

# EMPLOYEE SALARY PREDICTION APP

## With Machine Learning

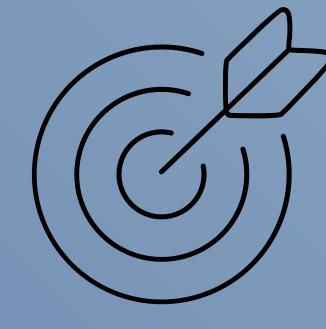
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# INTRODUCTION



- 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

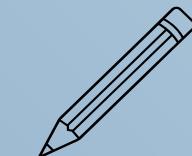
- The project focuses on predicting employee salaries based on multiple factors such as experience, education level, and job role.
- Uses Machine Learning (Linear Regression) for salary prediction.
- Helps organizations analyze pay structure and make data-driven salary decisions.
- Can be extended in 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 :**  $Y = mX + C$



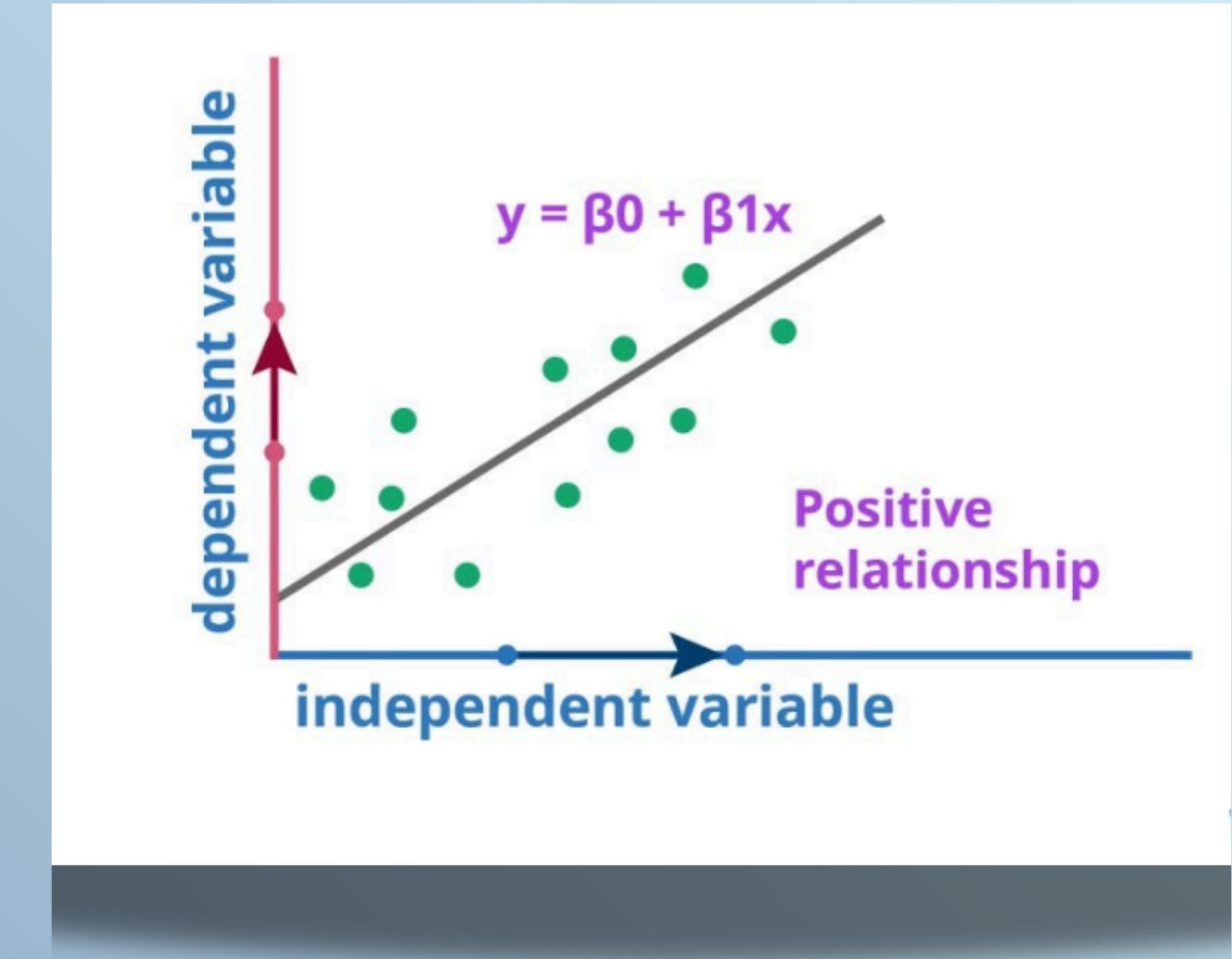
Where:

$Y \rightarrow$  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

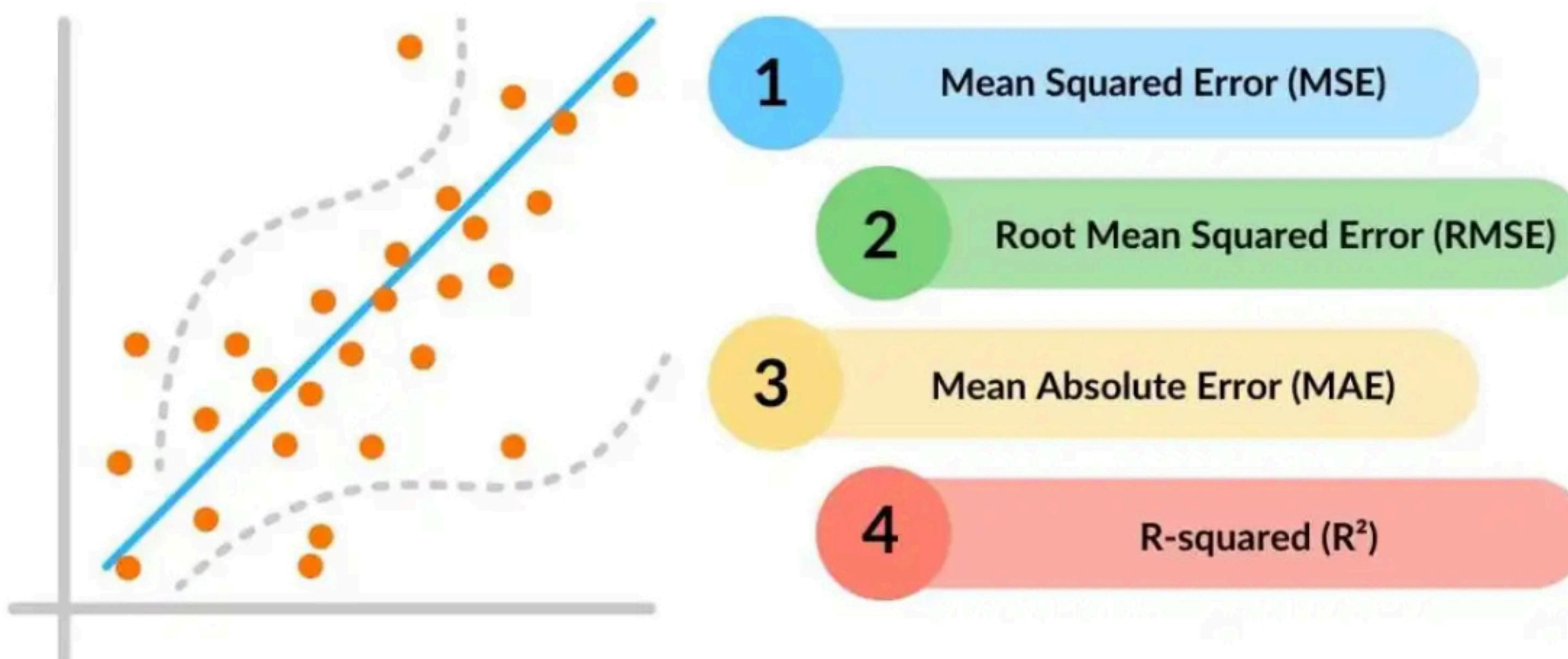
Split dataset using `train_test_split()`

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

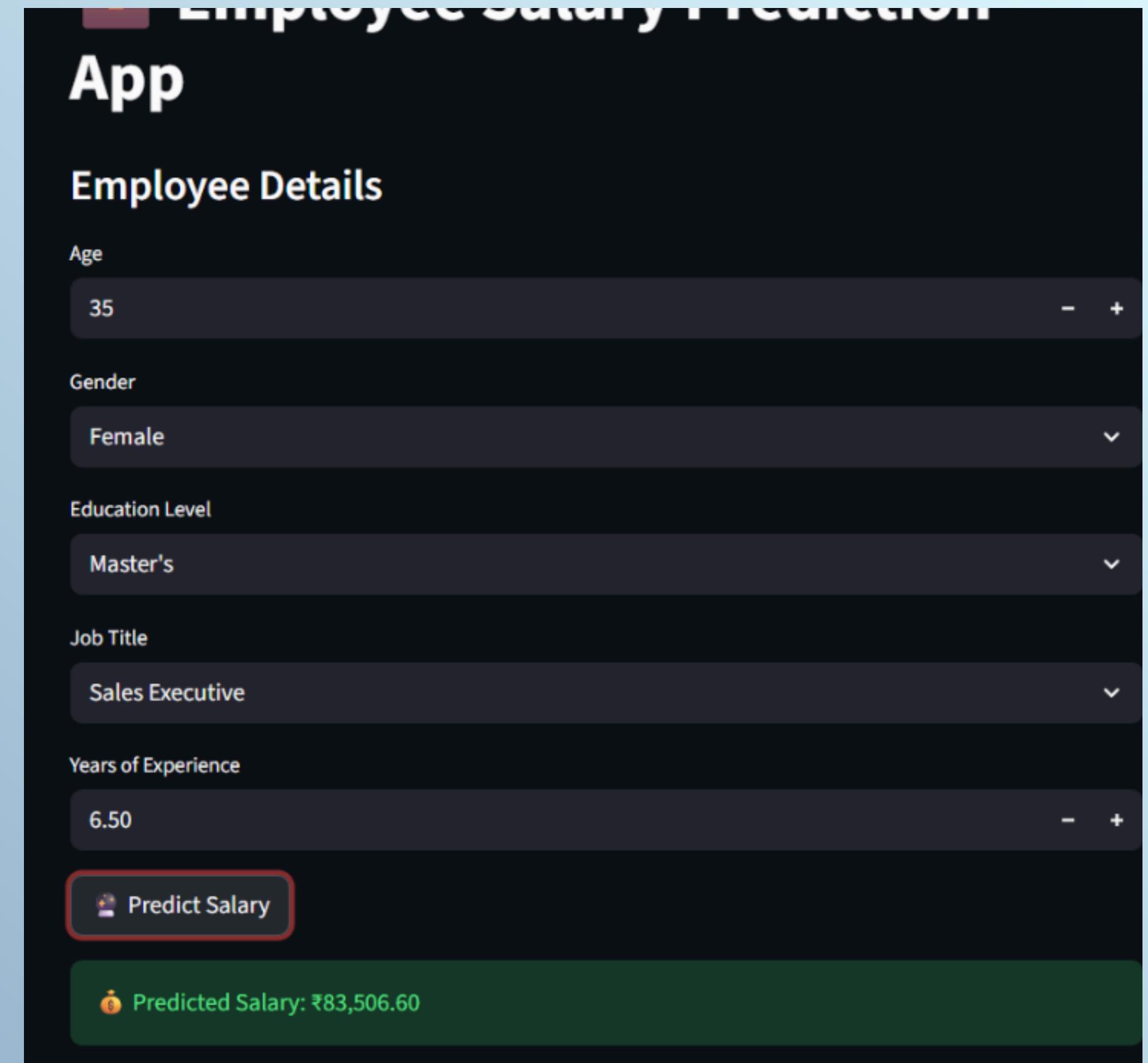
- Laptop/PC with 4GB+ RAM 
- Stable Internet connection 

# 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.

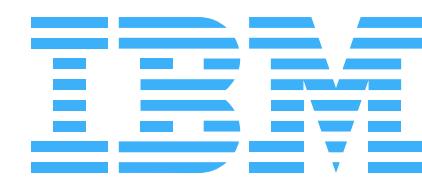
🧠 This demonstrates the working of the Employee Salary Prediction App.



# 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*