
EMPLOYEE BURNOUT PREDICTION USING ML ALGORITHM

SUBMITTED BY -

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PROJECT TITLE/PROBLEM STATEMENT

Develop a predictive model that accurately identifies employees at high risk of burnout enabling proactive interventions to prevent burnout , reduce turnover and improve overall well-being and job satisfacation. , thereby enhancing organizational performance and reducing costs associated with burnout.

REDUCED PRODUCTIVITY BURNOUT LEADS TO DECREASED PRODUCTIVITY AND PERFORMANCE.

INCREASED ABSENTEEISM EMPLOYEES ARE MORE LIKELY TO TAKE TIME OFF DUE TO BURNOUT .

HIGHER TURNOVER RATES BURNOUT IS A MAJOR CONTRIBUTING FACTOR TO EMPLOYEE TURNOVER.



AGENDA

- Project Overview
- End Users
- solution and value Proposition
- Customization
- Modelling
- Results
- conclusion
- Links



PROJECT OVERVIEW

Develop a machine learning model to predict employee burnout, enabling companies to take preventive measures and improve workplace productivity.

This project analyzes factors contributing to burnout, such as workload, job satisfaction, and work-life balance, using historical employee data.

Early detection of burnout can lead to targeted interventions, improved employee health, and increased organizational efficiency.

Employee burnout is a state of physical, emotional and mental exhaustion caused by excessive and prolonged stress. It can have serious consequences on an individual's well-being and can lead to decreased productivity and job performance. In today's fast-paced and constantly connected world, it is increasingly important to recognize and address the signs of burnout in order to maintain the health and well-being of employees.



WHO ARE THE END USERS OF THIS PROJECT?

Human Resources Departments: HR professionals can use the predictions to identify at-risk employees and implement targeted interventions to prevent burnout.

Managers and Team Leaders: They can monitor the well-being of their teams and adjust workloads or provide support as needed to mitigate burnout risks.

Executives and Decision Makers: Company leaders can use the insights from the model to develop organizational policies and strategies aimed at improving employee satisfaction and productivity.

YOUR SOLUTION AND ITS VALUE PROPOSITION

Solution:

The project aims to develop a machine learning model that predicts employee burnout by analyzing various factors such as workload, job satisfaction, work-life balance, and other relevant data. The following code that we executed is the solution for this.

Value Proposition:

- **Cost Savings:** Preventing burnout can reduce costs associated with high turnover rates, absenteeism, and decreased performance.
- **Data-Driven Decisions:** The model provides HR and management with actionable insights based on data, leading to more informed decision-making and strategic planning.
- **Competitive Advantage:** Organizations that effectively manage employee well-being can attract and retain top talent, gaining a competitive edge in the market.

HOW DID YOU CUSTOMIZE THE PROJECT AND MAKE IT YOUR OWN

Data Acquisition

Gather data from various sources, including employee surveys, performance records, and HR databases.

Data Cleaning

Remove irrelevant data, handle missing values, and address inconsistent entries to improve data quality.

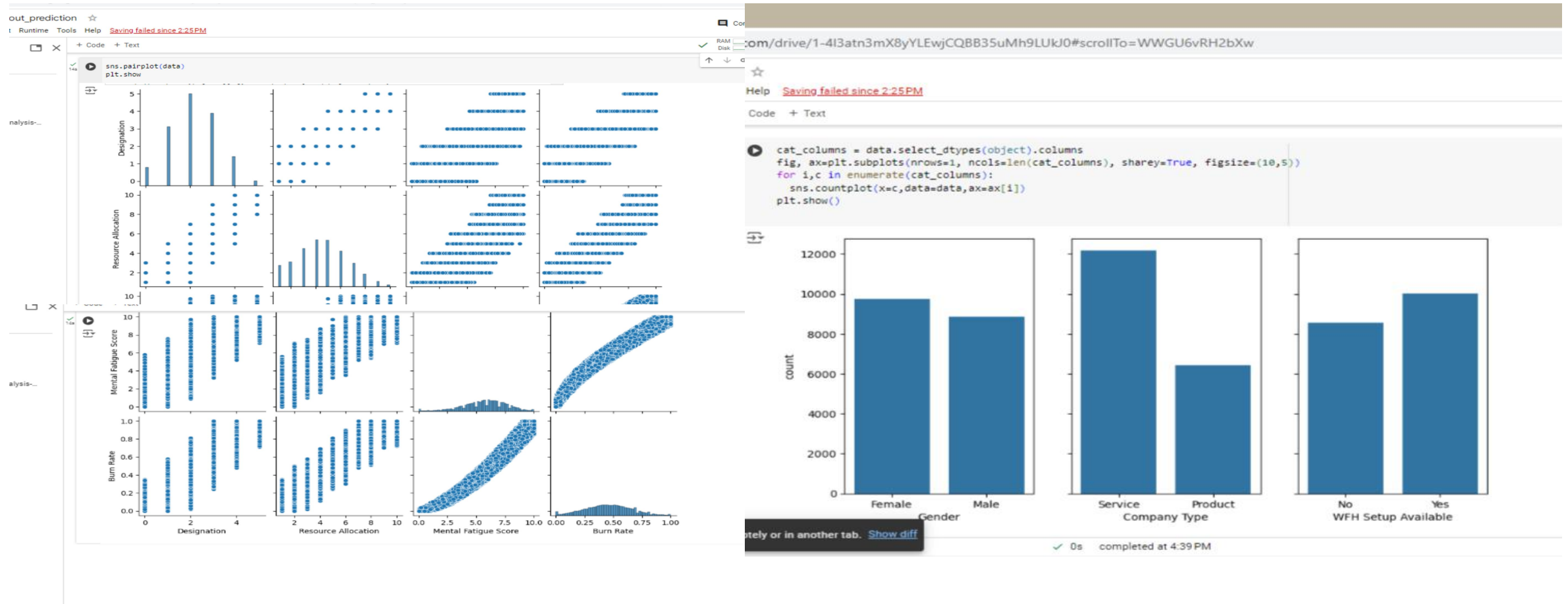
Feature Engineering

Transform raw data into meaningful variables that can be used in the linear regression model.

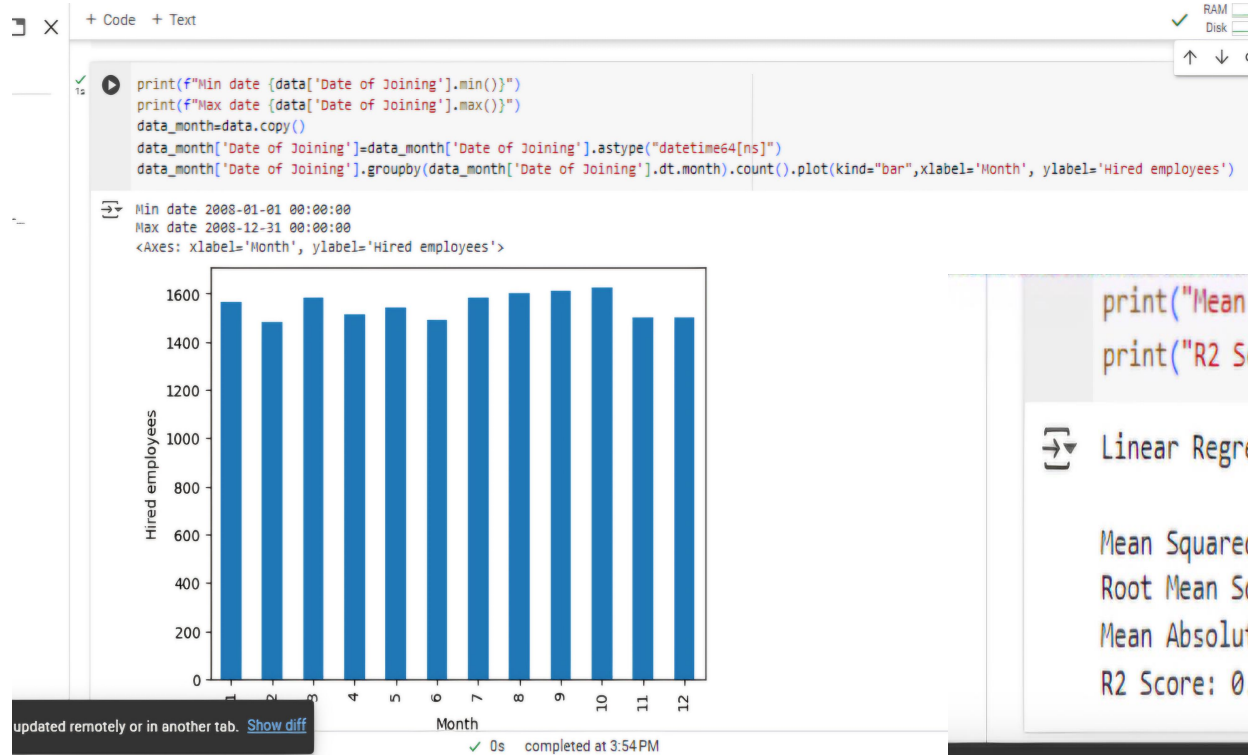
MODELLING

- Data Preprocessing: Cleaning and preparing data for analysis.
- Algorithm Selection: Choosing the appropriate machine learning algorithm (e.g, ,Random Forest, SVM, Neural Networks) . Here we use Linear Regression Algorithm.
- Training and Testing: Building the model using training data and validating its performance with testing data.

RESULTS



RESULTS



```
print("Mean Absolute Error:",mean_absolute_error(y_test,y_pred))
print("R2 Score:",r2_score(y_test,y_pred))
```

Linear Regression Model Performance Metrics:

Mean Squared Error: 0.0031569779113610717

Root Mean Squared Error: 0.0561869905882231

Mean Absolute Error: 0.04595032032644773

R2 Score: 0.918822674247248

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CONCLUSION

By leveraging machine learning to predict and mitigate employee burnout, organizations can foster a supportive work culture, improve employee retention, and drive sustainable growth.

This project demonstrates the potential of machine learning to proactively address employee burnout, fostering a healthier and more productive workplace.

LINKS

Code

<https://colab.research.google.com/drive/1agSySuawmvj2rXvgQxN0N1nFyMOgg9RC#scrollTo=epg6p5ZlsYts>

Data set

https://docs.google.com/spreadsheets/d/1APkmhYYo4y_000eR1uktsdy9TygcmTF/editusp=drivesdk&ouid=112478414774326937191&rtpof=true&sd=true

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