EMPLOYEE CHURN

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OUTLINE

- Abstract of the Project

- Problem Statement

- Proposed Solution

- System Architecture

- Live Demo of the Project

- Embedded Video of Project

- Conclusion

- Future Scope

Abstract

Employees are the valuable assets of any company. But if they quit jobs unexpectedly, it may incur huge cost to any company. In the past, most of the focus on the 'rates' such as attrition rate and retention rates. HR Managers compute the previous rates try to predict the future rates using data warehousing tools. Hence, in this study, I try to build a model employee churn prediction model which predicts either the employees will leave their current company or stay in the company based on Employee churn dataset obtained from Kaggle website. Within the study's scope, I have trained standard and sequential models using python then evaluated the model performance. Here, you can predict who, and when an employee will terminate the service. Employee churn is expensive, and incremental improvements will give significant results. It will help us in designing better retention plans and improving employee satisfaction.
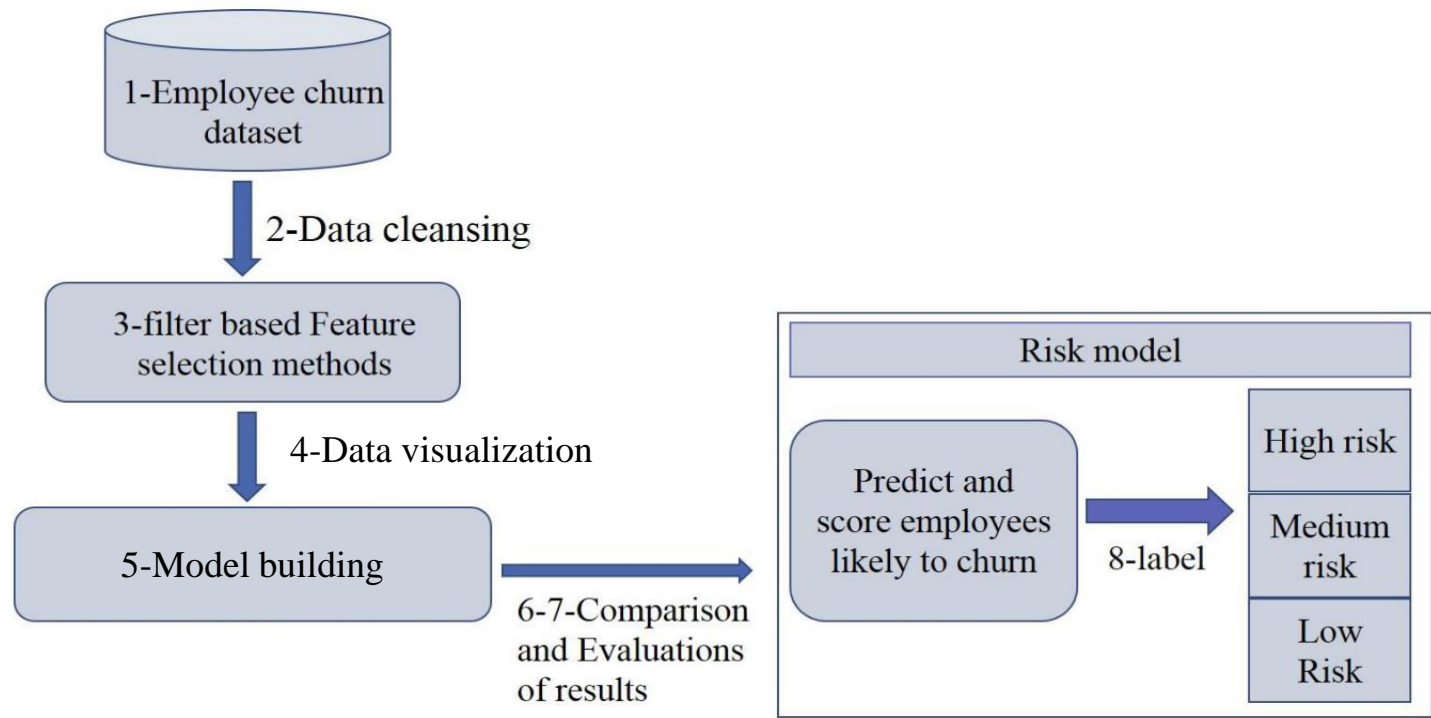
Problem Statement

- Analyze employee churn. Find out why employees are leaving the company, and learn to predict who will leave the company. Employee churn can be defined as a leak or departure of an intellectual asset from a company or organization.

- Reduce employees quitting jobs unexpectedly. Because new hiring will consume not only money and time but also the freshly hired employees take time to make the respective company profitable.

- Build a machine learning model to predict who, and when an employee leave a company or organizations. It will help us in designing better retention plans and improving employee satisfaction.
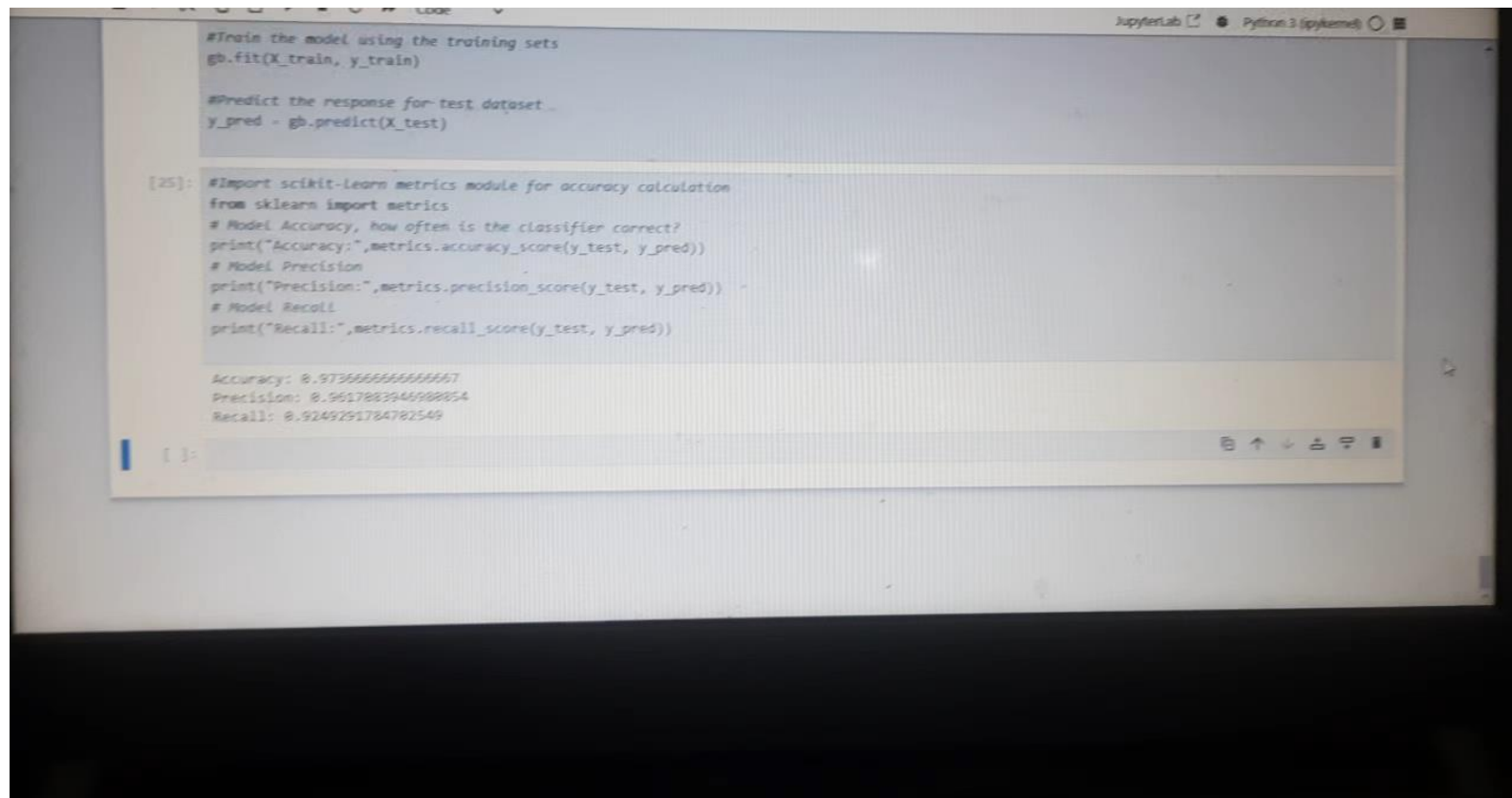
Proposed Solution

- I have used an employee churn analytics HR dataset.

- Data selection and preprocessing are performed in the second step.

- In the third step, we have used four filter-based methods.

- I have selected the top & highest-ranking variables from these four methods.

- Next, i compared the performance parameters (accuracy, precision and recall) of five ML algorithms and evaluated the classification results after splitting the dataset into different ratios.

- We chose the best algorithm with a filter-based method for building the employee churn prediction model.

- Finally, i created a risk model for non-churn employees in order to further classify them into the different risk zones.

System Architecture

Live Demo of Project

Video of Project Demo
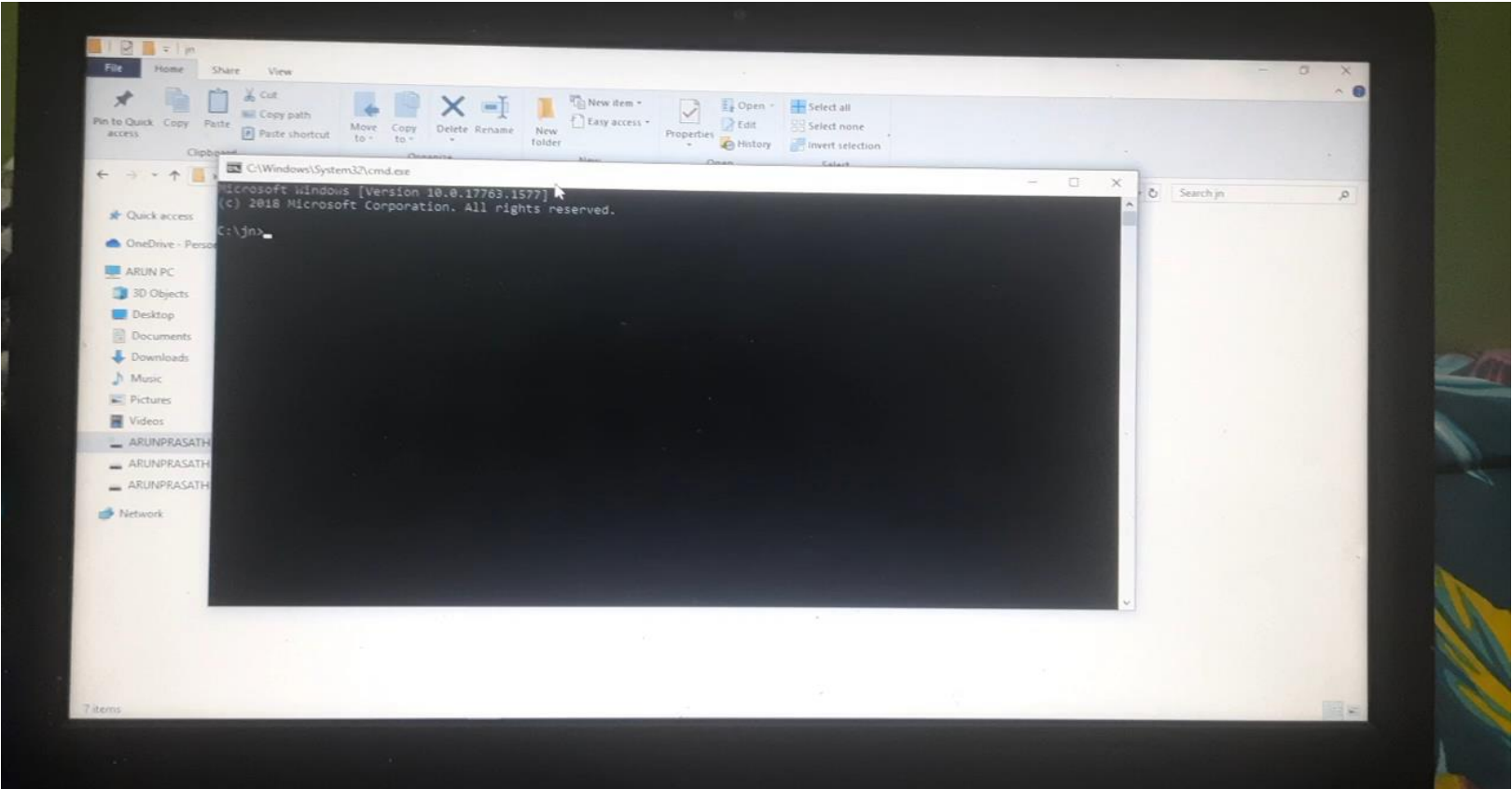
Conclusion

Organizations lose money, time, and effort as a result of employee churn. A trained and experienced person is difficult and expensive to replace, thus this is a major problem. In order to forecast future employee turnover and understand its causes, we examine data on both past and present employees. Distinguishing churners from non-churners is only one aspect of the churn prediction challenge. By applying exploratory data analysis and data mining techniques, we can predict the probability of each employee leaving their job and assign them a score to enable them to develop retention strategies. In this research, we determine that using GradientBoostingClassifier() function. The model performance shows 97% accuracy and 96% precision. The prediction model shows that the most influential factors are satisfaction level, the number of projects, time spent on the company, and last evaluation.

Future Scope

- As there is many companies wants best employee to work with their company if the employee leave the company it cause lose to the company.

- So this predictive model can be used to find the employee who may be leave the company in near future and satisfying their needs may help to retain the employee.

- There is various methods to build a machine learning model such as linear regression, random forest, neural network, gradient boosted model, clustering model, etc.,

- I am used Gradientboosting model that may have both advantages and disadvantages when compared to other models.

- We can use some of the above mentioned model to build a predictive model and compare their accuracy, precision to find better one.

Thank you!