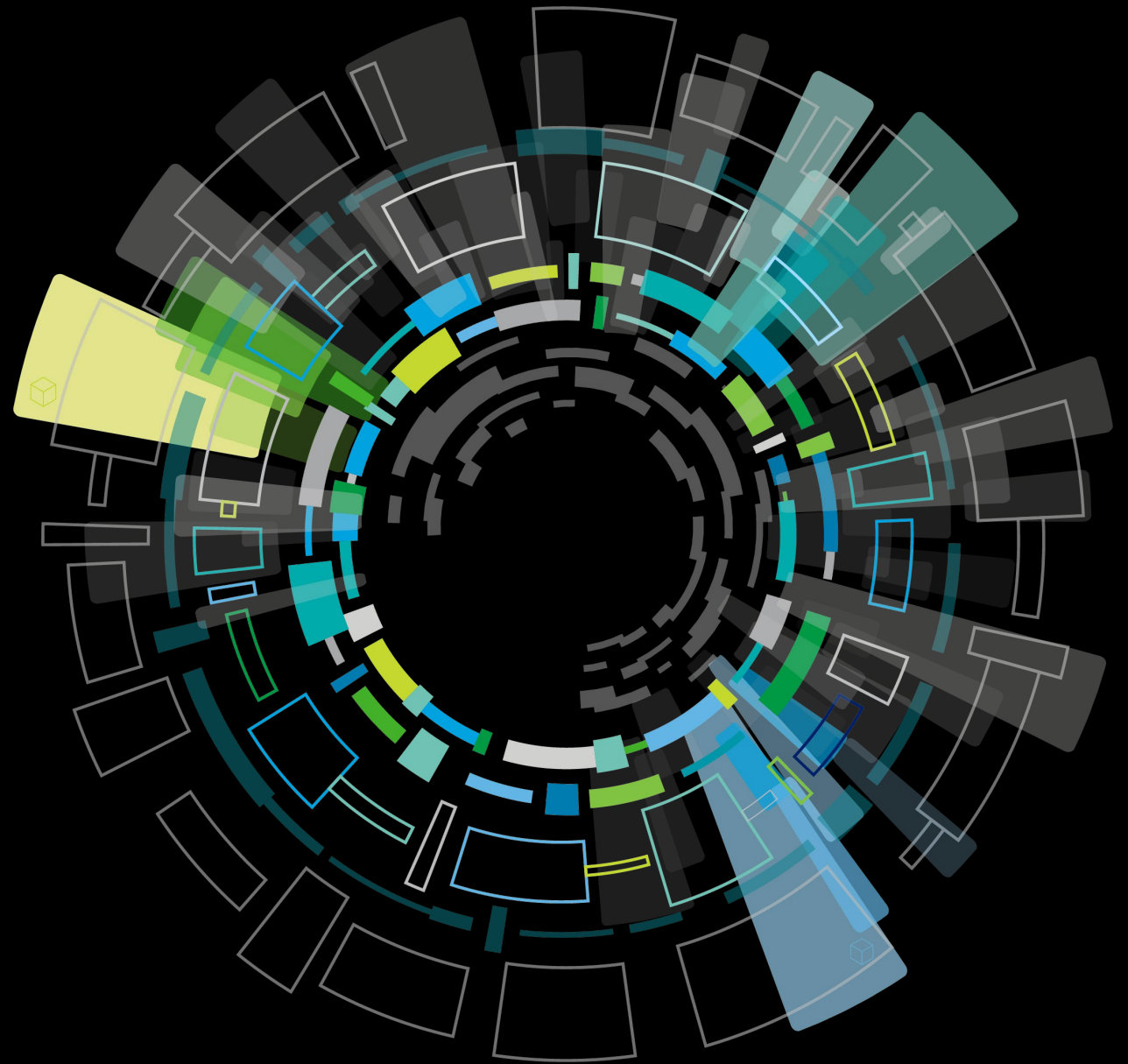


Predicting Industry Health for Consulting Firm Sales

John Nguyen
Apprenticeship Capstone Project



Deloitte AI Academy™

Agenda

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Problem

“58% of economists envision a recession this year”

- National Association for Business Economics Survey

Takeaway:

We are entering a **Volatile Market...**

Consulting firms **must adjust the way they approach their sales efforts.**

Project Overview

1 Objective

Identify “Industry Health” to answer:

- As it is harder to sell in volatile markets, how should we change our sales approach?
- What industry should we focus efforts on to maximize sales?

2 Defining “Health”

PROFIT MARGIN = HEALTH

- Net profit margin is one of the most important indicators of a company’s financial health.
- The “healthier” the industry, the more opportunity there are for project sales.

3 Overview

Use past industry performance
(2021 & 2022 Fortune 100 Company Data)
to **predict future profit margin.**

Compare **industry health** to predict
which market has the most
“opportunity” for consulting projects.

Data Understanding

How Consulting Firms Sell:

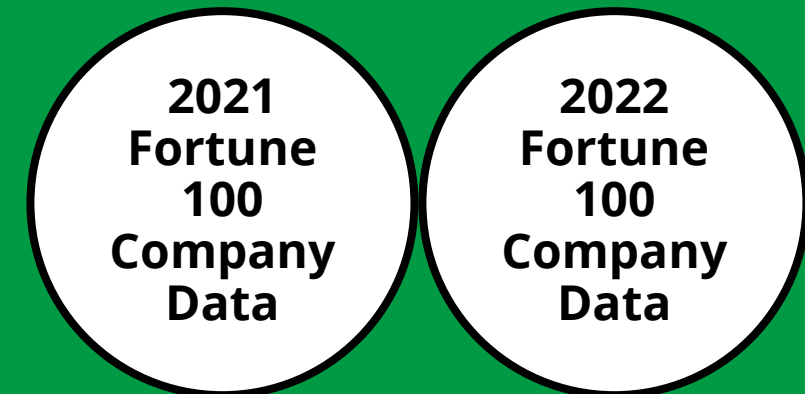
- Firms are organizationally split by **different industries, services, & offerings**
- Consulting firms sell **technology implementation & management consulting** projects
- We will be comparing the Tech Industry Health to Non-Tech Industry Health

CONSULTING FIRM
CLIENT INDUSTRIES



Machine Learning to Predict Industry Health

1. Pull Fortune 1,000 Company Data in 2021 & 2022
2. Minimize the data set from 1,000 to 100
3. Classify each company by Industry "Tech or Not"



Variables from the "Fortune 100" Dataset
Independent: Revenue, Expenses | **Dependent:** Profit

Modeling

Linear Regression



Predict 2023
Profit Margins



Scatterplot

- Linear regression analysis is used to predict the value of a variable based on the relationship between input and output.
- The linear regression model could be used to predict the either the **rise or fall of profits in relation to revenue and expenses**.
- We utilized linear regression because we're working with 1 or more variables to predict an outcome.
- This model could be used for years beyond 2023 if you consider a similar economic environment.

Scatterplots will show the outputs of **profits** against **revenues** & **expenses**.

The **slope ratio** shows the cumulative mean of all companies in an industry.

The slope or **rate of change** for the regression helps us predict what industry has the **"opportunity cost ratio"**

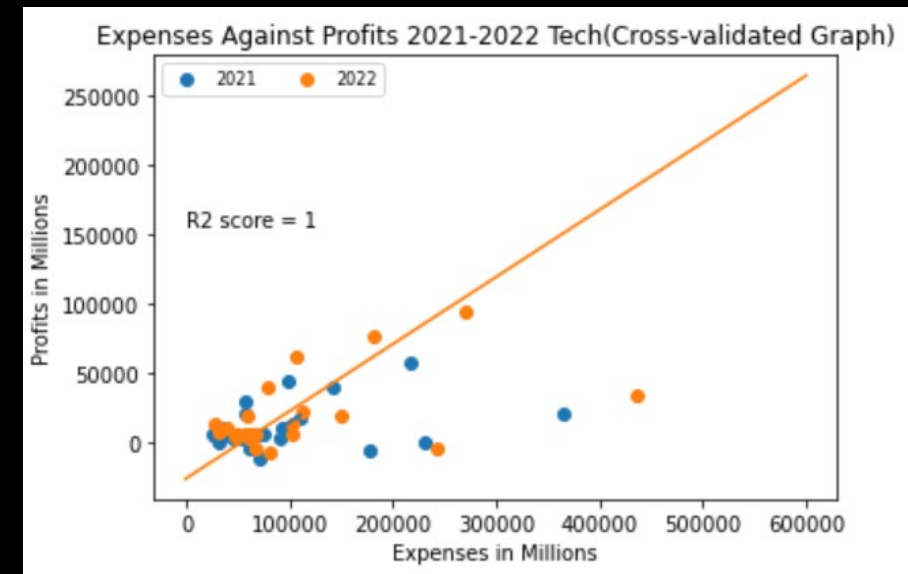
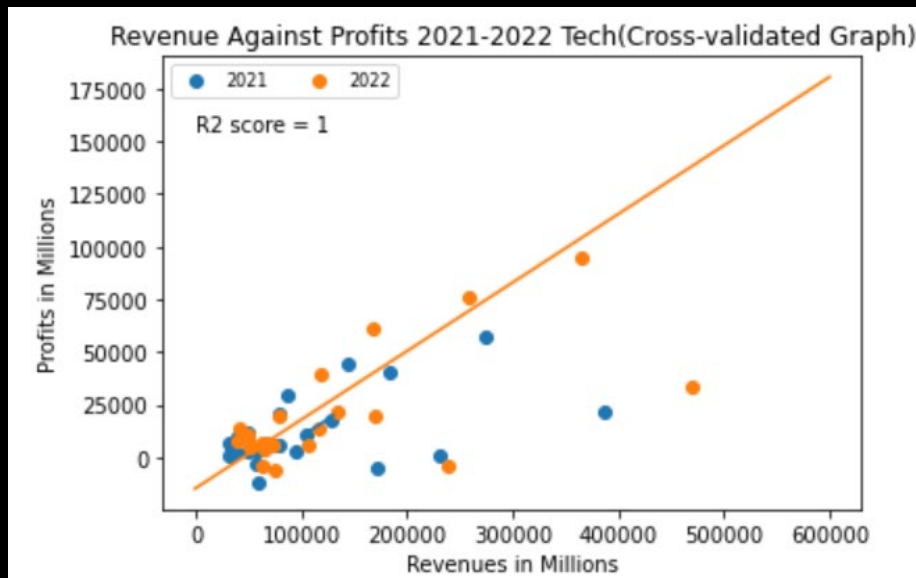
Tech Industry Prediction

Analysis:

- **Wide distribution** of revenue/expense against profit = **varying** and potentially **unpredictable market** for stable profit margins.
- When looking at total market value there is **"OK" potential value**.
- The R^2 score referenced in the graph shows the coefficient of determination which is a statistical way of measuring how well a model can predict. It is rated out of 1 so **the closer it is to predicting the model the higher the determination score**.

Takeaway:

The slope or rate of change for the line of regression is **0.48** which means you get **48%** return on investment.
The determination score is **1**.



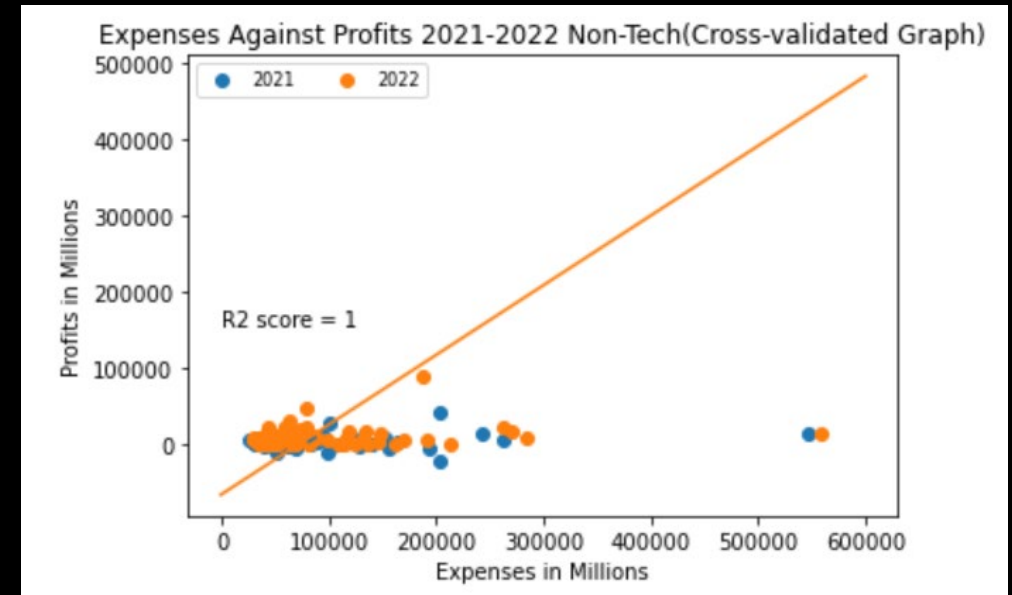
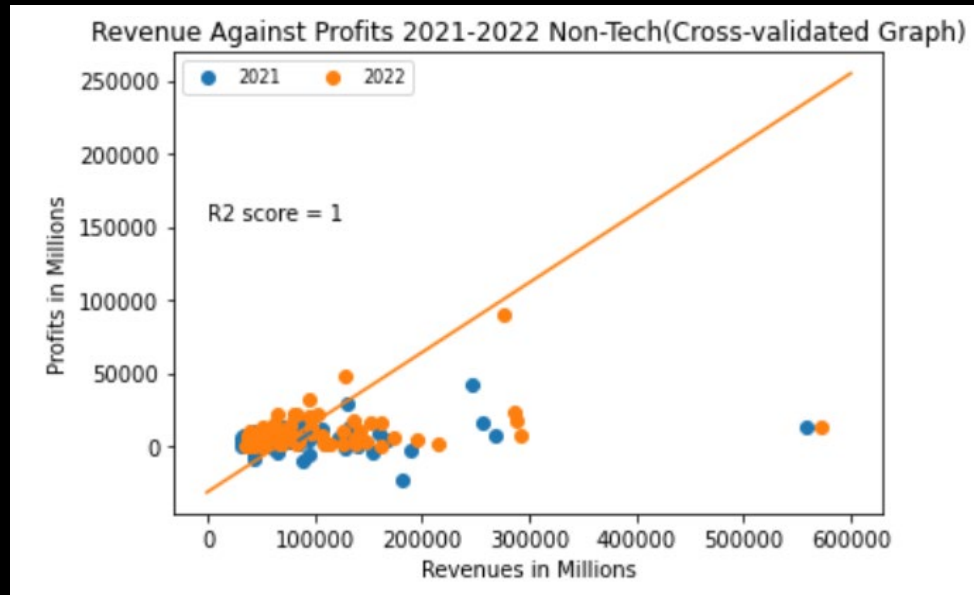
Non-Tech Industry Prediction

Analysis:

- **High precision & accuracy** in the distribution of revenue/expense against profit = **predictable market** for stable profit margins.
- When looking at total market value there is **high potential value**.

Takeaway:

The slope or rate of change for the line of regression is **0.91** which means you get **91%** return on investment.
The determination score is **1**.



Conclusion

Focus sales activities on the **Non-Tech** Market.

- The opportunity cost ratio is better
- It's better to sell in a predictable market instead of a volatile market
- Maximize your sales pursuit efforts

Next Steps



Continue to watch the marketplace

Run more tests with a bigger data set and consider other variables such as: Operating Cost, Cost of Goods, EBIDTA.



Identify Key Accounts

Further breakdown into industries such as manufacturing & advertisement and Identify key players to sell.



Create a 2023 Sales Strategy

Get leadership and management aligned and revamp current sales efforts to win more deals.

Thank You !



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AI Strategic Growth Offering | Human Capital – HRT: OT

LinkedIn



Q&A
+ Feedback

Citations

1. <https://news.crunchbase.com/startups/tech-layoffs/>
2. [https://apnews.com/article/inflation-united-states-government-recessions-and-depressions-economy-business-c14699b792454e4d2d3d642d65ff4395#:~:text=WASHINGTON%20\(AP\)%20%E2%80%94%94%20A%20majority,despite%20steadily%20higher%20interest%20rates.](https://apnews.com/article/inflation-united-states-government-recessions-and-depressions-economy-business-c14699b792454e4d2d3d642d65ff4395#:~:text=WASHINGTON%20(AP)%20%E2%80%94%94%20A%20majority,despite%20steadily%20higher%20interest%20rates.)
3. [What is Net Profit Margin? Formula for Calculation and Examples \(investopedia.com\)](#)

