

EMPLOYEE SALARY PREDICTION APP

With Machine Learning

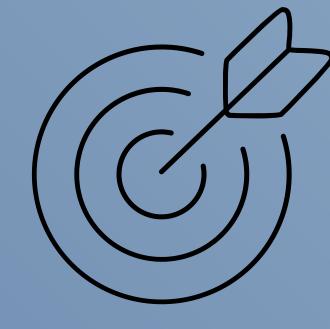
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INTRODUCTION



- Employee salary depends on factors like experience , education , job role etc. 
- This project demonstrates prediction using Linear Regression. 
- Machine Learning helps in predicting salaries more precisely. 
- Traditional estimation is slow and not always accurate.



OBJECTIVE



- To minimize manual effort and reduce errors in salary estimation
- To analyze the relationship between employee experience and salary using Linear Regression.
- To improve prediction accuracy by using structured data



SCOPE

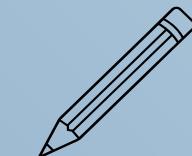
- The project focuses on predicting employee salaries based on multiple factors such as experience, education level, and job role.
- Uses Machine Learning (Linear Regression) for salary prediction.
- Helps organizations analyze pay structure and make data-driven salary decisions.
- Can be extended in the future using more algorithms (like Decision Tree, XGBoost) or additional features (like location, company size, etc.).



LINEAR REGRESSION MODEL

- It is a statistical model that finds the best-fitting straight line (called a regression line) through a set of data points to predict future values.

Mathematical Equation : $Y = mX + C$



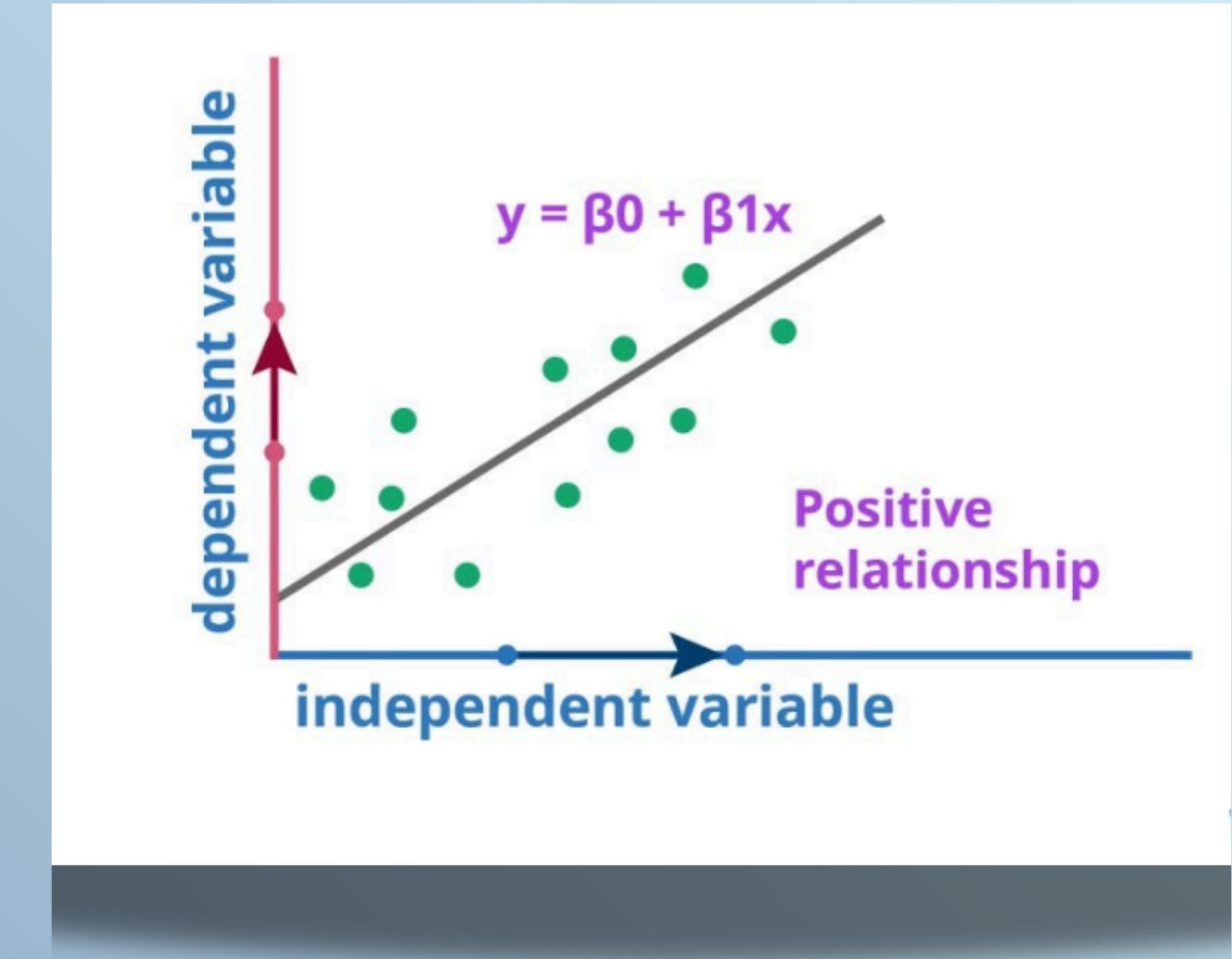
Where:

$Y \rightarrow$ Predicted value (e.g., Salary)

$X \rightarrow$ Input variable (e.g., Experience)

$m \rightarrow$ Slope of the line (shows how much Y changes when X changes)

$c \rightarrow$ Intercept (value of Y when $X = 0$)



METHODOLOGY

Data Collection

Data Preprocessing

Model Building

Model Evaluation

Deployment

Import Dataset using Pandas

Convert categorial data into numeric using Label Encoding

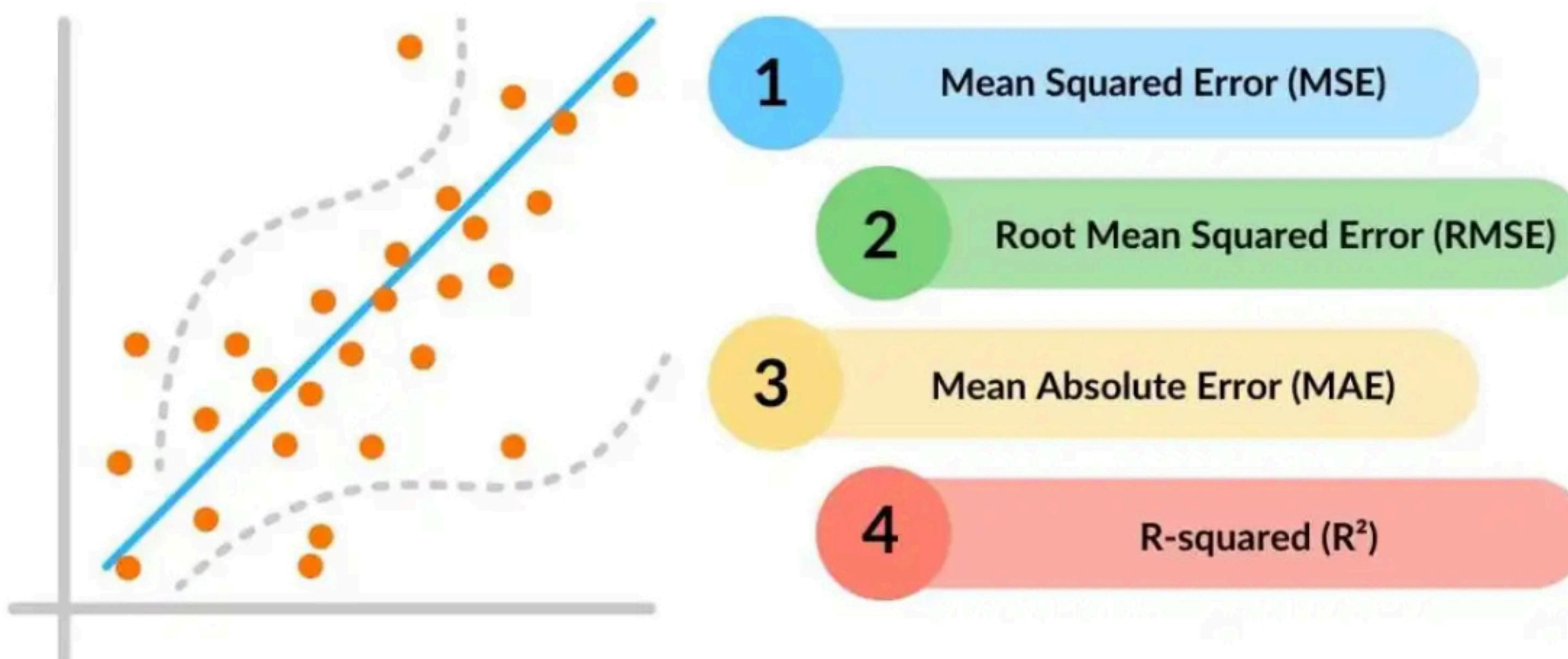
Split dataset using `train_test_split()`

Store trained model and preprocessing tools as .pkl files

Using metrices ensure that model gives accurate prediction

Built a Streamlit (app.py) for real time salary prediction

Evaluation Matrices





Software and Hardware Requirements



Software

- Python 
- Libraries : pandas , numpy , xgboost
scikit-learn , matplotlib , seaborn
- Development Tools :
Jupyter Notebook / VS Code 
- Framework : Streamlit
- Dataset : salary_Data.csv 

Hardware

- Laptop/PC with 4GB+ RAM 
- Stable Internet connection 

OUTPUT:

💡 Description :

- The application takes user inputs such as Age, Gender, Education Level, Job Title, and Years of Experience.
- On clicking the “Predict Salary” button, the model predicts the expected salary based on the trained dataset.
- The model uses Linear Regression to estimate salary values accurately.
- The output is displayed instantly on the screen with the predicted amount.

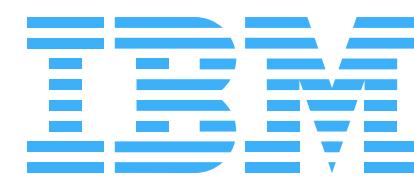
🧠 This demonstrates the working of the Employee Salary Prediction App.

The screenshot shows a mobile application titled "Employee Salary Prediction App". The interface is dark-themed with white text and light-colored input fields. At the top, there is a purple briefcase icon followed by the app's name. Below the title, the section "Employee Details" is labeled in red. The form contains five input fields: "Age" (set to 35), "Gender" (set to "Female"), "Education Level" (set to "Master's"), "Job Title" (set to "Sales Executive"), and "Years of Experience" (set to 6.50). Each input field has a minus and plus sign on its right side for adjustment. A red-bordered "Predict Salary" button is located below the experience field. At the bottom, a green bar displays the predicted salary: "₹ 83,506.60" next to a gold coin icon.

CONCLUSION

- The project successfully predicts employee salaries using Linear Regression.
- It demonstrates how Machine Learning can automate salary estimation accurately.
- The model helps organizations in fair decision-making and data-driven insights.
- The app provides instant predictions through a simple and user-friendly interface.





Thank you .

"The best way to predict the future is to create it."

— Peter Drucker