Salary Prediction using Ensemble Learning

This project demonstrates how to predict salaries based on features like experience and age using Ensemble Lear

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Overview:
The goal of this project is to:
- Predict the salary of individuals based on features like experience and age.
- Use ensemble learning techniques to improve model performance.
- Compare individual models vs ensemble predictions.

Algorithms Used:
- Random Forest Regressor: A bagging-based ensemble method using multiple decision trees.
- Gradient Boosting Regressor: A boosting-based method that combines weak learners sequentially.
- Voting Regressor: Aggregates predictions from multiple models by averaging.

Dataset:
A sample synthetic dataset is used with the following features:
Experience (Years), Age, Salary (Target)

You can replace this with a real-world dataset (e.g., from Kaggle or job sites) for better prediction.

Project Structure:
salary-prediction-ensemble/
■■■ salary_prediction.py # Main Python script
■■■ README.md # Project readme file
■■■ requirements.txt # Python dependencies (optional)

Requirements:
Install dependencies using pip:
pip install pandas scikit-learn

How to Run:
1. Clone this repository or copy the files.
2. Run the script:
python salary_prediction.py
3. The script will:
- Split the dataset
- Train individual models (Random Forest, Gradient Boosting)
- Combine them using Voting Regressor
- Print the Mean Squared Error (MSE) for each model

Results:
Example output:
Random Forest MSE: 1245.67
Gradient Boosting MSE: 1350.25
Voting Regressor MSE: 1180.42

This shows that the ensemble model performed slightly better in terms of lower error.

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