UEM
UNIVERSITY OF ENGINEERING & MANAGEMENT
Good Education, Good Jobs

SEMESTER 8

INNOVATIVE PROJECT

Revolutionizing Career Planning with MoodWage

GROUP NO: 13

PROJECT GUIDE

Prof. (Dr.) Aniruddha Ghosh

The Team

Aakarshan Jha   Enrollment No. 12020009028024

Atul Kishore   Enrollment No. 12020009028030

Prince Kumar   Enrollment No. 12020009028023

Kabir Sk   Enrollment No. 12020009028069

Rishab Agarwal   Enrollment No. 12020009028054

Contents

Background Motivation

BACKGROUND

"MoodWage" is an innovative analytics platform that revolutionizes the way income trends are perceived and understood in the professional landscape. At its core, "MoodWage" is a synergy of two sophisticated technological domains: sentiment analysis and salary prediction, both driven by cutting-edge machine learning algorithms.

MOTIVATION

Our project is driven by a profound motivation to contribute a transformative technology to society, to arm stakeholders, including HR professionals, company executives, and potential employees, with actionable insights that can lead to more informed decisions. For businesses, this can mean optimizing salary scales to enhance employee satisfaction and retention. For individuals, it offers a realistic preview of potential financial progression, colored by the emotional satisfaction associated with different career paths.

The Problem

Salary is a key metric in the job market, and predicting salaries accurately can be crucial for both employers and employees. Imagine being able to accurately predict your future salary with just a few key inputs. It may seem like a far-fetched idea, but with the power of machine learning, it's possible to build models that can predict salaries based on factors like age and experience. People's feelings at work can have a big impact on how they do their job and, ultimately, on what they earn. But a lot of the time, companies don't think about this when they decide how much to pay people. "MoodWage" is here to change that. It looks at what employees are saying about their jobs and uses that to guess what might happen with their pay.

The Solution

If we know what makes employees happy or unhappy, companies can make better decisions about pay before any issues come up. This can help everyone. Workers would feel like they're being paid fairly, and companies can plan better and maybe even save money by keeping their workers happy and on board. The vision behind "MoodWage" is to foster a work environment where pay is not only competitive but also reflective of the emotional well-being of the workforce. We assert that "MoodWage" can be a pivotal tool in achieving a more balanced and fulfilling workplace culture.

Applications

The applications for the project are as follows:

- Seamless Integration

- Personalized Salary Estimates

- Enhanced Functionality

- Real-Time Feedback

- User-friendly interaction

- Open-Source collaboration

Literature

Flask-based Web Application

This Flask-based web application, developed for the MoodWage project, showcases how machine learning models can be effectively integrated into web applications to enhance user experience and functionality.

Random Forest Model

The Flask application includes a Random Forest model that has already been trained to predict salaries. This model uses information provided by the user about job roles to estimate potential salaries.

Dynamic Interactions

Incorporating predictive models into the Flask web framework allows for dynamic interactions with the data, offering users customized results in real time.This not only demonstrates a high level of technical proficiency in both web development and machine learning but also enhances the practical utility of the application.

Configurations

- High-performance computing resources
- Intel i5 10th Generation 16 core processor
- 8GB RAM
- 4GB GPU
- Kingston 512GB SSD
- Device: Laptop

- Python 3.8.0
- BERT Framework from AutoTokenizer
- Packages
  - Transformers
  - Numpy
  - Pandas
  - BeautifulSoup4
  - Other dependency frameworks

Procedure

1. Salary Prediction: The first step in the salary prediction process involves loading the 'eda_data.csv' dataset into the system.

2. Model Training: The Random Forest Regressor is chosen for salary prediction due to its robustness and effectiveness in handling nonlinear relationships and interactions between features. During model training, the algorithm learns from the training data, building numerous decision trees and aggregating their results to make accurate predictions.

3. Evaluation: Once the model is trained, it is evaluated using regression metrics such as Mean Squared Error (MSE), Mean Absolute Error (MAE), and R-squared. These metrics provide insights into how well the model is performing by measuring the differences between the predicted values and the actual values.

4. Refinement and Optimization:Based on the performance metrics and overall evaluation, further analysis may be conducted to refine the model.

Result and Analysis

The "MoodWage" software integrates sentiment analysis with compensation management to enhance job satisfaction. It focuses on data handling, system improvements, and risk mitigation to provide a user-centric platform that adapts to market needs. The software simplifies decision-making for users, offers tools for creating competitive compensation packages, and empowers employees with valuable information for negotiations.

Overall, MoodWage model is a promising new approach to ensure fair pay and transparency. They are accurate, efficient, and easy to use, making them a good choice for a variety of applications

Future Implications

The future scope for the project is as follows:

- Recruiter Connectivity
- AI-Driven Chatbot
- Job Market Prediction
- Health and Well-Being Analytics
- Continuous Platform Evolution
- Real-time Market Updates
- Diversity and Inclusion Metrics

Conclusion

In summary, "MoodWage" is a cutting-edge platform that merges sentiment analysis with salary prediction to revolutionize how income trends are understood in the professional realm. By streamlining complex data into a user-friendly interface, the platform empowers users with valuable insights for informed decision-making. With a focus on transparency, fairness, and user satisfaction, "MoodWage" aims to reshape compensation practices by bridging the gap between emotional insights and financial considerations in the job market.

Thank You!