Salary Prediction

Group 7

Table of contents

01 Motivation

You can describe the topic of the section here

02 Dataset intro.

You can describe the topic of the section here

03 Model Experiment

You can describe the topic of the section here

04 Comments

You can describe the topic of the section here

Motivation

To help limit distractions or make video calls more fun, you can now blur your background or replace your background with an image

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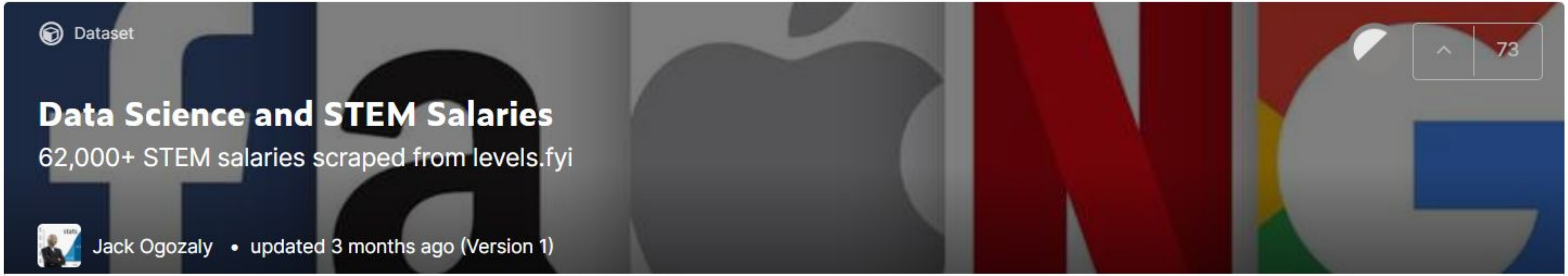
Dataset Introduction

Dataset Resource



Dataset

Data Science and STEM Salaries

62,000+ STEM salaries scraped from levels.fyi

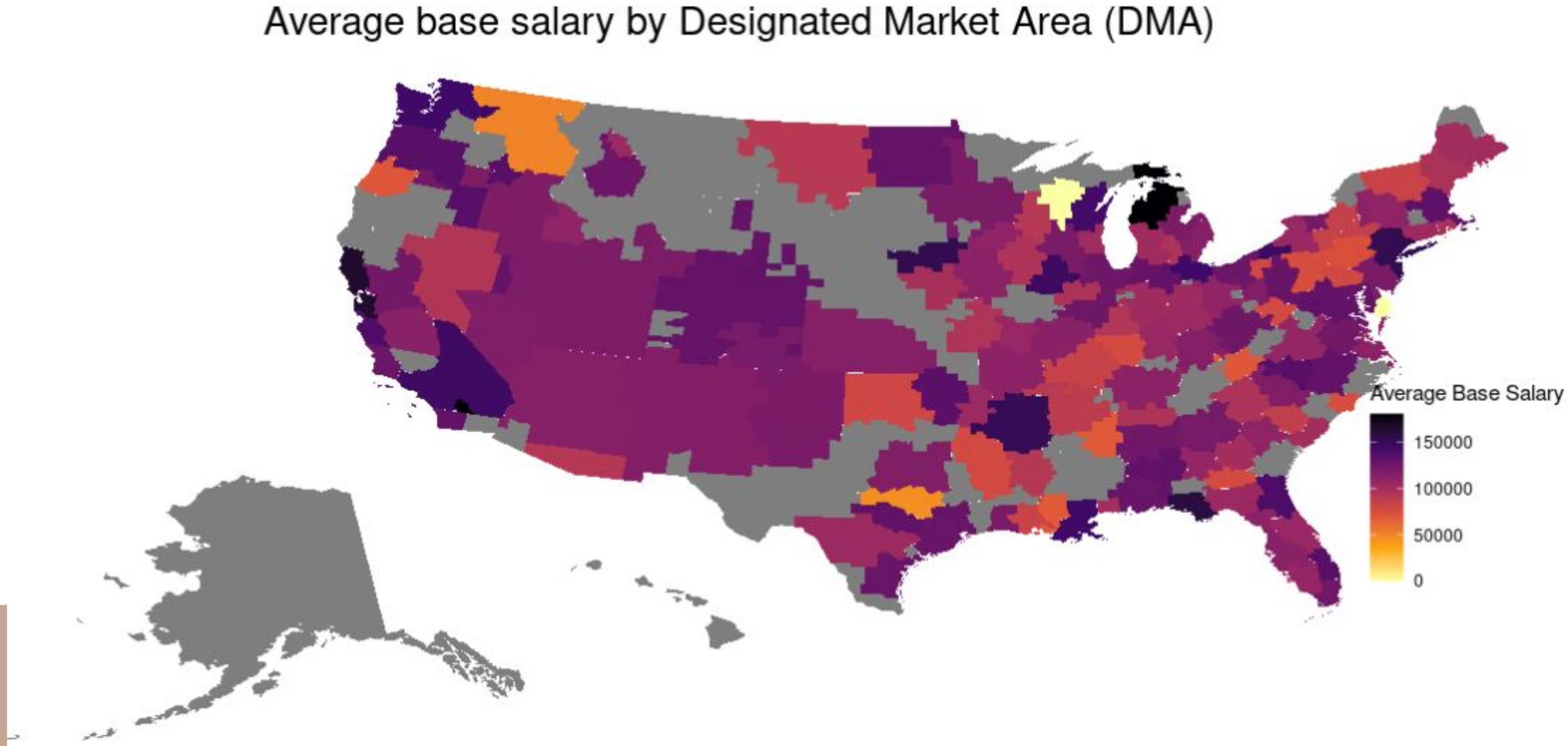
Jack Ogozaly • updated 3 months ago (Version 1)

https://www.kaggle.com/jackogozaly/data-science-and-stem-salarie

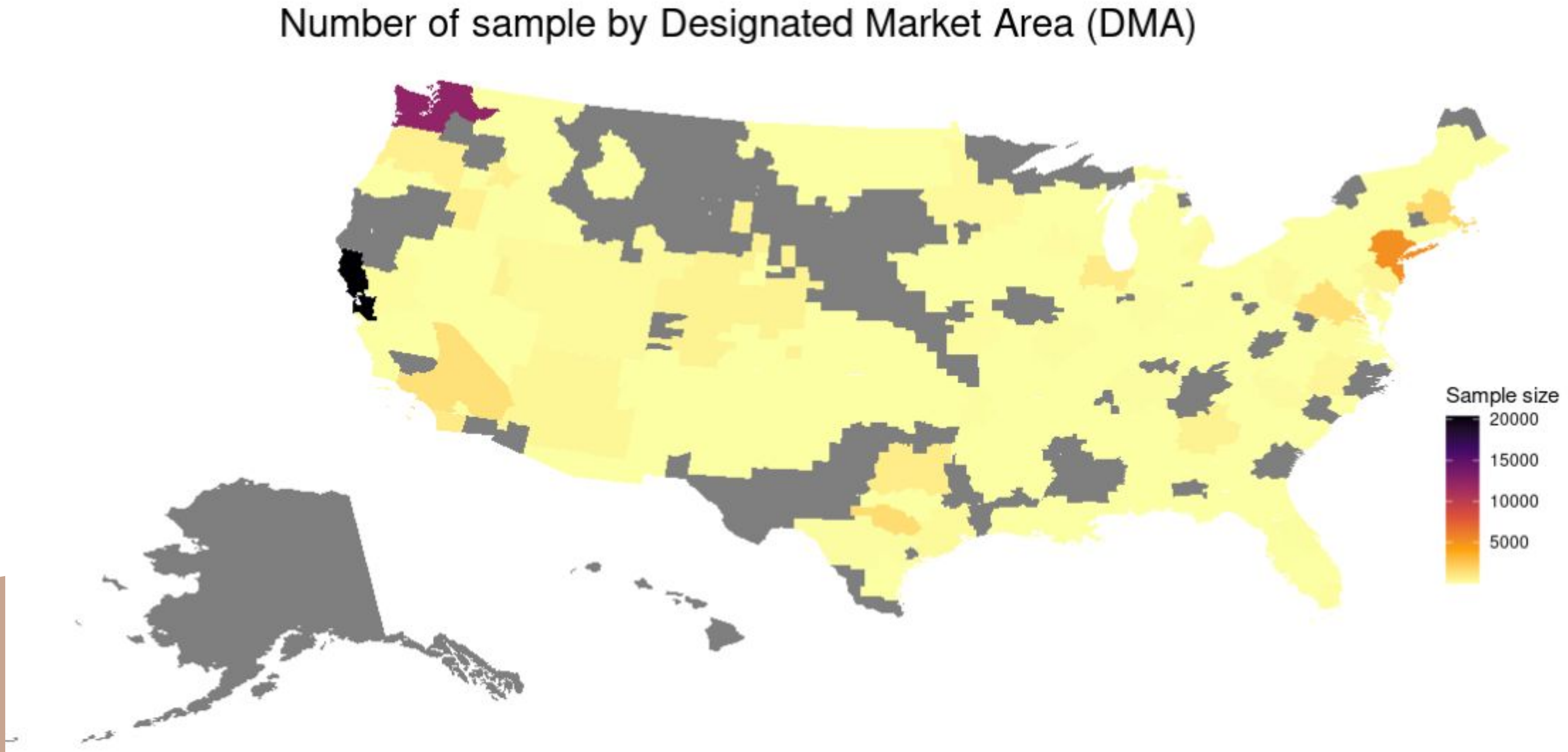
Feature	Type	Description	Example
timestamp	**Nominal**	時間戳記	**6/7/2017 11:33:27**
company	**Nominal**	所任職的公司	**Oracle**
level	**Nominal**	職業層級	**L3**
title	**Nominal**	職稱	**Product Manager**
totalyearlycompensation	**Numeric**	總體薪酬	**127000**
location	**Nominal**	公司所在地區	**Redwood City, CA**
yearsofexperience	**Numeric**	從事這行業的時長	**1.5**
yearsatcompany	**Numeric**	在這公司任職的時長	**1.5**
tag	**Nominal**	職業屬性別	**API Development (Back-End)**

Feature	Type	Description	Example
basesalary	**Numeric**	基本薪水	**107000**
stockgrantvalue	**Numeric**	股票分紅	**20000**
bonus	**Numeric**	獎金	**10000**
gender	**Nominal**	性別	**Male**
otherdetails	**Nominal**	備註	**New grad offer -- intern conversion**
cityid	**Numeric**	公司所在地區編號	**7392**
dmaid	**Numeric**	地區區碼	**807**
rowNumber	**Numeric**	編號	**1**
Race	OneHotEncoding	種族	**White**
Education	OneHotEncoding	教育程度	**Master's Degree**

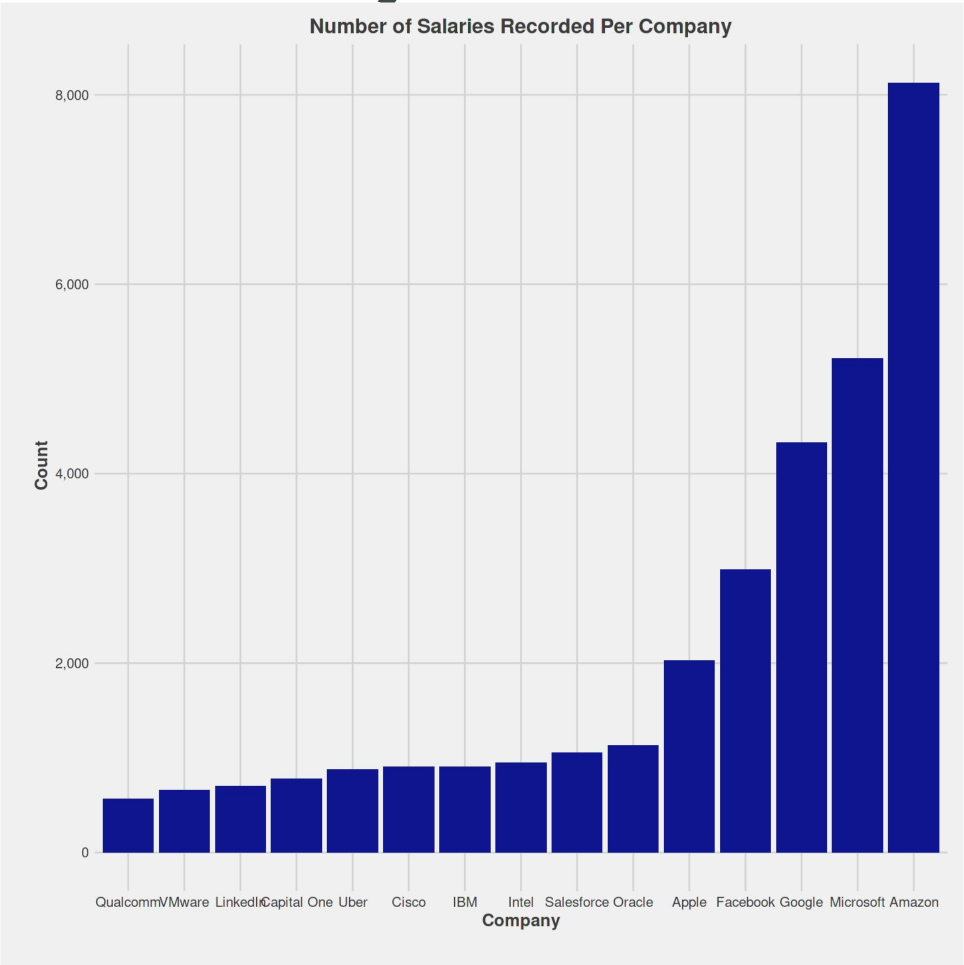
Exploratory Data Analysis



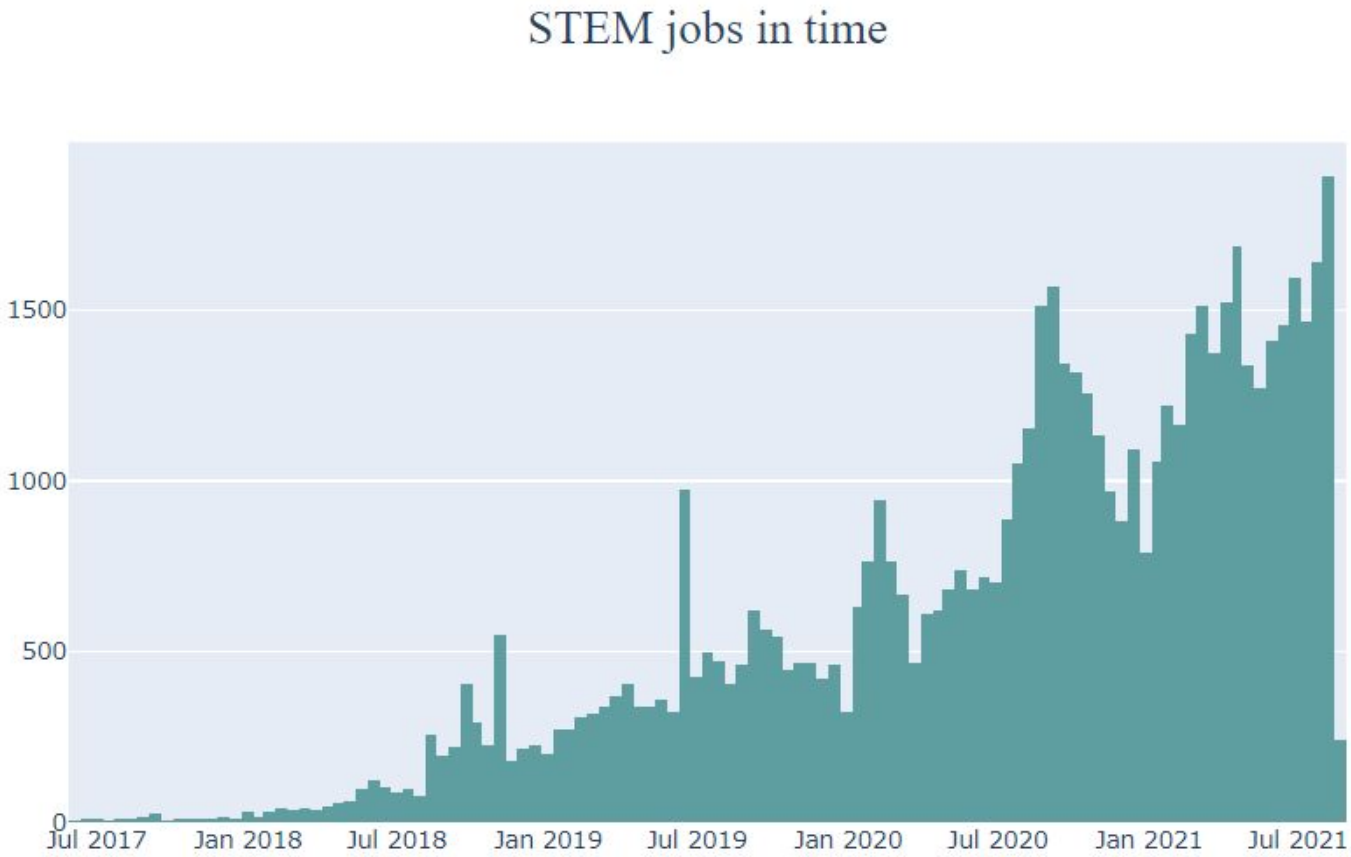
Exploratory Data Analysis



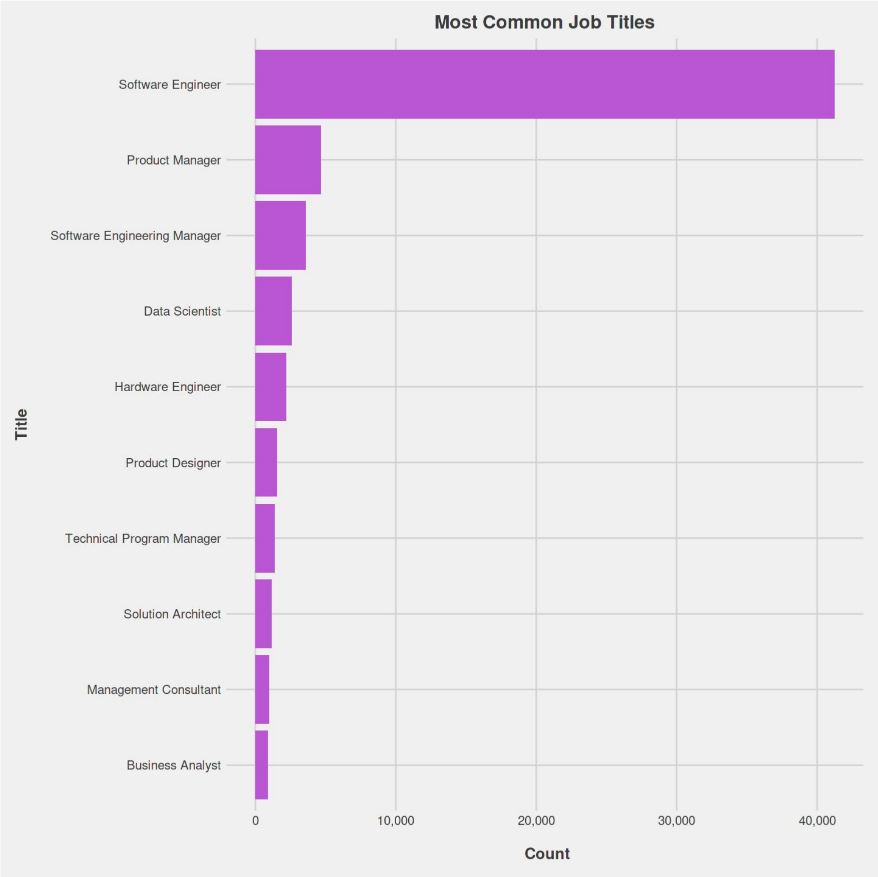
Exploratory Data Analysis



Exploratory Data Analysis

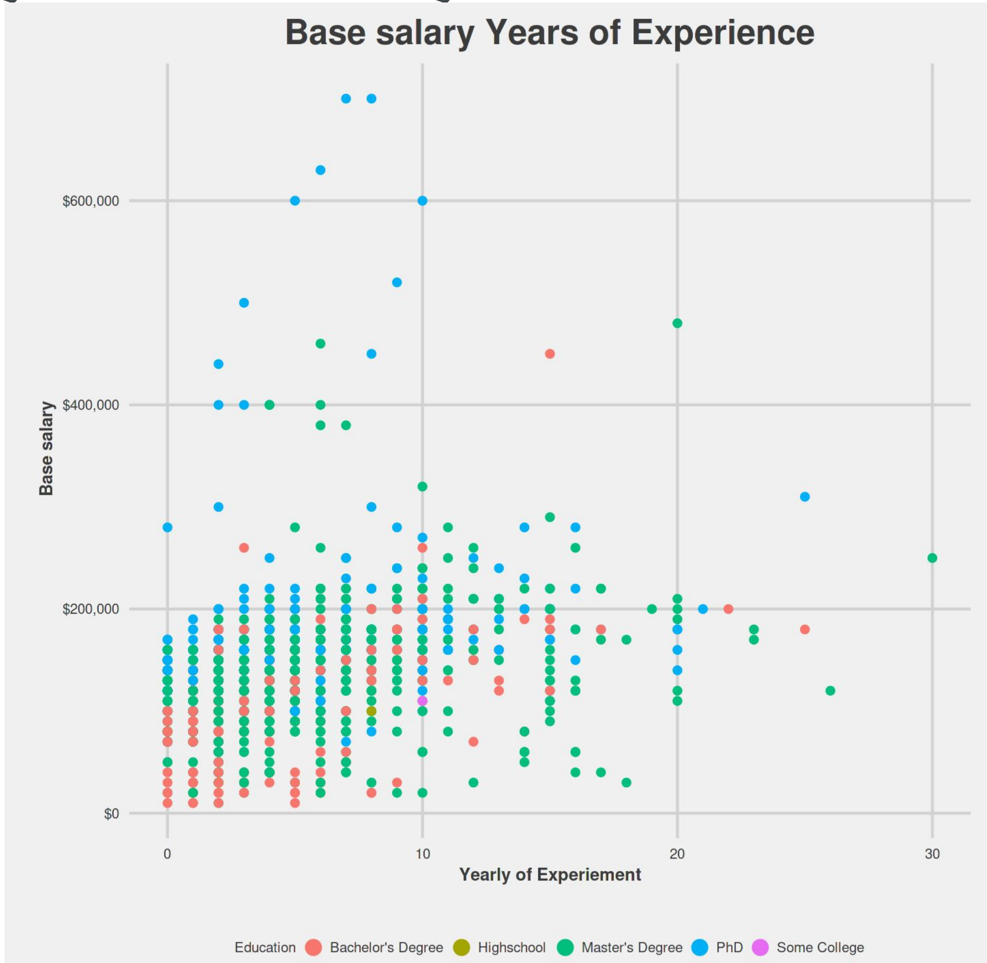


Exploratory Data Analysis



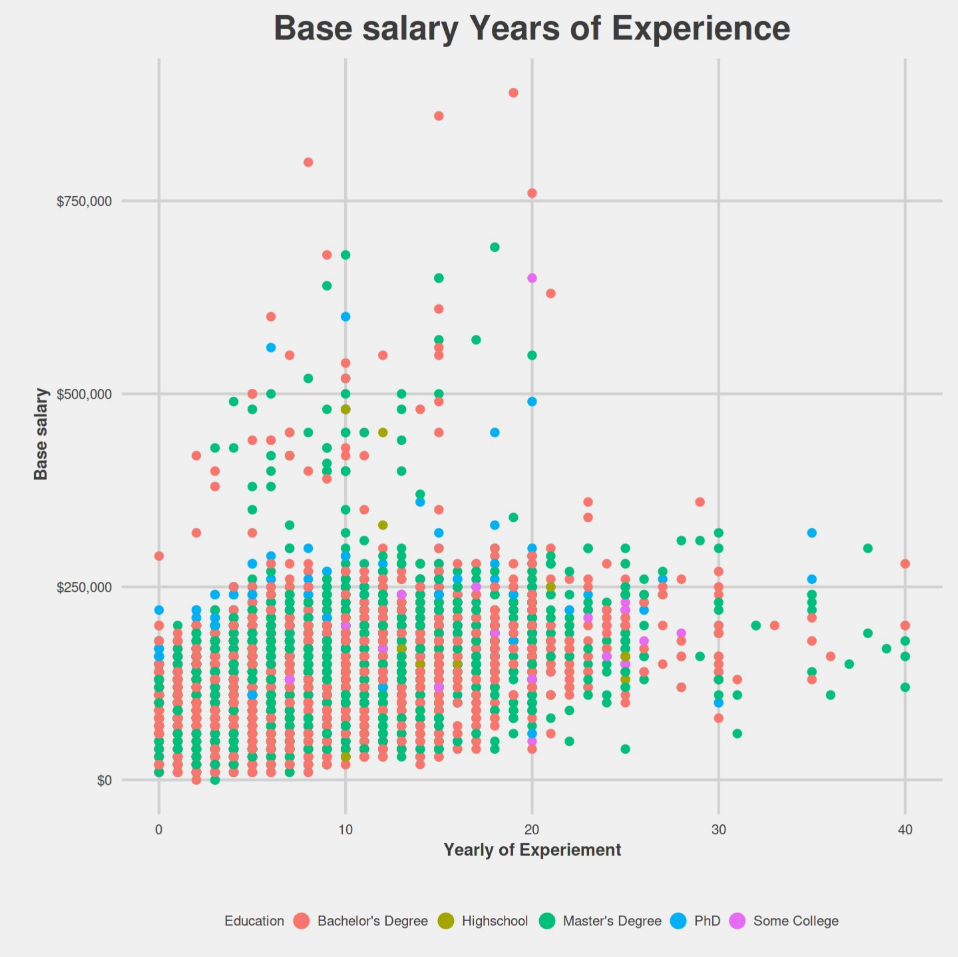
Exploratory Data Analysis

Data Scientist



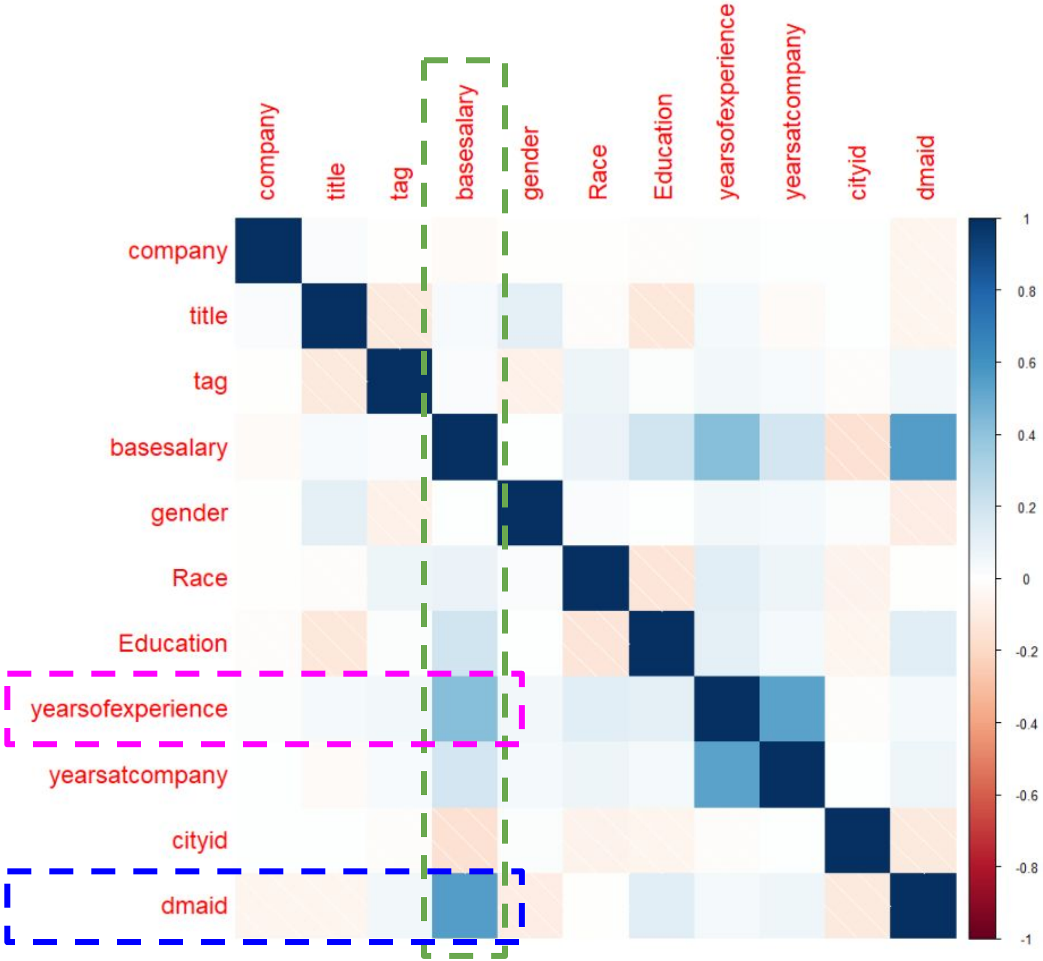
Exploratory Data Analysis

Software Engineer

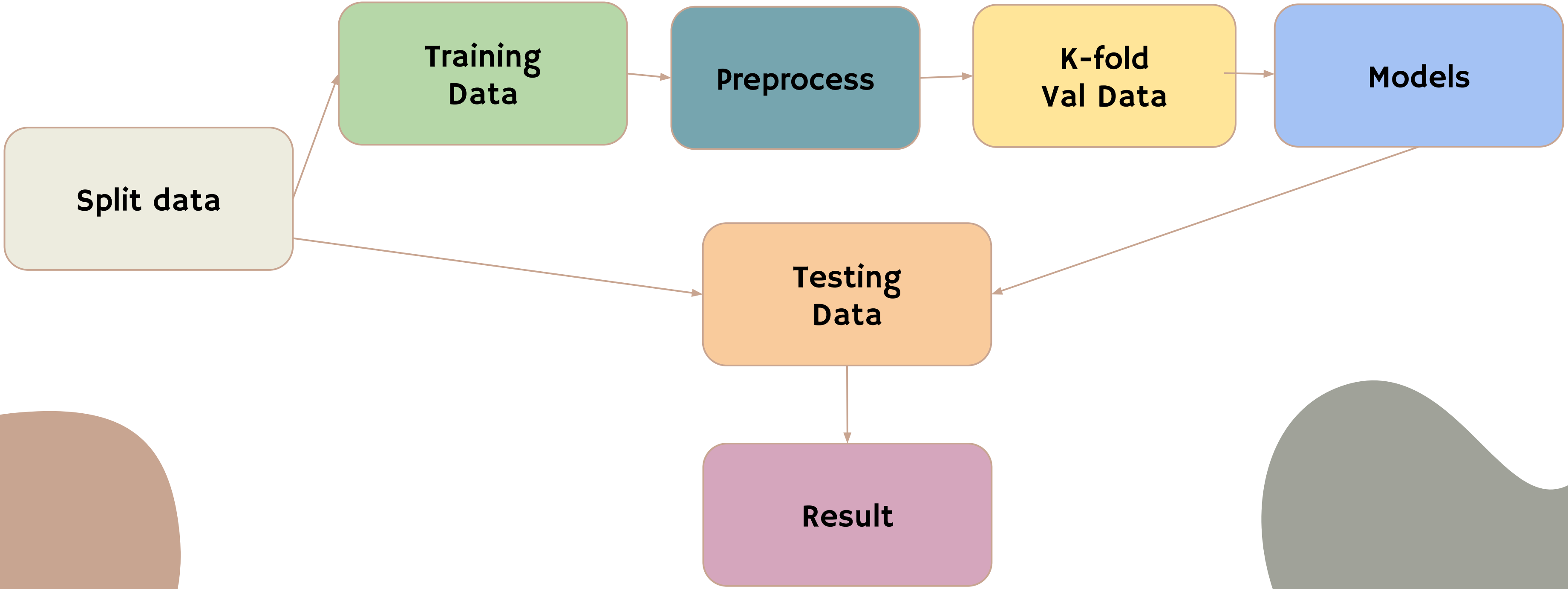


Model experiment

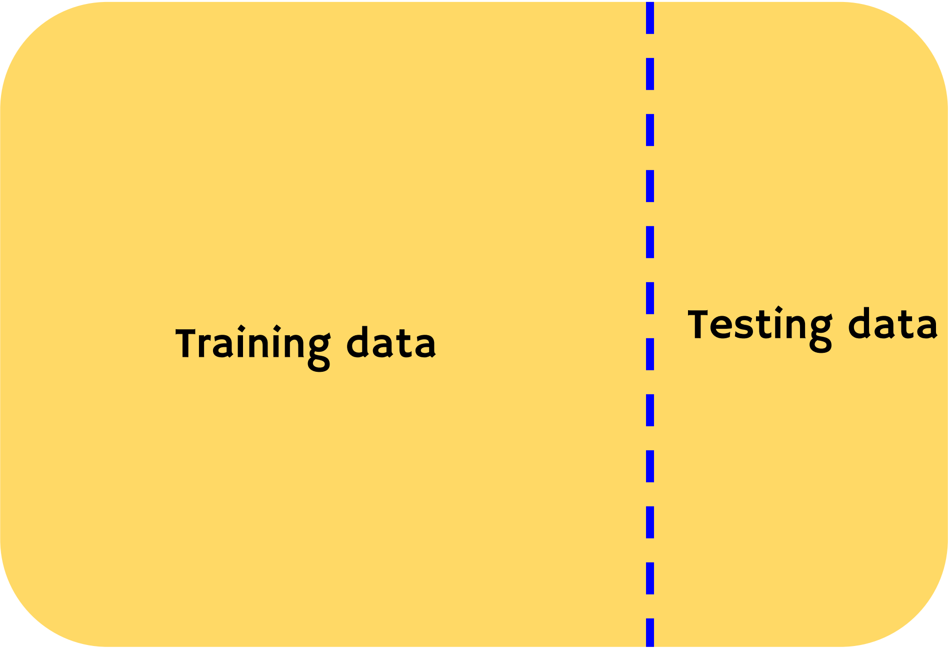
Corrleation Plot



Data Pipeline



Split dataset



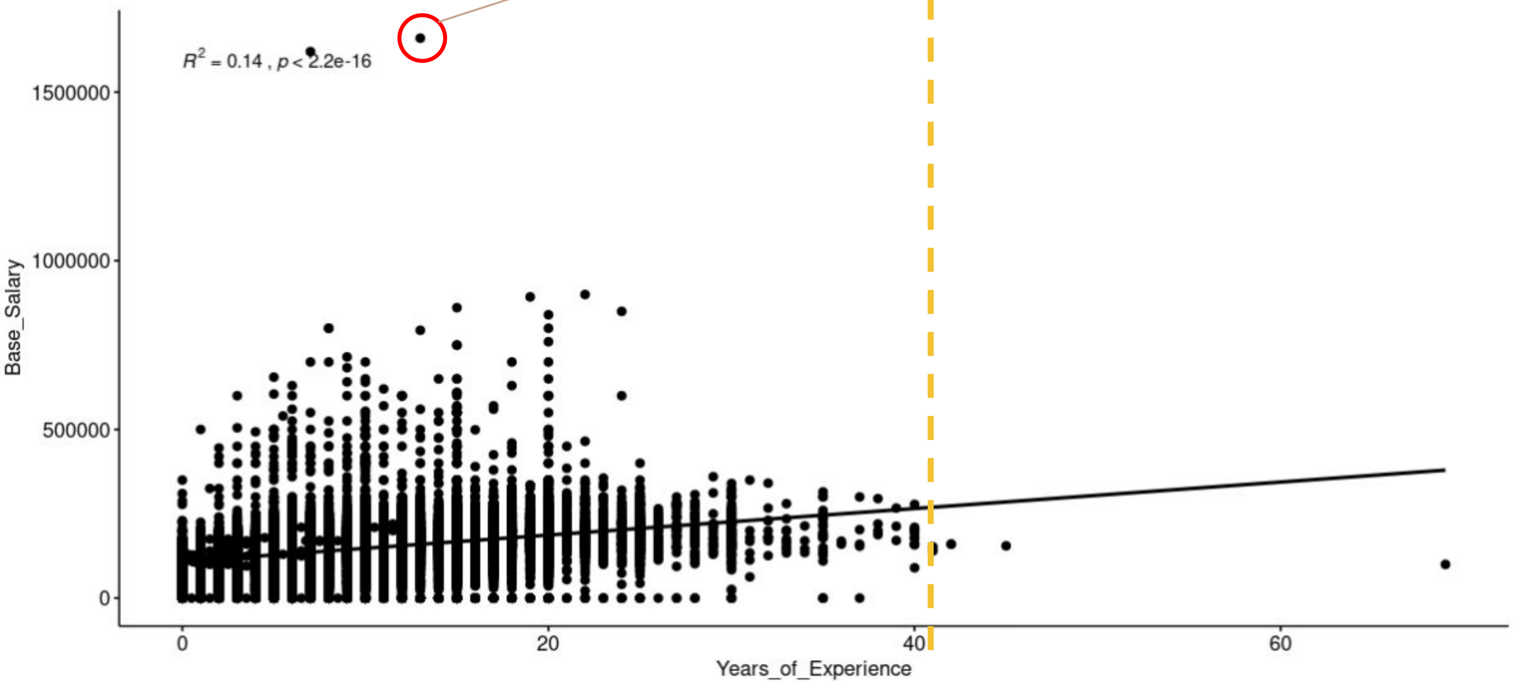
Training data

Testing data

Original data

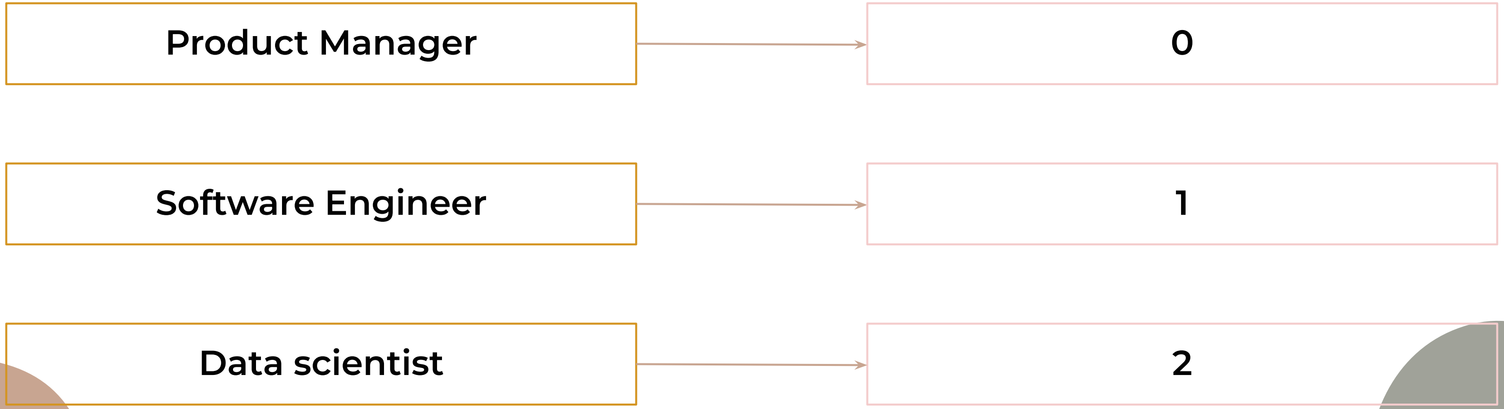
Preprocess

- Delete the outlier



Preprocess

- Label encoding categorical data



Product Manager	0
Software Engineer	1
Data scientist	2

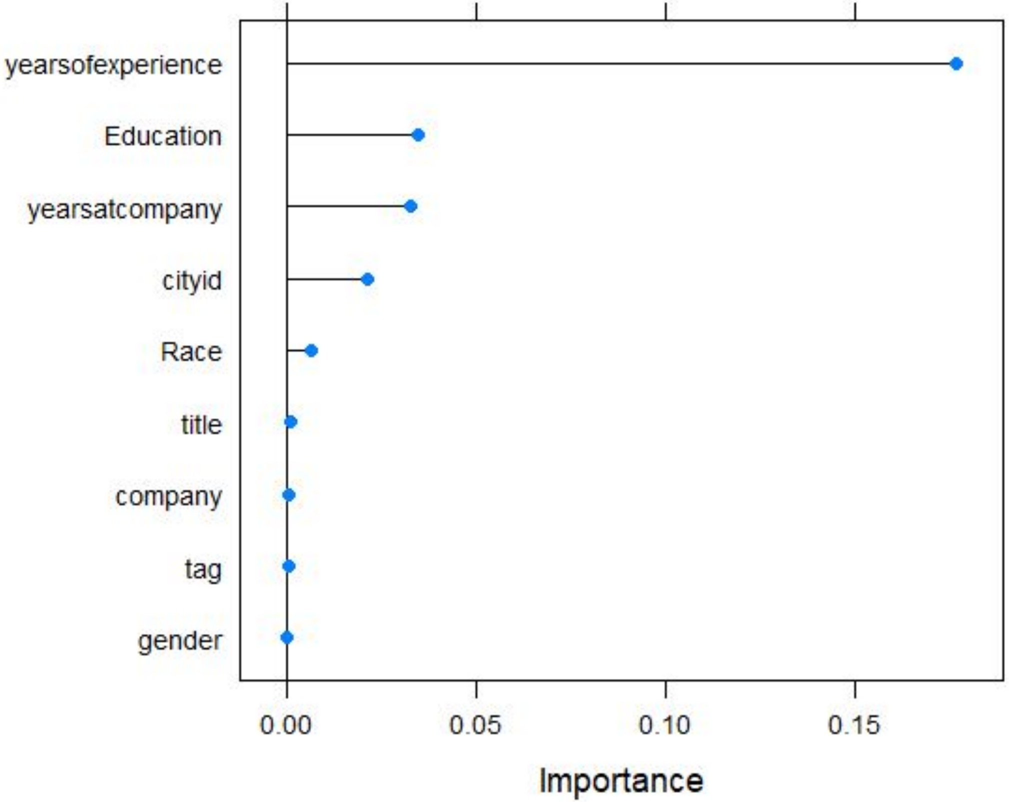
Performance

	Valid MAE	Test MAE
NULL MODEL	41651.24	41809.7
Linear Regression	3619013	35596.49
SVM	35923.4.9	35614.69
Decision Tree	33123.33	34400.99
Random forest	19671.20	21822.02
XGBtree	18185.23	20744.34

10-Fold Performance

	Valid MAE	Test MAE
Linear Regression	41651.24	35596.49
SVM	35921.92	35614.69
Decision Tree	33123.33	34400.99
Random forest	19473.32	21822.02
XGBtree	18048.19	20677.39

Variable Importance



DEMO

https://yhqchiu.shinyapps.io/code/

Comment

Challenging points

- NA值很多，嘗試用KNN來補效果卻不大好
- Shiny app 呈現會有一些大小的問題，以及無法正確visualization
- data science的project分工以及merge code是一個大問題

Thank for listening !