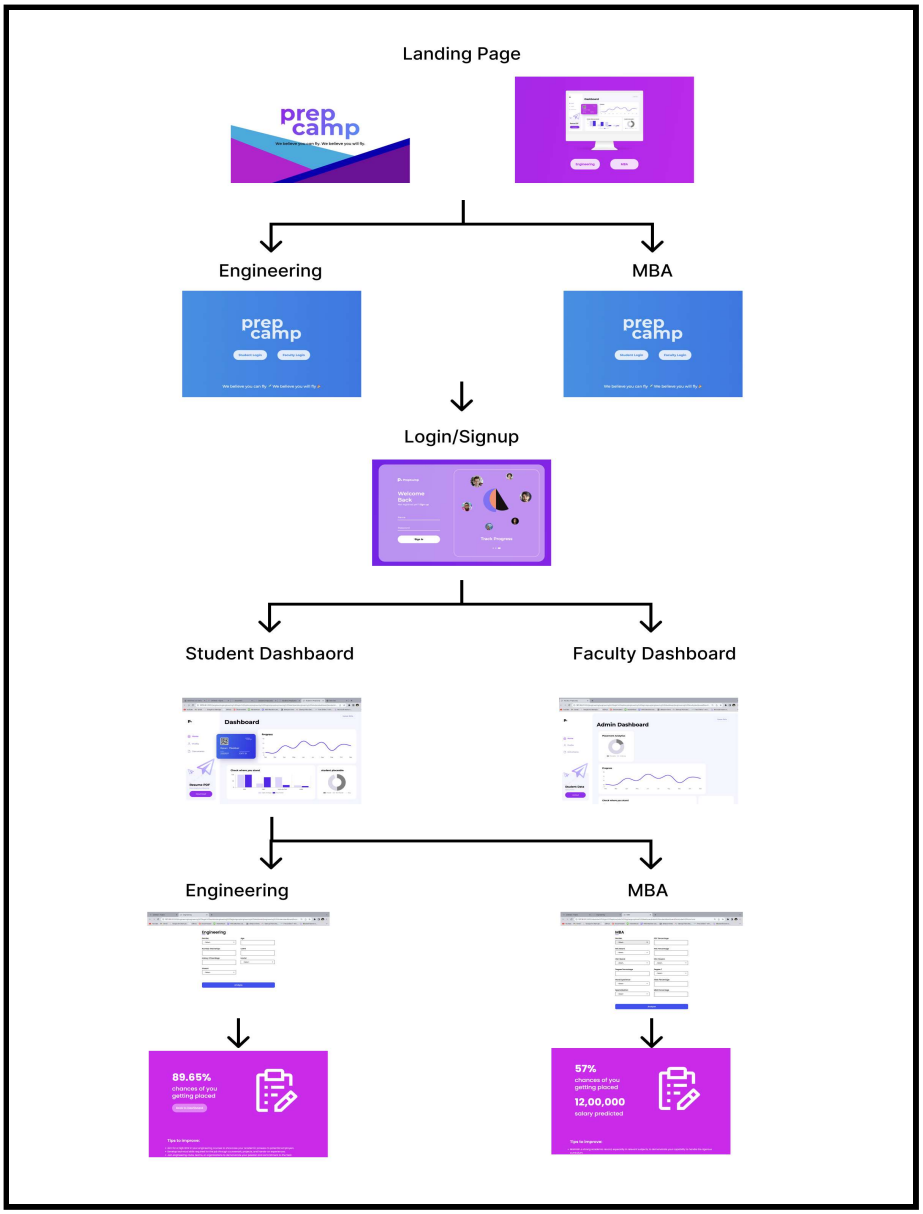
Flowchart



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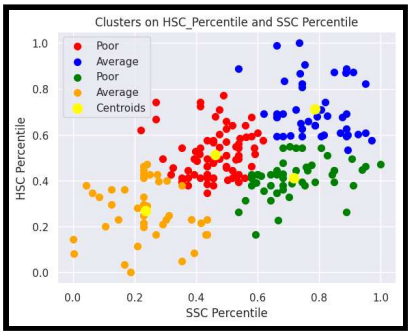
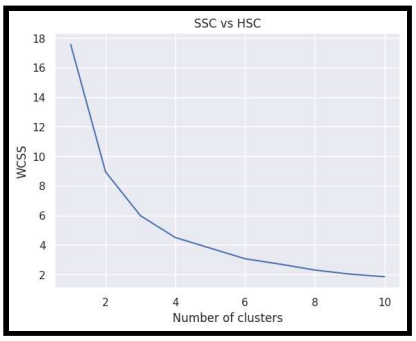
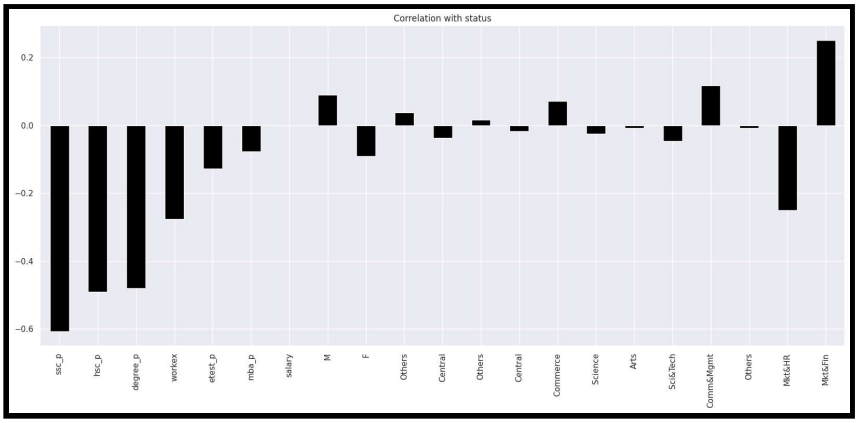
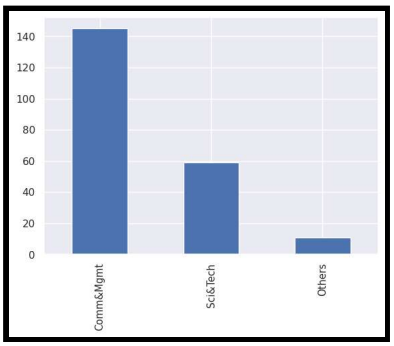
Experimental Investigations

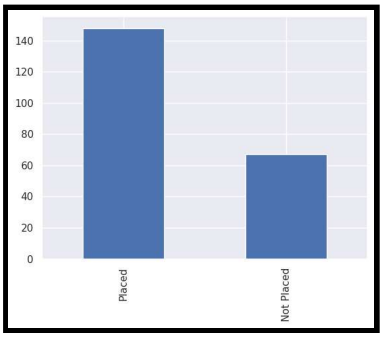
Results obtained on colab notebook by training the dataset.

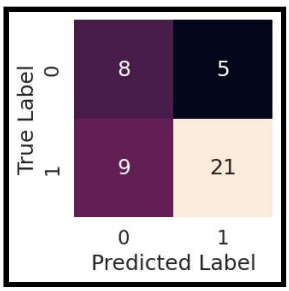


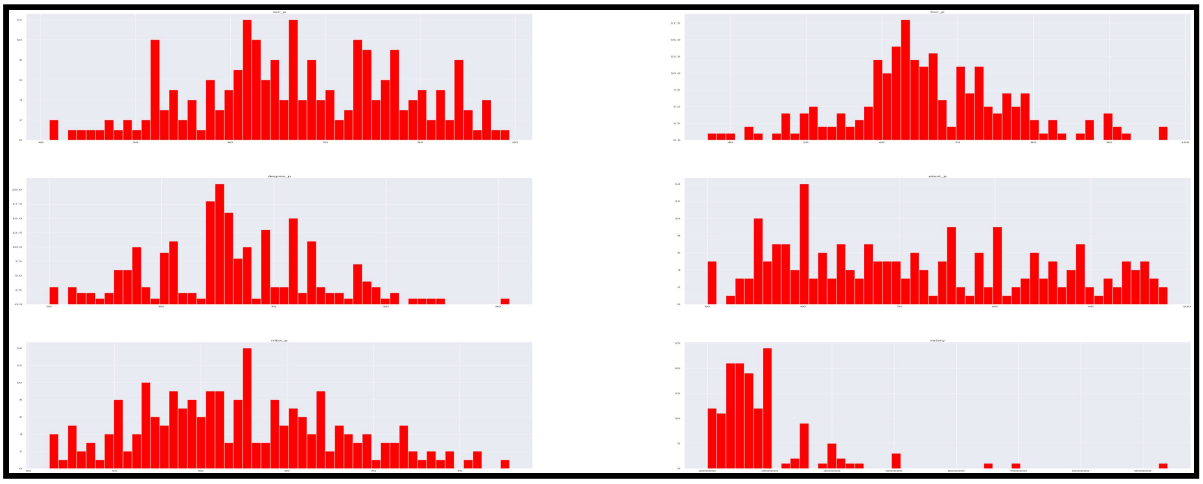


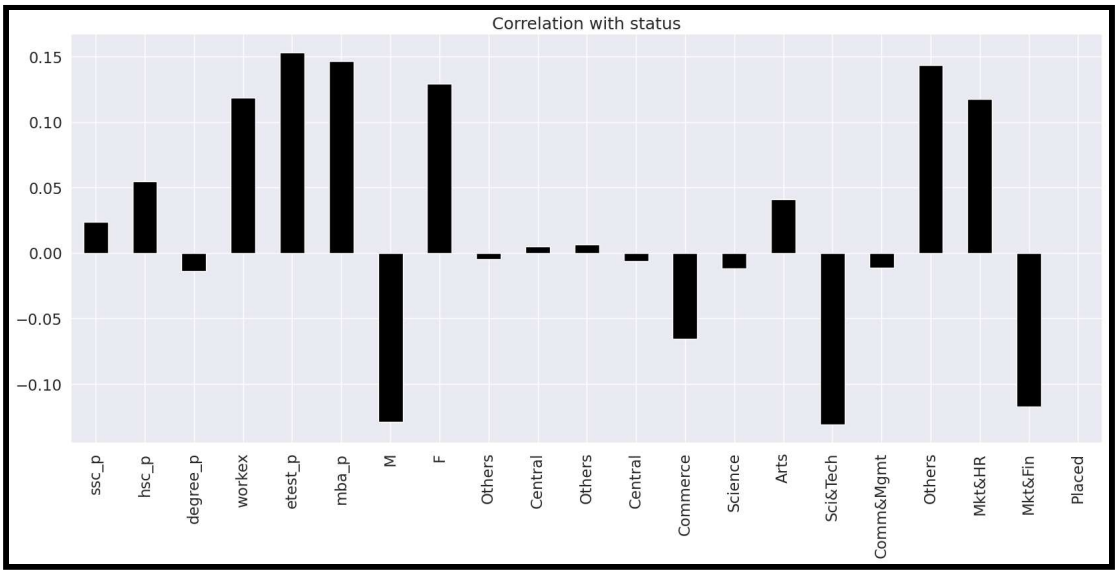












Observation:

1.90.43% - Accuracy of Engineering Model.

2. 0.0353 - MAE for MBA Salary Prediction.

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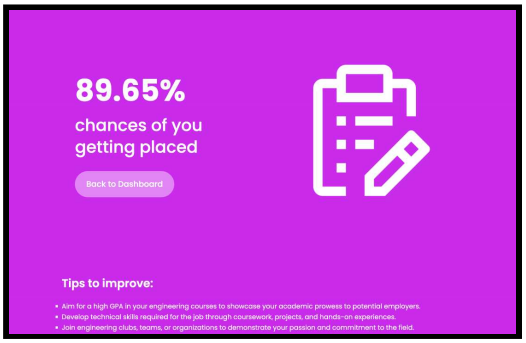
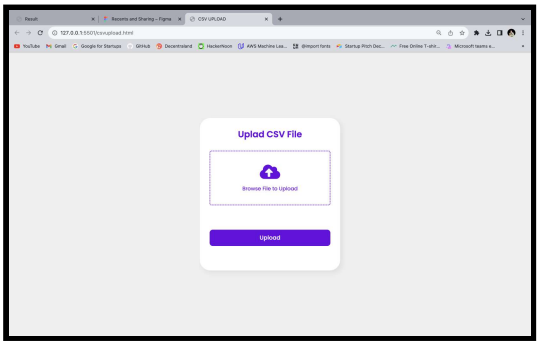
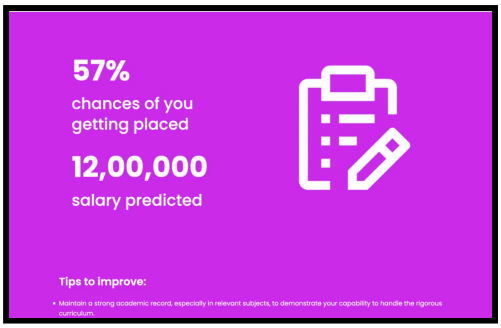
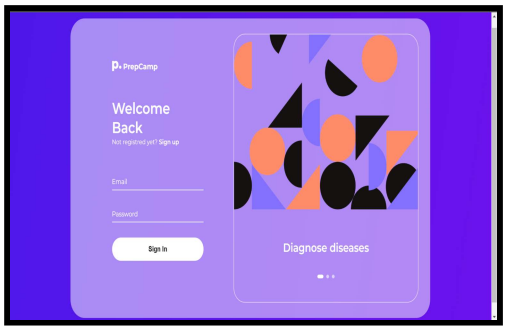
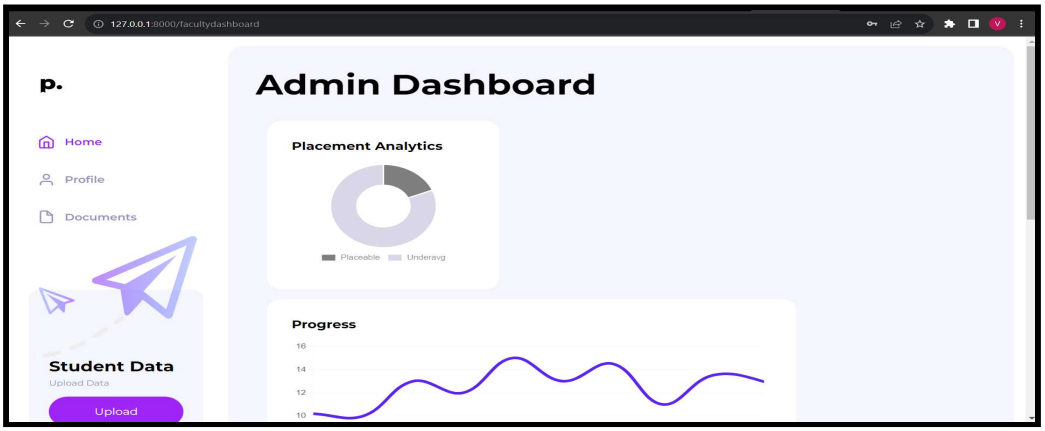
Results











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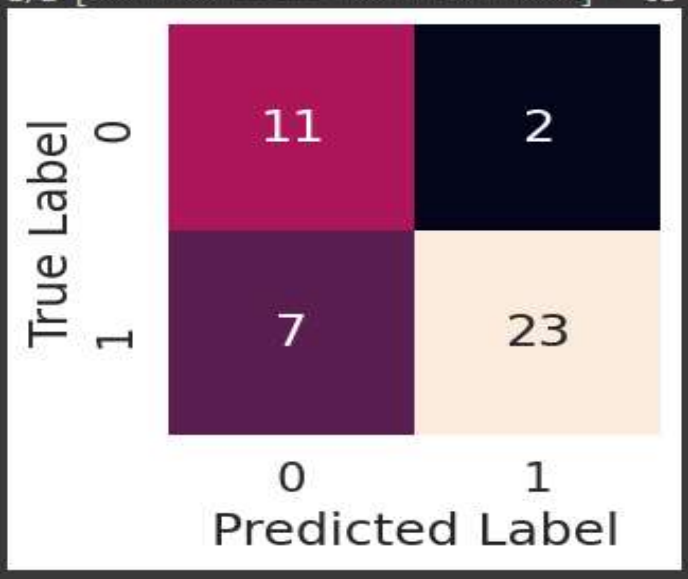
```
[78] print(classification_report(Y_Test,y_pred))
```

	precision	recall	f1-score	support
0	0.82	0.94	0.88	266
1	0.95	0.83	0.88	328
accuracy			0.88	594
macro avg	0.88	0.89	0.88	594
weighted avg	0.89	0.88	0.88	594

```
[129] tf_pred2 = model_2.predict(X_test)
      Y_preds_round2=tf.round(tf_pred2)
      plot_confusion(Y_tests,Y_preds_round2)
```

```
2/2 [==============================] - 0s 4ms/step
```



Advantages

1.PrepCamp provides a clustering model wherein the candidate would be classified into four different bands. According to the bands, we will also provide some remedies so that he can improve his/her profile.

2. Prepcamp will also provide a detailed graph analysis so that the institution can simply upload the data to the students in “CSV” format and get detailed visualized information about the student's batch so that they can enhance training and also give special attention to slow learners.

3.Prepcamp would also help the students guage their capablities by simply answering the questions and provide solution for the same and they can get to know about their expected salaries, and also their chances of getting placed.

4.Prepcamp also provides a database which stores the data of the users which would be used for furthher analysis of the students and also help improve the portal.

5.User friendly interface both for faculty as well as the users.

Disadvantages

1.Result provided is the probablity and may vary from person to person.

2.The System is made for Engineering as well as MBA. Generalisation of the portal is left.

3.Faculty is provided with a generaised report about the batch but we are not able to provide student specific report.This part is the disadvantage and this would be our future scope upon which we would be working.

Applications

1.For the placement and training department in the college. This application helps to manage the student information with regards to the placements.

2.The placement officers will collect the information from various companies who want to recruit the students and updates to the students from time to time according to the average report of the campus.

3.Maintaining the database of the batch and also provide them with some data driven solution so that students would be placed.

Conclusion

The recent Indian unemployment rate for 2021 was 5.98%, a 2.02% decline from 2020. India unemployment rate for 2020 was 8.00%, a 2.73% increase from 2019.To tackle this problem ,the portal can be used by students to gauge themselves for the job. Detailed analysis and improvement tips would help them improve their skills. The college faculty would also be benefited because they can easily find interesting insights from our portal to improve their placements. Our placement portal can generate valuable data and analytics on candidate engagement, application trends, and recruitment funnel metrics. These insights can help HR teams make data-driven decisions, identify areas for improvement, and optimize their hiring strategies. The data obtained from the user can be used by various government agencies to improve the lives of students, analyze and provide a solution for the same thus would help increase the placement ratio of the students.

Future Scope

1.PrepCamp would like to make student specific analysis for the faculty so that faculties can individually give attention for each student.

2.Prepcamp would like to provide an Aptitute Test Series and all relevant resources under one roof so that students can be benefitted.

3.PrepCamp would also make improvements by training the Machine Learning on better datasets.

4.Work on the feedback recieved by the users.

5.Provide more analysis based on data visualisation for easy understanding of the problems.

6.PrepCamp would add a section where users can easily share theirinterview experiences , beneficial for the other users to target a specific job.

BIBLIOGRAPHY:

Refered books : Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow, 2nd Edition