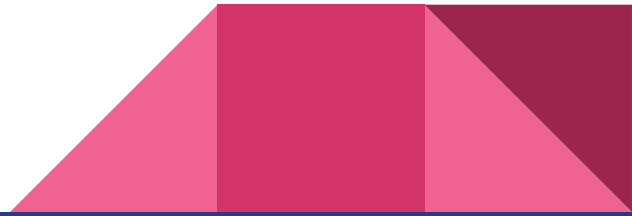
What are your salary expectations, after finishing the bootcamp?

Salary Prediction Tool for U.S-Based Data Science Roles

Project Overview

Team

- Cristian Llanes (Square Role)
- Maria Sevillano (Triangle Role)
- Alejandra Villarreal (Circle Role)
- Sharof Abdoollayev (X Role)



Project Overview

Objective

The purpose of this project is to build a resource for job-seekers to predict the salary of a given career field, Data Science, based on set variables.

- Answer the "**What Are Your Salary Expectations?"** question that a hiring manager might pose during an interview process.
- Determine if they should accept or decline a job offer.

Project Overview

Data Source

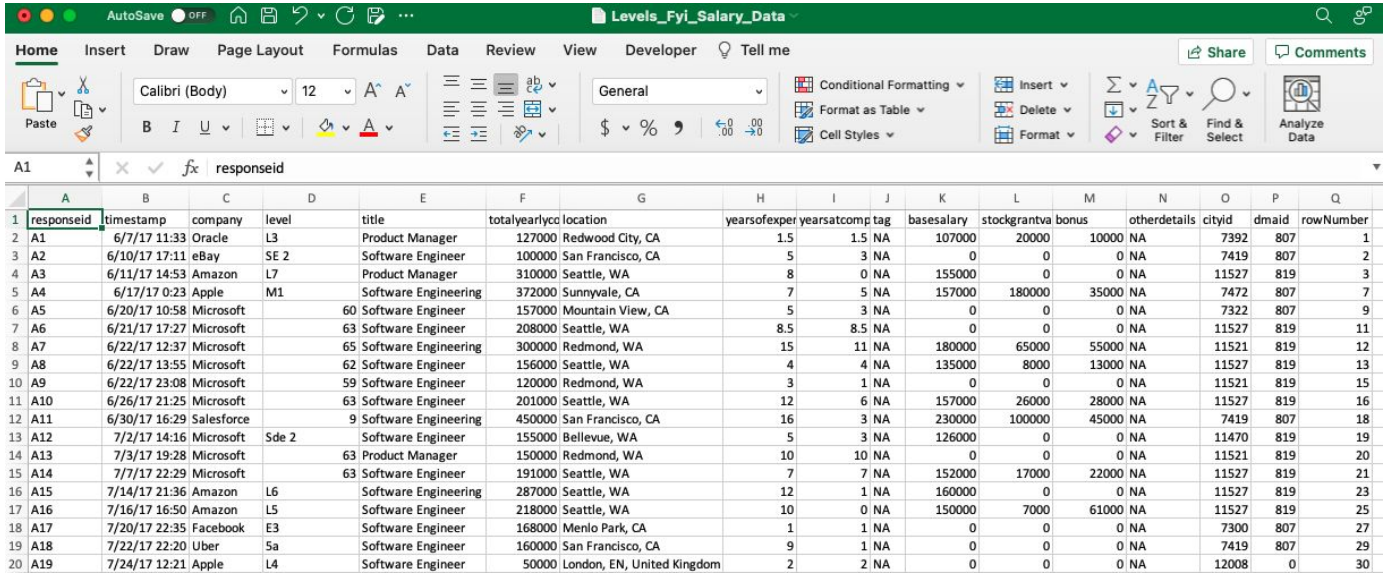
Original data sets:

Levels_Fyi_Salary_Data.csv

Participants_Data.csv

Project Overview

Levels_Fyi_Salary_Data.csv



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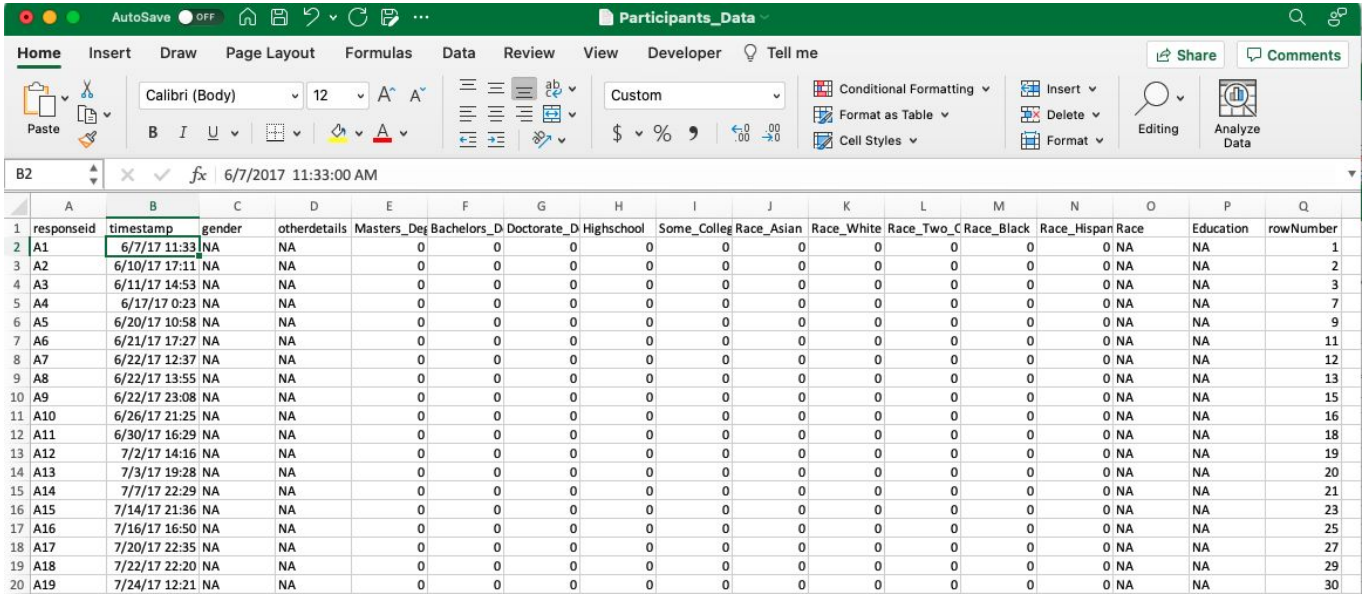
Project Overview

Participants_Data.csv



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Project Overview

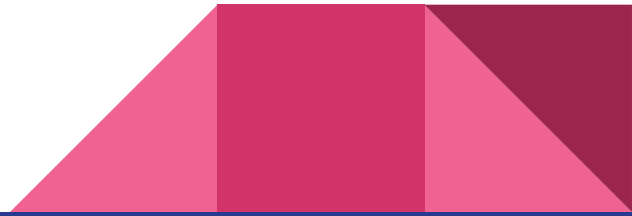
Technologies Used

- Pandas
- Postgres
- Amazon AWS
- SciKitLearn
- Tableau

Project Overview

Questions Data Set Will Answer

- Will salary for Data Science jobs continue to experience growth in the future?
- Based on the selected set of variables, what is the expected salary range?
- Determine salary trends based on specific factors.



Preliminary Machine Learning Model

Data Preprocessing

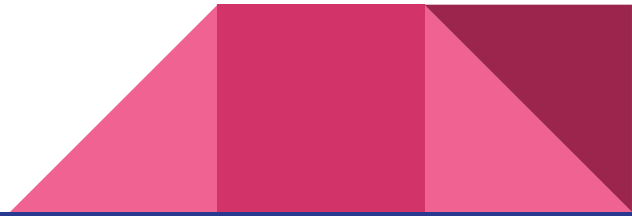
Preprocessing will involve the followings:

- Checking and handling imbalanced datasets.
- Performing initial exploratory analysis, including scatter plotting and correlation.
- Removing non-beneficiary columns.
- Preparing the data by working with any missing values, scaling the data, and converting categorical variables by using the one-hot encoding scheme.

Preliminary Machine Learning Model

Splitting the dataset

The dataset will be split into training and testing sets using the 80/20 Pareto principle resulting in a test size of 20%.



Preliminary Machine Learning Model

Supervised Machine Learning Model

We will use a supervised machine learning model since we are looking to predict a value.There are different models we can use:

- **Regression**
- **Classification / Ensemble Methods**

Preliminary Machine Learning Model

Regression

- Apply a Linear Regression to predict salary.

- We will also explore applying a Multilinear Regression Model to add other factors that might influence the salary prediction.

Preliminary Machine Learning Model

Classification / Ensemble Methods

We could use Random Forest Regression to discover the connection between the target and independent variables to determine a continuous value. This connection can then be used to predict salaries of data science jobs..

Preliminary Machine Learning Model

Model Evaluation

We will evaluate the models based on:

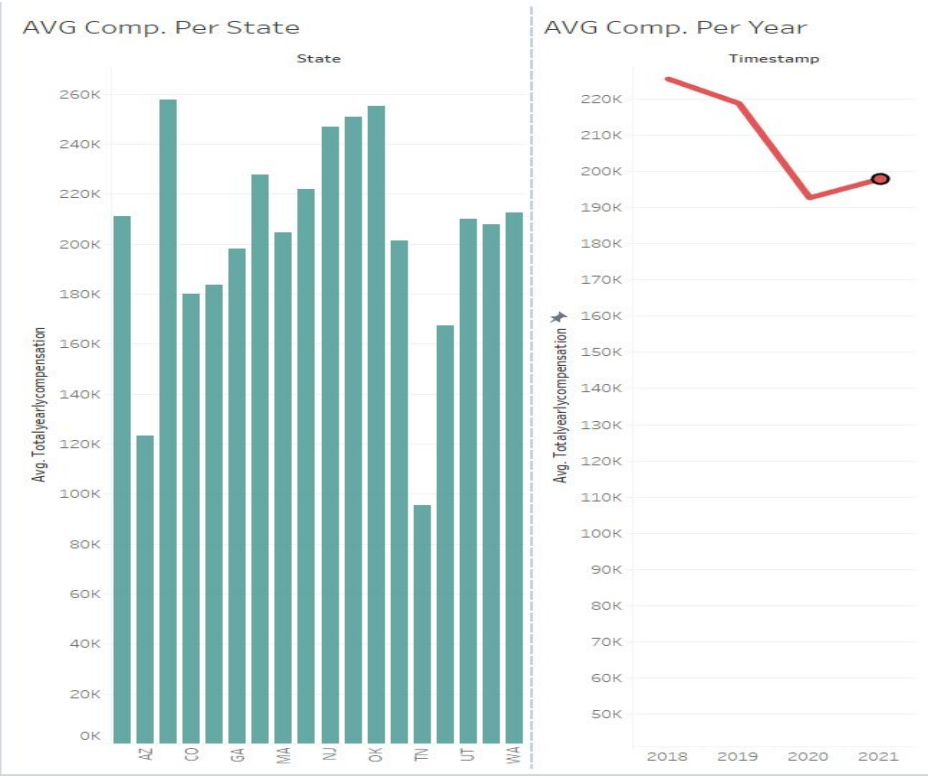
- **Explained Variance Score:** Similar to the R^2 score, with the notable difference that it does not account for systematic offsets in the prediction.
- **Model Score:** Returns the mean accuracy on the given test data.

Dashboard

Tableau

- Use of Tableau charts to represent data.
- Interactable options to manipulate data such as filters actions, highlight actions, etc.
- There will be a Tableau story that will outline the purpose of the project through visualized data.
- ML data will be provided as part of the dashboard presentation.

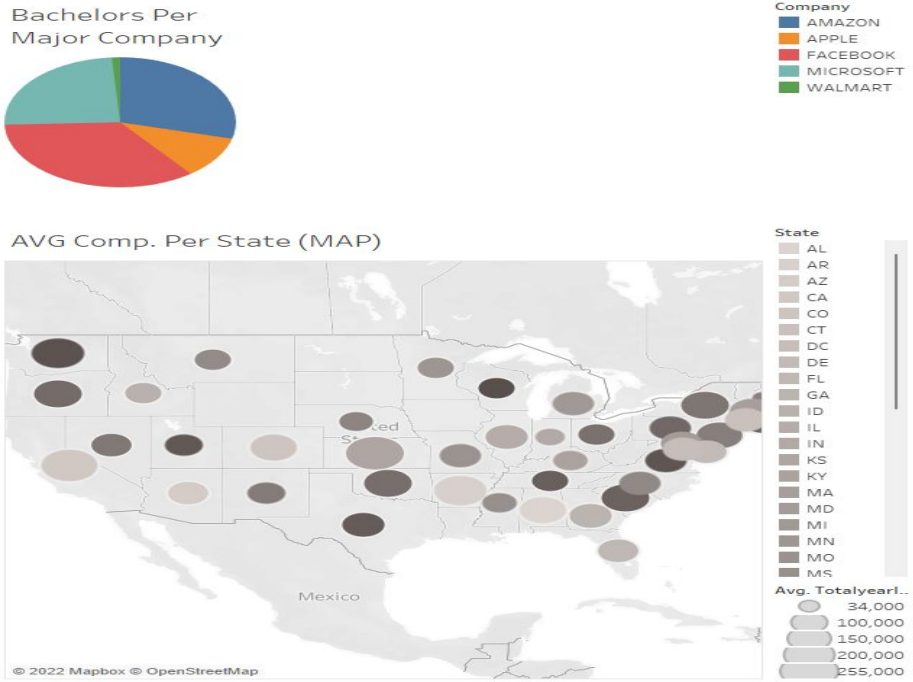
Dashboard



Average Total Year Compensation

Per Year and State

Dashboard



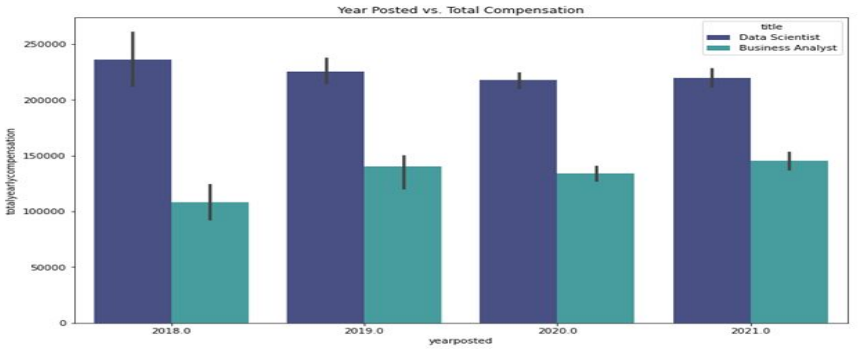
Average Total Yearly Compensation

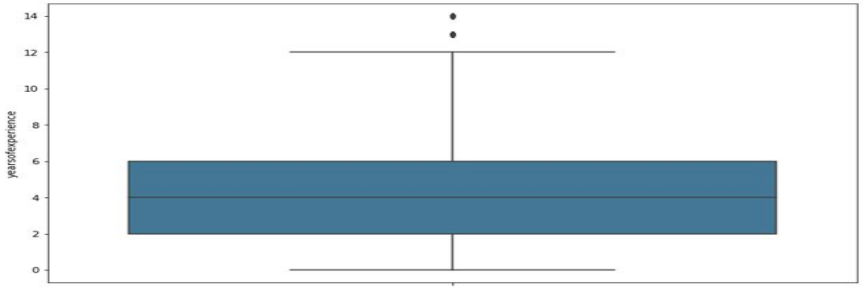
Per State, and

Bachelors Graduates

In Major Companies

Dashboard





Data Scientist and Business Analyst

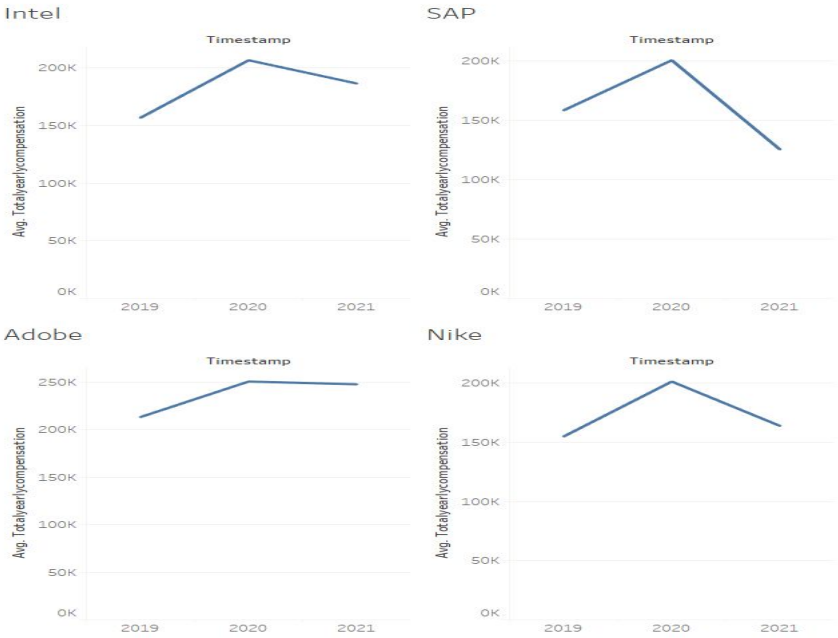
Total Yearly Compensation Per Year

and

Whisker Chart of Years of Experience

(ML)

Dashboard



Declining Company

Compensations Per Year