

What are your salary expectations,
after finishing the bootcamp?



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

Project Overview

Team

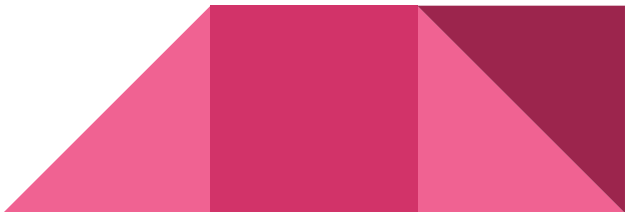
- Cristian Llanes (Square Role)
- Maria Sevillano (Triangle Role)
- Alejandra Villarreal (Circle Role)
- Sharof Abdoolayev (X Role)



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.
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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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2	A1	6/7/17 11:33	Oracle	L3	Product Manager	127000	Redwood City, CA	1.5	1.5	NA	107000	20000	10000	NA	7392	807	1	
3	A2	6/10/17 17:11	eBay	SE 2	Software Engineer	100000	San Francisco, CA	5	3	NA	0	0	0	NA	7419	807	2	
4	A3	6/11/17 14:53	Amazon	L7	Product Manager	310000	Seattle, WA	8	0	NA	155000	0	0	NA	11527	819	3	
5	A4	6/17/17 0:23	Apple	M1	Software Engineering	372000	Sunnyvale, CA	7	5	NA	157000	180000	35000	NA	7472	807	7	
6	A5	6/20/17 10:58	Microsoft	60	Software Engineer	157000	Mountain View, CA	5	3	NA	0	0	0	NA	7322	807	9	
7	A6	6/21/17 17:27	Microsoft	63	Software Engineer	208000	Seattle, WA	8.5	8.5	NA	0	0	0	NA	11527	819	11	
8	A7	6/22/17 12:37	Microsoft	65	Software Engineering	300000	Redmond, WA	15	11	NA	180000	65000	55000	NA	11521	819	12	
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11	A10	6/26/17 21:25	Microsoft	63	Software Engineer	201000	Seattle, WA	12	6	NA	157000	26000	28000	NA	11527	819	16	
12	A11	6/30/17 16:29	Salesforce	9	Software Engineering	450000	San Francisco, CA	16	3	NA	230000	100000	45000	NA	7419	807	18	
13	A12	7/2/17 14:16	Microsoft	Sde 2	Software Engineer	155000	Bellevue, WA	5	3	NA	126000	0	0	NA	11470	819	19	
14	A13	7/3/17 19:28	Microsoft	63	Product Manager	150000	Redmond, WA	10	10	NA	0	0	0	NA	11521	819	20	
15	A14	7/7/17 22:29	Microsoft	63	Software Engineer	191000	Seattle, WA	7	7	NA	152000	17000	22000	NA	11527	819	21	
16	A15	7/14/17 21:36	Amazon	L6	Software Engineering	287000	Seattle, WA	12	1	NA	160000	0	0	NA	11527	819	23	
17	A16	7/16/17 16:50	Amazon	L5	Software Engineer	218000	Seattle, WA	10	0	NA	150000	7000	61000	NA	11527	819	25	
18	A17	7/20/17 22:35	Facebook	E3	Software Engineer	168000	Menlo Park, CA	1	1	NA	0	0	0	NA	7300	807	27	
19	A18	7/22/17 22:20	Uber	5a	Software Engineer	160000	San Francisco, CA	9	1	NA	0	0	0	NA	7419	807	29	
20	A19	7/24/17 12:21	Apple	L4	Software Engineer	50000	London, EN, United Kingdom	2	2	NA	0	0	0	NA	12008	0	30	

Participants_Data.csv

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Project Overview

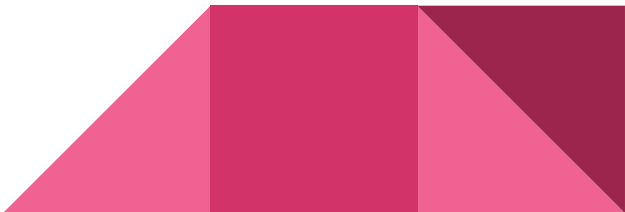
Technologies Used

- 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.
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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.
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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.

