Job Satisfaction Dashboard

Final Project Write-Up

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Executive Summary

This capstone project aims to provide college students with actionable insights into job satisfaction across a wide range of companies and industries through an interactive dashboard. This project will focus on highlighting key job and employee satisfaction factors that are not often publicly aggregated together such as work-life balance, relationships with direct leaders, and other critical job satisfaction elements. The dashboard will allow users to filter these factors based on specific roles and companies allowing for insight into a particular career.

The data for this project will be simulated based on various pay-to-access sources such as Qualtrics, Gallup, Mercer, etc. This allows for a view of diverse dataset on job satisfaction across various fictional companies in real industries. The data will be incorporated into an interactive dashboard designed for user-friendly navigation and insight. Users will have the ability to filter by company and specific job roles. These reports will include job satisfaction factors for the selected position, and clear data visualizations that will enhance the user's understanding of the selected position and company.

Expected Features

- *Feature 1: Data Research and Simulation*

The ultimate goal for the dashboard is to connect to publicly available databases via API connections to ensure real-time data updates. However, in the "alpha" phase, data will be collected or simulated manually. Before this can begin, research must first confirm the existence of relevant data. After the research phase is complete, the data will be collected and/or simulated using programming methods.

- *Feature 2: Data Manipulation for Visualization*

The raw data from, even from simulated data, can often be inconsistent and incomplete. This warrants proper data manipulation before it can be used effectively. This feature will ensure that all data is standardized and structured.

- *Feature 3: Filterability Across Roles & Companies*

This feature allows users to filter the dataset in the dashboard by specific companies and careers. This filterability allows users to narrow down their search to roles that match their preferences. The initial plan for the filters will be industry, company size, location, and the specific job title.

- *Feature 4: Ability to View Overall Job Satisfaction Score*

This dashboard will provide an overall employee and job satisfaction score for each company and role based on an aggregate of factors. This score enables users to a "quick glance" view at the general workplace sentiment. This "quick glance" can be useful for initial comparisons between companies and roles.

- *Feature 5: Top Rated Employers for a Given Role*

Users will have the ability to see top rated employers based on their filtered career. Top employers will be ranked based on overall satisfaction scores. This aids users in quickly identifying potential employers that best align with what they're specifically looking for in a given role. This feature will be a valuable shortcut for users filtering through companies.

- *Feature 6: Top & Bottom Rated Job Satisfaction Factors for a Given Role or Company*

This feature allows users to drill down into specific factors contributing to both high and low satisfaction for a filtered role or company. By identifying which aspects of job satisfaction are most highly and lowly rated, users can gain a more in-depth insight into both the strengths and weaknesses of each company and role. For example, a user may discover that a company may excel in work-life balance, but it also scores poorly in career growth opportunities. This balanced view of both strengths and weaknesses will give users a more complete picture of what to expect when considering a job offer.

- *Feature 7: View Industry Benchmarks*

The dashboard will enable users to compare satisfaction scores for filtered companies and roles against broader industry benchmarks. These benchmarks will provide users with a reference showing how companies and roles compare against the average satisfaction levels within its industry.

2. Project Components

Introduction

The final results of this project will be presented through a dynamic dashboard created in Tableau. The code, data, dashboard, along with a PDF write-up will be available on a Git repository found here: https://github.com/slawson-048/capstone-lawson

Data

The “Data Simulation” in the Git repository generates the following Excel files for the Tableau dashboard:

- *Simulated_Data (Dataset)*

This dataset captures job satisfaction across roles, companies, and industries. Currently it includes key job satisfaction categories such as work-life balance, career growth, compensation, leadership, and colleagues. The dataset is designed to provide deep insights into factors influencing employee satisfaction.

- *Simulated_Data_Pivot (Dataset_Pivot1 & Dataset_Pivot2)*

A pivoted version of "Simulated_Data", reorganizing the data to allow for an alternative analytical perspective of categorical scoring.

- *Benchmark_Data (Benchmark)*

Stemming from the "Simulated_Data" file, this data introduces variance by randomly adjusting scores within a ±50-point range (ensuring an upper limit of 100). This approach creates comparative benchmarks to highlight potential scoring variations.

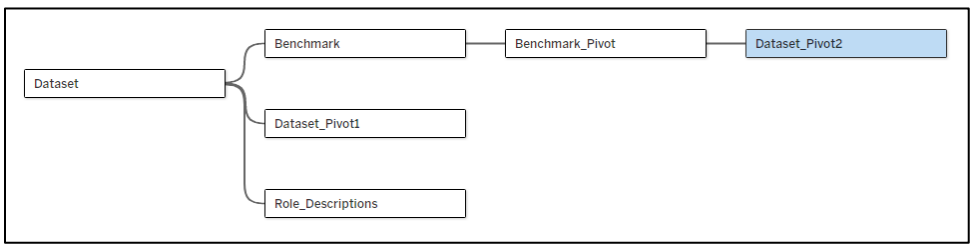
- *Benchmark_Data_Pivot (Benchmark_Pivot)*

A pivoted version of "Benchmark_Data", reorganizing the data to allow for an alternative analytical perspective of categorical scoring.

- *Role_Data (Role_Descriptions)*

Additional dataset providing detailed role descriptions, improving the context of the "Simulated_Data" with role-specific information.

Data model used in the Tableau dashboard:



Methodology

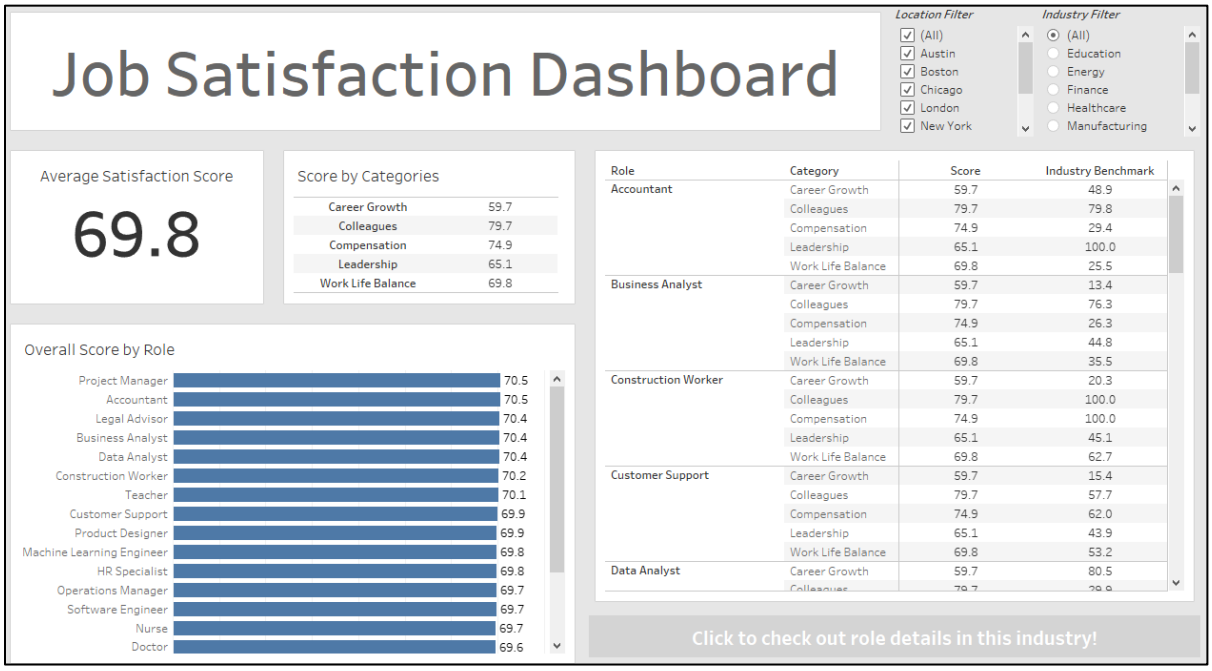
The initial project approach aimed to collect or web-scrape data from across the internet for the dashboard. However, significant challenges quickly arose with this methodology—this will be explored in detail in the "Project Obstacles" section. Confronted with these impassable challenges, an alternative solution presented itself: data simulation. This approach would generate the necessary dashboard data by drawing inspiration from already existing sources like Gartner, Qualtrics, and Gallup, ensuring data relevance and credibility.

The data simulation process generates randomized scores for predefined job satisfaction categories, such as "Work Life Balance", "Career Growth", and "Compensation." Industry, company information, and location data is all assigned from a pool of predefined options. A more intricate approach dictates the industry and role relationship, each industry contains a specific bucket of associated roles. This method ensures that roles are logically connected to their respective industries. Following the initial simulation, the data is pivoted to allow for an alternative analytical perspective of categorical scoring. Similar simulations were conducted for role descriptions and benchmark data, with benchmarking data undergoing similar pivoting processes to maximize analytical analysis.

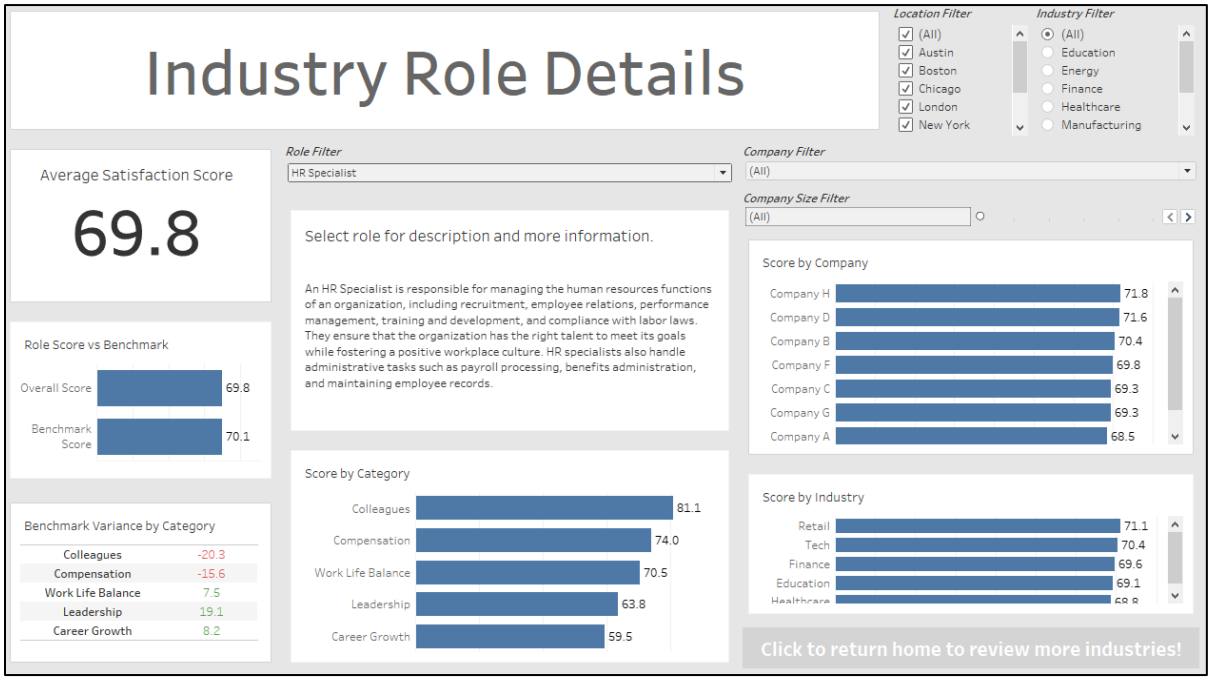
Tableau was selected as the dashboard development platform as it specifically provides an opportunity to learn a new “dashboard building” software environment. While Tableau presented notable differences from alternatives like PowerBI—often making even simple actions very challenging—research and persistent exploration ultimately resulted in a decent and functional visualization. Tableau's unique approach to data manipulation required the need for significant preprocessing within the code. This is best shown in Tableau’s frustratingly inconsistent pivoting mechanism. Overall, this challenge became a valuable learning experience, transforming initial frustration into a better understanding of Tableau's capabilities, design philosophy, and limits.

Outcome

Page 1 of the dashboard delivers a comprehensive overview of industry and role satisfaction metrics. Its dynamic interface displays an aggregated satisfaction score, alongside visuals comparing category scores and role-specific insights. Users can explore category breakdowns for each role. Filtering capabilities allow for drilling down by location and industry.



Page 2 offers a deep-dive into specific roles, providing information beyond just surface-level metrics. This page presents a view featuring job descriptions, comparative benchmark data, and visuals of company and industry performance. Filtering capabilities allow for all of the above on Page 1, and drilling down by role, company, and company size.



3. Feedback & Discussion

Project Obstacles

The project encountered two significant challenges that required pivots. The first major obstacle was the ethical and legal concerns surrounding web scraping. The initial data gathering approach targeted websites like Glassdoor, a popular platform for job and company insights. However, accessing Glassdoor's detailed data required user login, which implicitly agrees to their terms of service—including a rule explicitly prohibiting unauthorized web scraping without explicit permission. Pursuing their API access would inevitably lead to a paywall, effectively eliminating web scraping as a potentially *free* data collection method.

This paywall prompted the pivot to the previously discussed data simulation method. By leveraging real-world data from already existing sources like Gartner and Qualtrics—which are typically obscured behind paywalls—the project could generate meaningful and ethically obtained data. The simulation strategy not only worked around legal restrictions, but also provided a flexible and controlled method of data generation.

The second major challenge emerged when reviewing how to host the dashboard. The initial plan was to utilize Tableau's native hosting service, only to find that this feature was unavailable in the free trial version. The solution was straightforward: the final deliverable would be the Tableau file itself, ensuring project completion without worrying about a paywall.

User Feedback

The initial user feedback revealed a useful insight: the desire for more comprehensive industry comparisons. The dashboard's original design had admittedly overlooked industry-level analysis, primarily focusing industry as a datapoint to filter on rather than an active point of analysis. Users expressed an interest in analysis that would reveal broader trends and insights beyond individual roles and companies. Furthermore, users recommended the integration of trendlines across industries, companies, and roles. This would allow the dashboard to explore the filtered-to landscape throughout time.

Ultimately, users highlighted the dashboard's potential as a useful career planning tool, specifying its ability to provide insights into potential workforce environments.

Future Case

The dashboard's potential for evolution is limited only by the complexity and intersectionality of the diverse data sources that exist out there now. With this said, several promising avenues for expansion present themselves, assuming a paywall can be overcome:

- Administrative Enhancements
    - *Web-Scraped Data:* Develop ethically-sourced web scraping methodologies to gather real-time job market data.
    - *Pay-to-Access Datasets:* Invest into premium data sources to enhance the dashboard's depth and credibility.
    - *Tableau Prep-Builder:* Leverage the advanced data preparation tool to streamline data transformation processes within the Tableau environment.
    - *Public Tableau Dashboard Hosting:* Create a publicly accessible platform hosted through the Tableau environment to broaden the dashboard's reach and utility.

- Dashboard Feature Enhancements
    - *Comprehensive Trendlines:* Implement dynamic trend visuals to track satisfaction metrics over time.
    - *Granular Industry Drilldown:* Develop more in-depth industry-level analysis to provide further professional insights.

The roadmap for future development focuses on transforming the current proof-of-concept into a robust, dynamic career exploration tool that offers visibility into professional landscapes through the lens of employee and job satisfaction.