

Data Analysis

SALARY JOB PREDICTION

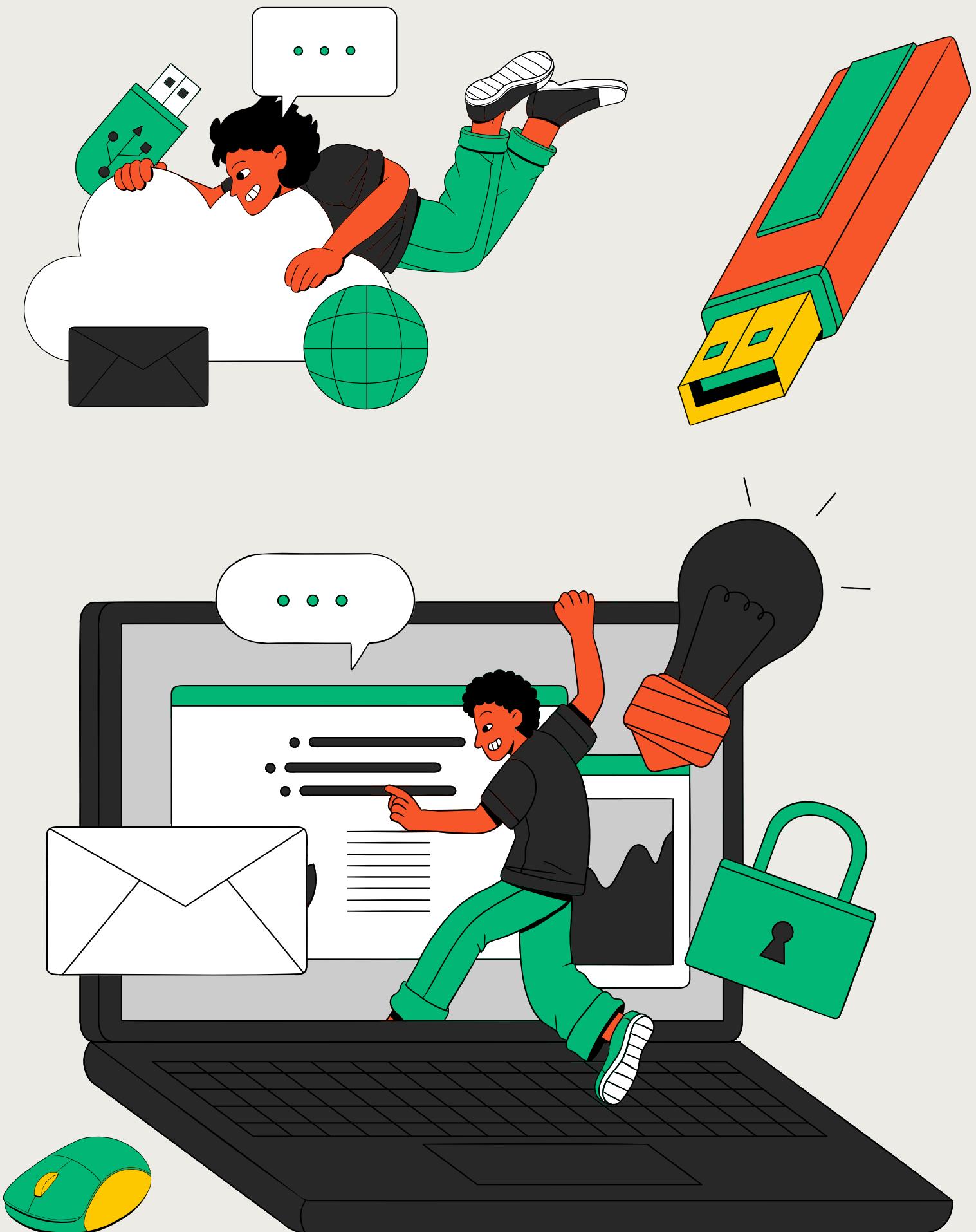
PRESENTATION



PRESENTED BY: DAN ORTEGA

PRESENTATION OUTLINE

- Introduction
- Data cleaning/EDA
- Feature Engineering
- Machine Learning Metrics
- Machine Learning Visualisation
- Why A Prediction Salary Analysis
- Real World Applications
- Findings on societal gender and racial inequalities
- Illustrated WorkFlow
- Welcome To My Web App



INTRODUCTION

Imagine a world of salary prediction, where data-driven insights shape the ever-evolving job market. In this world, machine Learning decode languages, identify faces, diagnose illnesses, and predict outcomes without direct programming, revolutionizing how we understand and navigate employment dynamics.



I've developed a cutting-edge machine learning model for salary prediction. Using advanced algorithms and vast datasets, my model autonomously analyses various factors such as job title, experience, education level, and industry trends to accurately forecast salary outcomes. By harnessing the power of predictive analytics, my model empowers businesses to make informed decisions in talent acquisition, budget planning, and strategic workforce management. Welcome to the future of salary prediction, where data-driven insights drive success in the ever-evolving job market ➤

DATA CLEANING/EDA

DATA PREPARATION

- Data collection, cleaning, and preprocessing
- Ensuring data quality and reliability
- Data labeling and annotation

MODEL DEVELOPMENT

- Selection of appropriate machine learning algorithms
- Model architecture and hyperparameter tuning
- Training process and validation

MODEL EVALUATION

- Cross-validation and testing on validation datasets
- Assessing model performance, including accuracy, precision and recall



FEATURE SELECTION

Target variable

Salary

Years of Experience

Education level

AGE

Junior

F. Engineering

Senior



MACHINE LEARNING MODELS

Linear Regression

Mean Squared Error:

629724221.7496656

R-squared Score:

0.7791572079914734

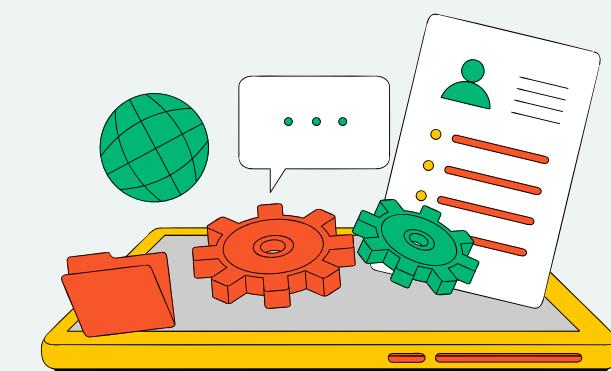
DecisionTreeRegressor

Mean Squared Error:

320671691.79673

R-squared Score:

0.8875411977361737



RandomForestRegressor

Mean Squared Error:

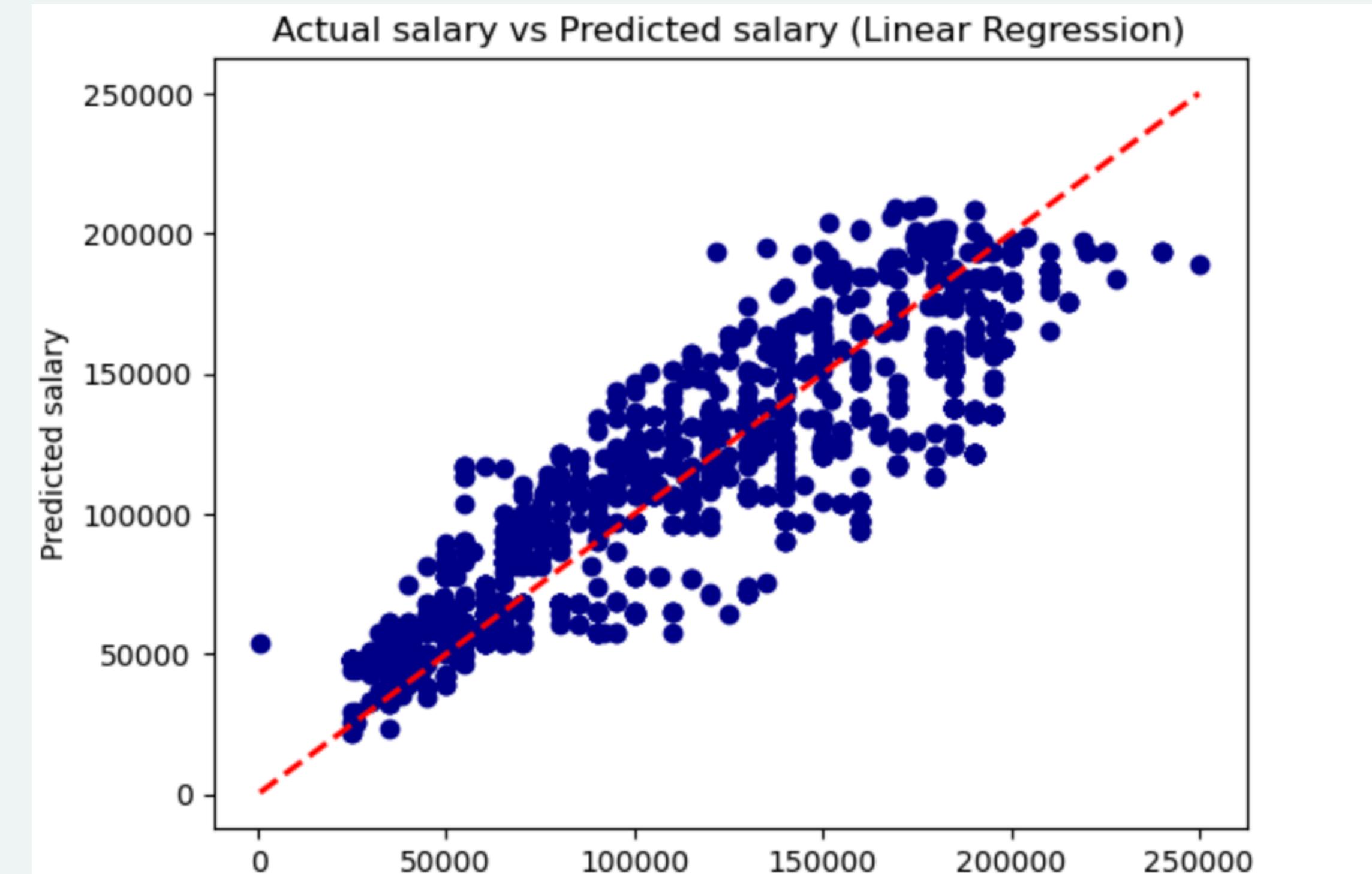
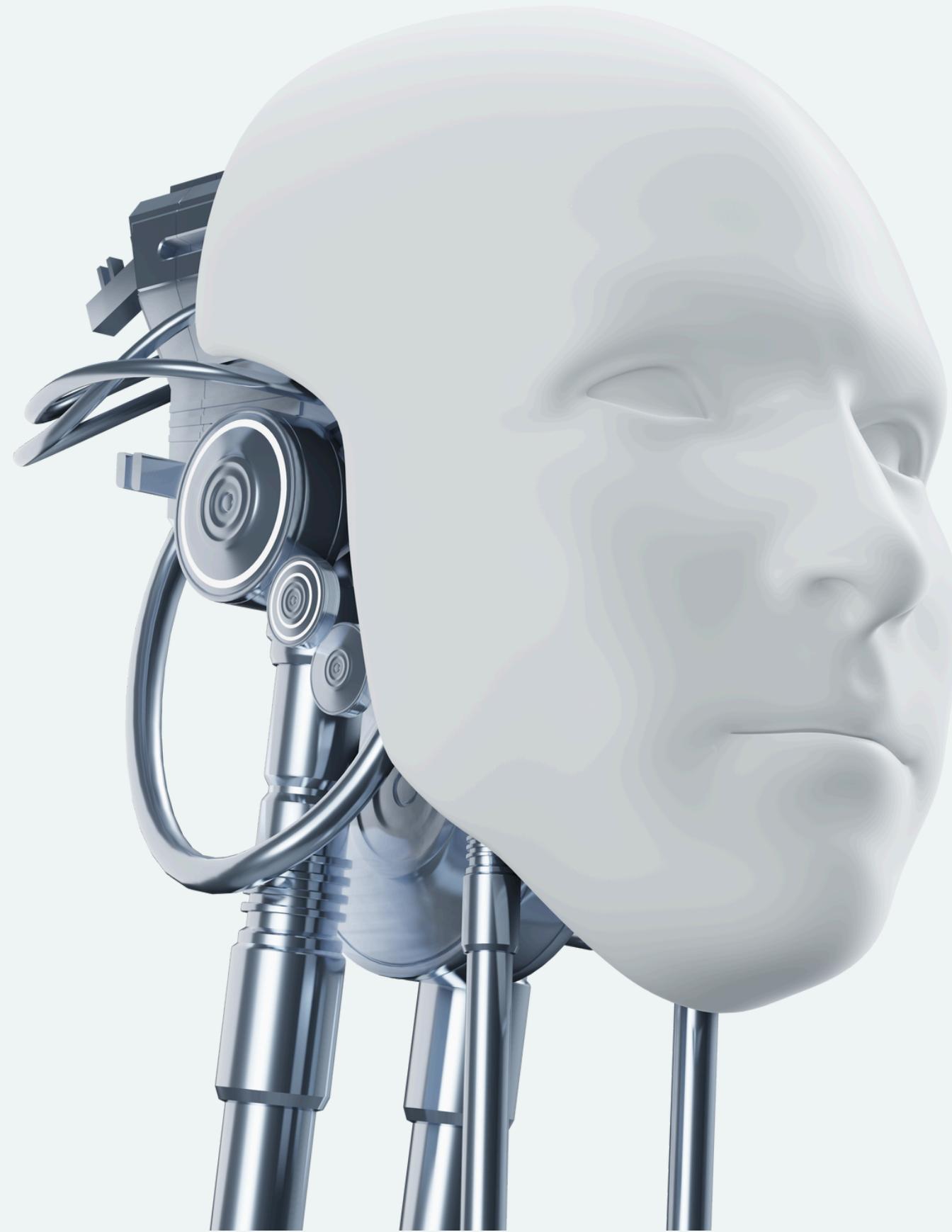
312174839.57103246

R-squared Score:

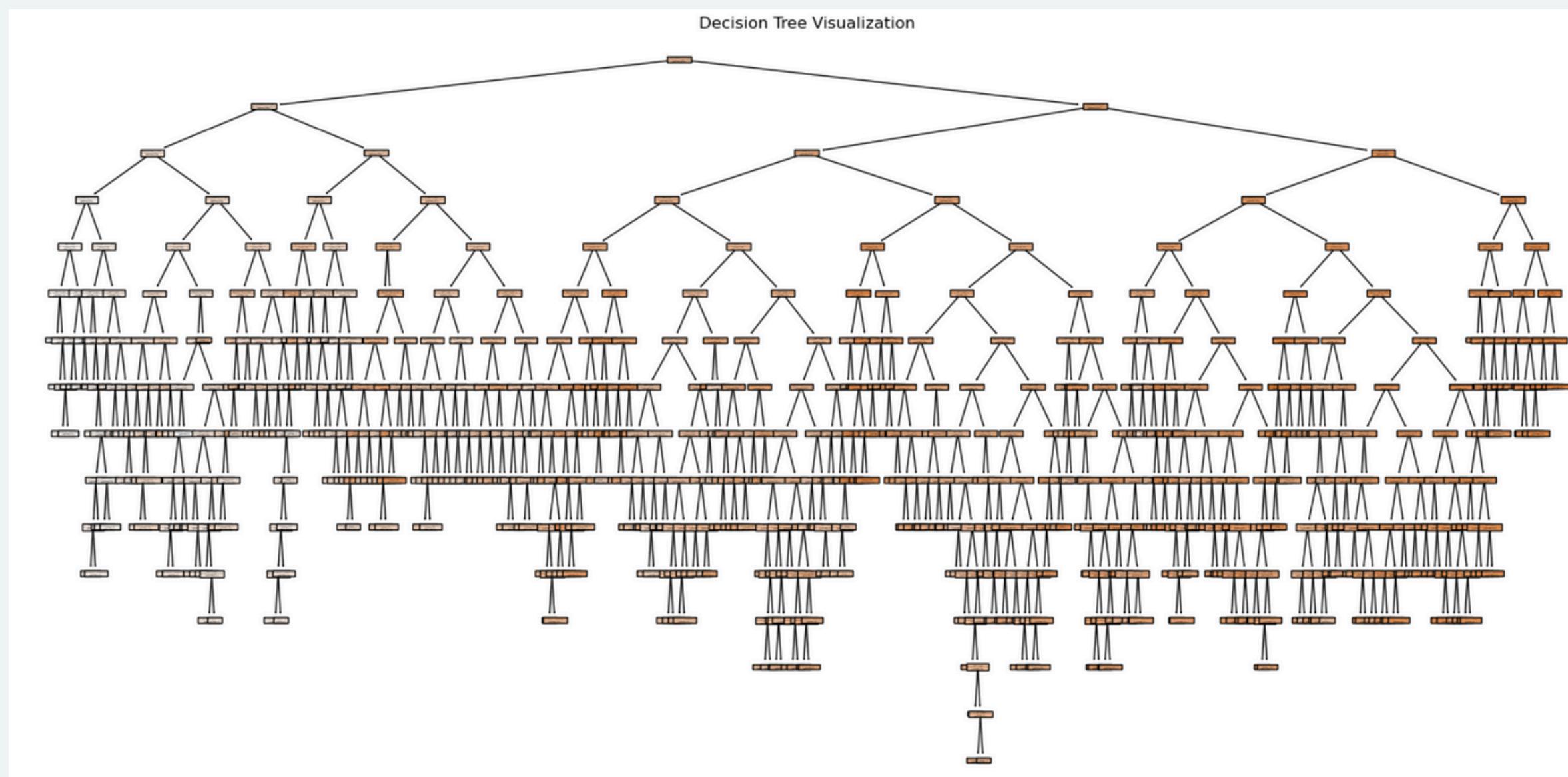
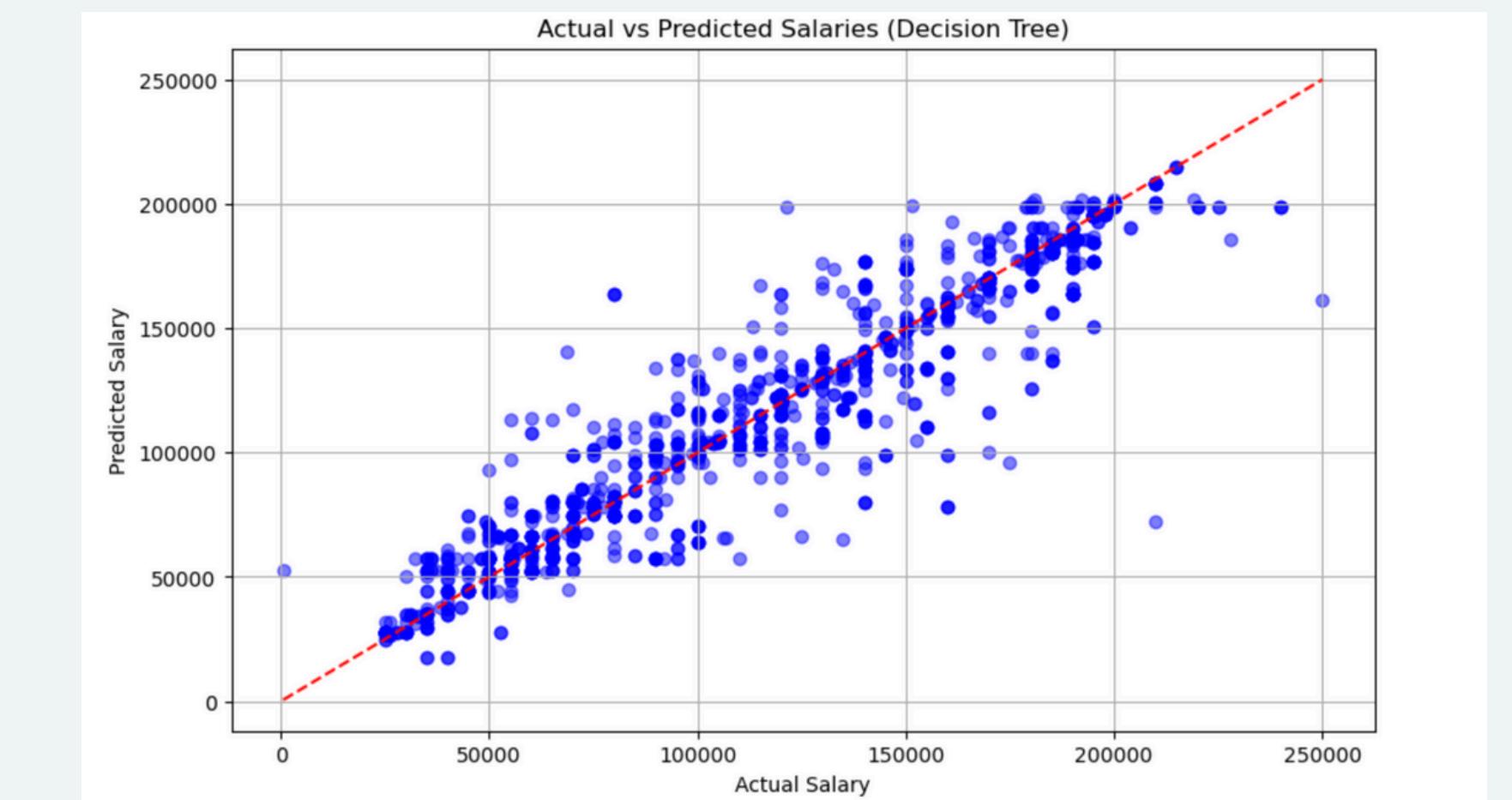
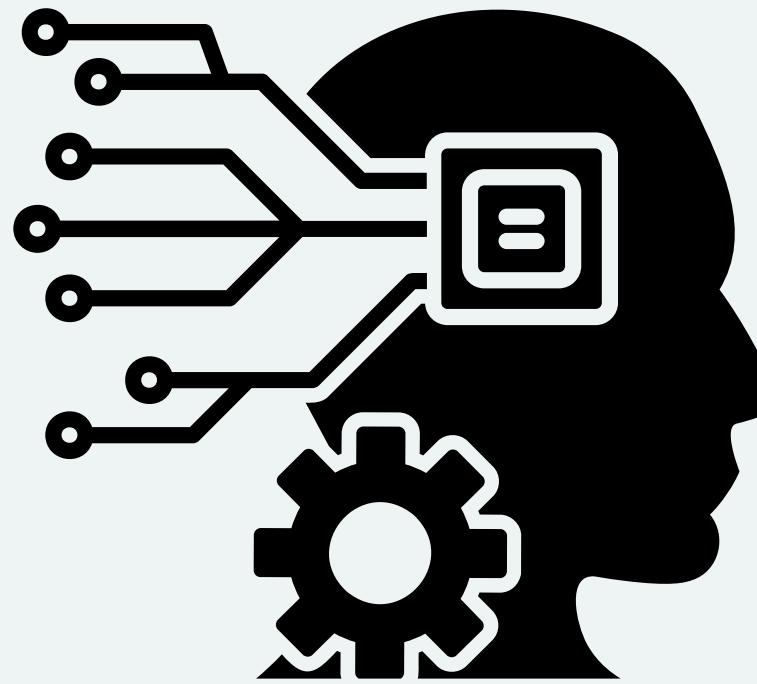
0.8905210236726657



Lineal Regression



DecisionTreeRegressor



RandomForestRegressor - Classification Model



Accuracy: 1.0

Classification Report:

	precision	recall	f1-score	support
0	1.00	1.00	1.00	395
1	1.00	1.00	1.00	945
accuracy			1.00	1340
macro avg	1.00	1.00	1.00	1340
weighted avg	1.00	1.00	1.00	1340

GAME ON

Junior or senior?

Years of Experience	Junior	Senior
0	5.0	No Yes
1	3.0	Yes No
2	15.0	No Yes
3	7.0	No Yes
4	19.0	No Yes
...
6699	19.0	No Yes
6700	3.0	Yes No
6701	4.0	No Yes
6702	14.0	No Yes
6703	1.0	Yes No

WHY A PREDICTION SALARY?



the application of data analytics and machine learning in salary prediction aligns well with the growing demand for data-driven approaches in human resources, finance, and economic analysis.



SALARY PREDICTION MODELS HAVE NUMEROUS REAL-WORLD APPLICATIONS ACROSS VARIOUS INDUSTRIES. HERE ARE SOME EXAMPLES

01

HUMAN RESOURCES AND TALENT ACQUISITION

HR departments and recruitment agencies can use salary prediction models to determine competitive salary offers for job candidates.

This ensures that job offers are both attractive to candidates and aligned with market standards, helping to attract and retain top talent.

02

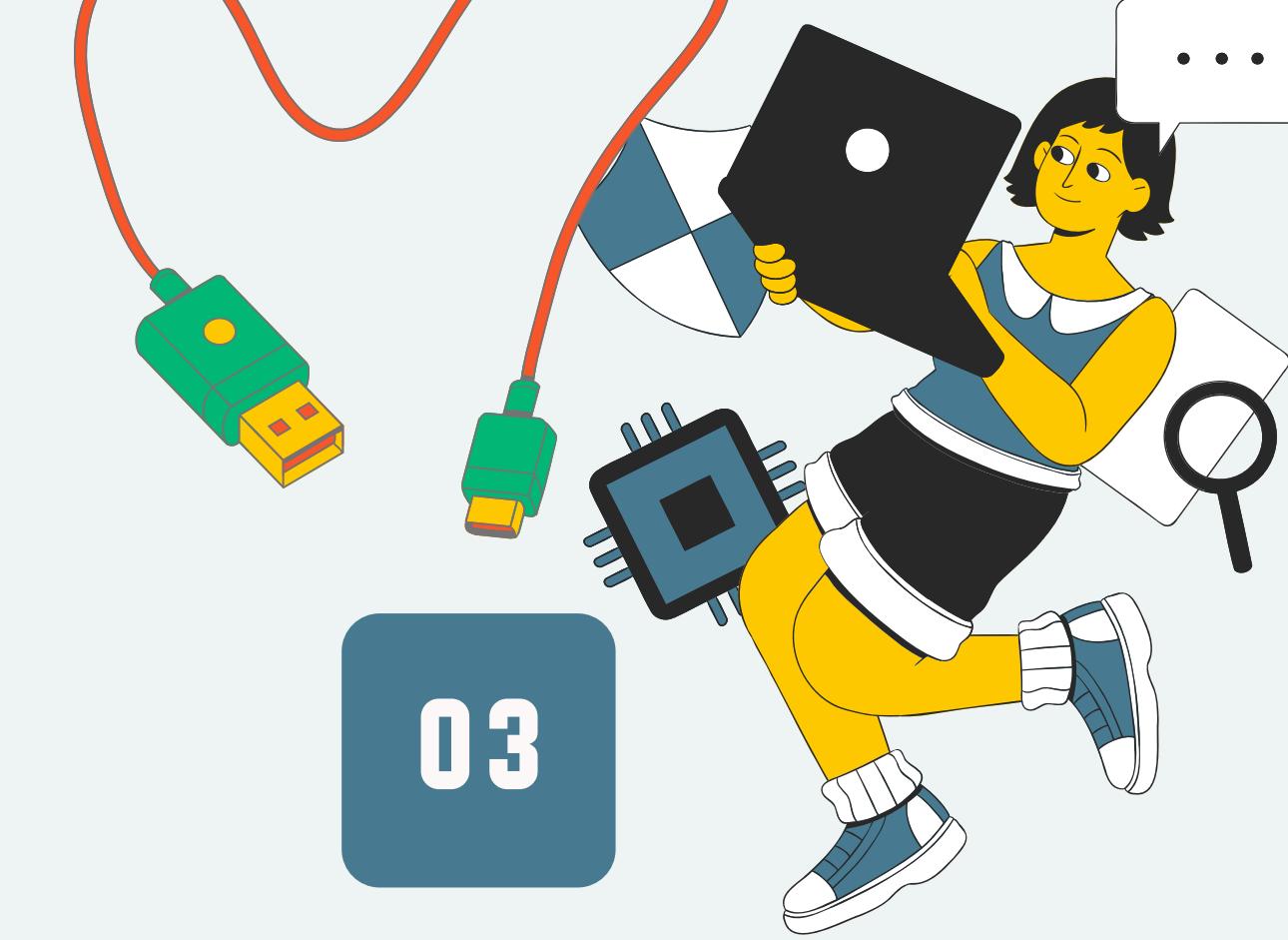
EMPLOYEE RETENTION

Employers can use salary prediction models to identify employees who are at risk of leaving due to being underpaid relative to their skills and experience. By proactively adjusting salaries or offering incentives, companies can improve employee retention rates and reduce turnover costs.

03

EDUCATION AND CAREER GUIDANCE

Educational institutions and career counselors can use salary prediction models to provide students and job seekers with insights into the earning potential associated with different career paths and educational qualifications. This information can help individuals make more informed decisions about their education and career trajectories.



FINDINGS ON SOCIETAL GENDER AND RACIAL INEQUALITIES



Gender salary inequalities

The tool can show us something that is universally known yet still existing: gender does influence the amount of salary we receive. Women in general earn less on average than men for the exact same job or profession.

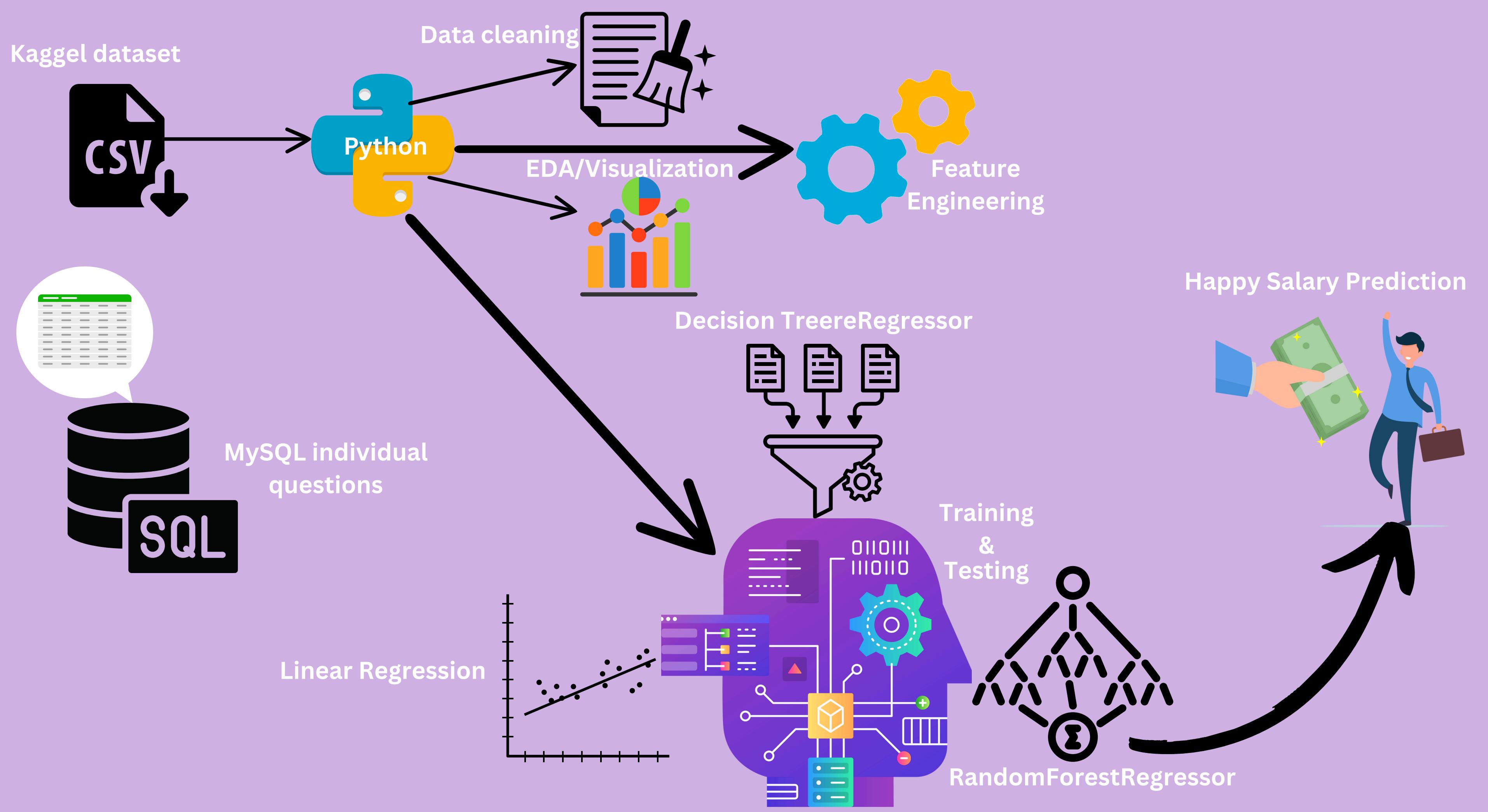
Intersections

Last, this tool works with various intersections, of which gender and ethnicity are two of them. It is important to understand that each intersection defines our position in the social and economic privilege ladder. A black or indigenous woman is likely to earn even less than a black or indigenous man.

Ethnicity/race influencing salaries & education

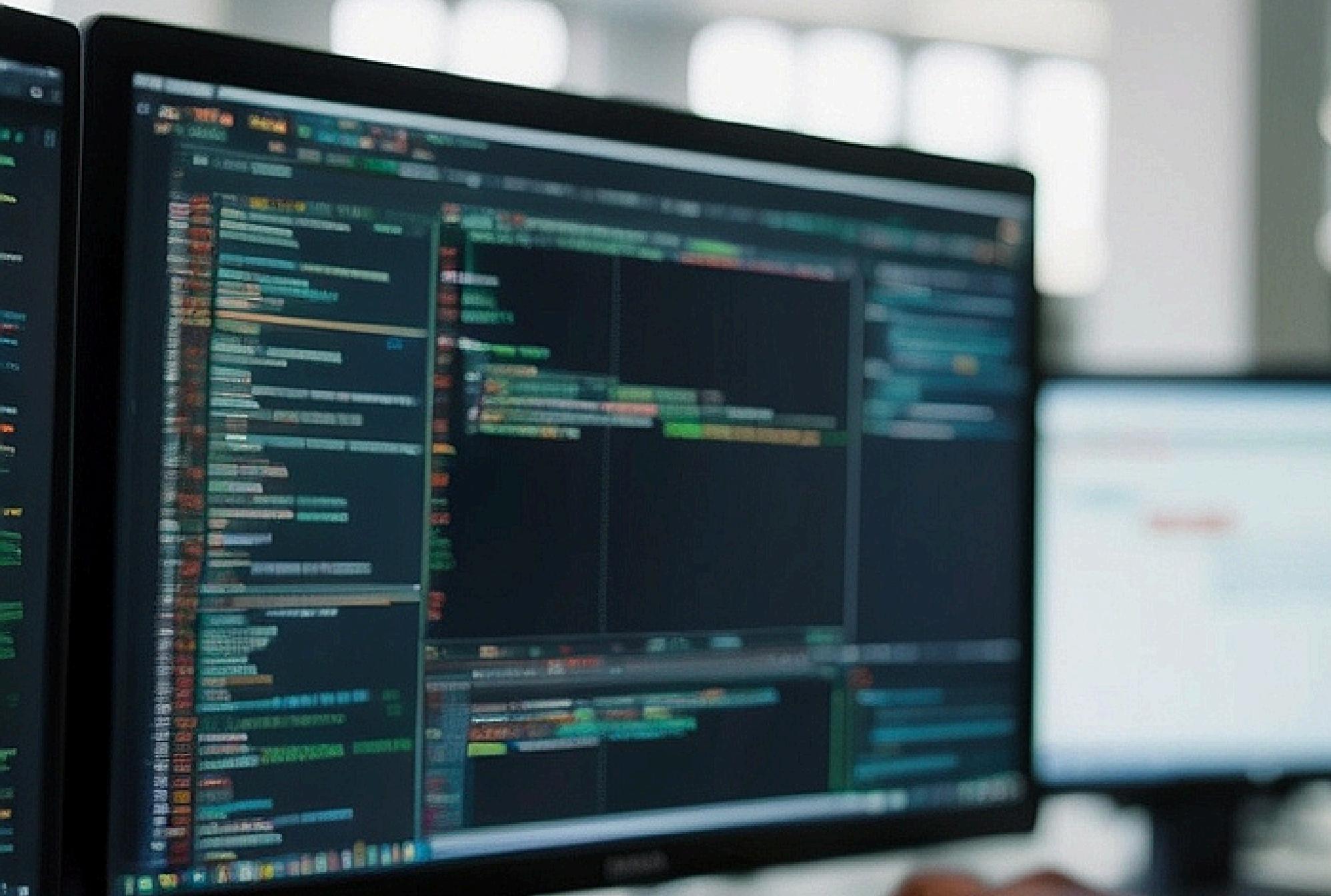
Similarly, ethnicity or race influences our opportunities for both lower and higher education, as well as our salaries. The created tool gives us the option to check the available data regarding this persisting inequality as well.





Please feel free to interact with my user friendly WEB APP.

Salary Predictor



Thank you all for your invaluable attention and time

