

Introduction

Motivation

- Students face the hurdle of job searching daily.
- One of the major challenges is to find a company that fits one's **priorities and values**
- Currently, a user would have to use different job-search platforms and invest a lot of time in their search

Solution

- Cohesive app that enables people to identify companies that match their desired criteria:
 - Salary, benefits, work-life balance, company culture, career opportunities, senior management
- Dashboard, built via **Python and Power BI**, gives the user a vast amount of information in a consolidated view
 - Ratings** for different criteria in a radial plot
 - Word cloud** of pros and cons in company reviews
 - Distribution** of salaries

Data



Glassdoor Dataset

- Job review information
- Found on Kaggle
- 400,000 + rows
- 200+ features
- 1GB+ file size



Levels.fyi Dataset

- Job review information
- Found on Kaggle
- 60,000 + rows
- 25+ features



Fortune 500 Dataset

- Ranked list of 500 most powerful brands
- Found on brandirectory.com
- 500 rows

Methodology

Data Preprocessing

- Pull Glassdoor company names, reviews, and ratings
- Clean Glassdoor and levels.fyi company names with **Regex**
- Apply **Fuzzymatcher** to levels.fyi to standardize company names within dataset
- Merge levels.fyi salaries with Glassdoor company reviews via company names key
- Assign brand equity rating to companies based on Fortune 500 or S&P 500 appearance

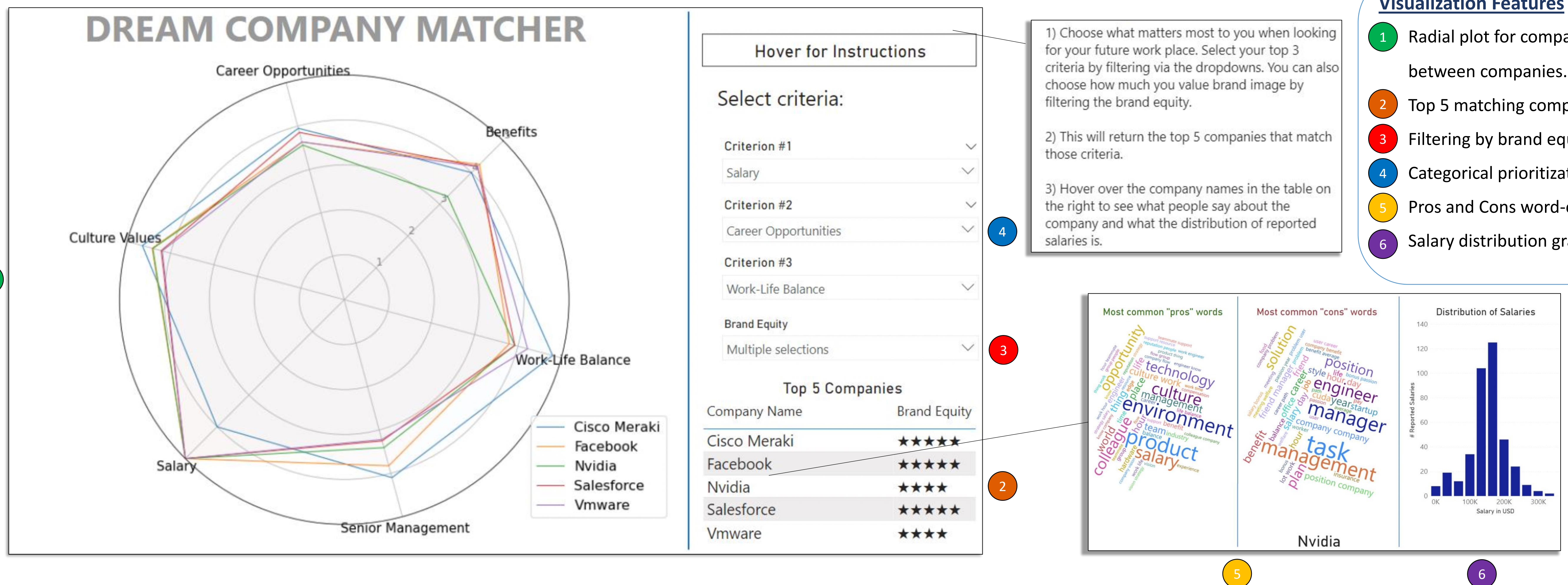
Modeling

- NLP model** processes reviews and counts most relevant words in reviews pros and cons, enabling construction of the word-cloud
- Topic Modeling** algorithm finds most relevant words for an attribute (eg. Career Opportunities has the words: "career", "growth" etc.)
- Attribute **scores scaled** based on number of occurrences of words for a particular attribute

Visualization

- Datasets imported in **Power BI** include: list of companies with average ratings, company ratings based on NLP analysis, company salary distribution, pros and cons word clouds, brand equity rating
- Dashboard **visualizations**: radar plot (constructed via **Matplotlib**), cards (denote important information), slicers (criteria selection), table (top 5 companies output list), word clouds, stacked column chart (displaying salary distribution)
- Dashboard **homepage** contains radar plot with selectable criteria
- Tooltips appear when hovering over company names in output table display:
 - Word clouds showing the most common words used in the review's **pros** and **cons**
 - Salary distributions

Visualization



Evaluation

Methodology

- Google Forms survey sent to fellow MSA students, 6 questions asked:
 - I have used a tool of this kind before (1-5 rating: "strongly agree" to "strongly disagree")
 - I am likely to use this tool in my job search (1-5 rating)
 - I would recommend this tool to a friend (1-5 rating)
 - Did you discover new companies fitting your criteria? (Yes or No)
 - What feature was the most useful? (Option for 1 of 5 important features)
 - Additional thoughts and/or feedback
- 22 total responses

Pros

- Innovative**: large majority reported that they had not used a tool like this before
- Useful**: large majority reported that they would use this tool in their job search
- Insightful**: users reported that they discovered new companies which they hadn't considered
- Comprehensive**: Users reported all the innovative features were useful in different ways
- Elegant**: users reported that the visualization was aesthetically pleasing

Cons

- Users reported that the word-cloud feature was confusing at times: sometimes the same word appeared in pros and cons, sometimes words appeared that don't make sense
- Some users reported that the variety of companies displayed was small

Conclusion & Recommendations

Summary

- App that helps people find companies that match their **criteria**:
 - Salary, benefits, work-life balance, company culture, career opportunities, and senior management
- Methods** used:
 - Data Preprocessing
 - Natural Language Processing
 - Visualization in Power BI and Python

Successes

- Suggests **new companies** that users may have overlooked otherwise
- Consistently matches users to companies that fit their criteria
- Efficient data visuals** for comparison of companies:
 - Radar chart, Salary distribution, Word Clouds

Improvements

- Additional reviews** for NLP analysis:
 - Some companies have too few reviews to be statistically significant
- Additional functionalities**:
 - Manual exploration of reviews
- Extension of data to **other areas of expertise** than computer science