Milestone 2 - LinkedIn Job Postings

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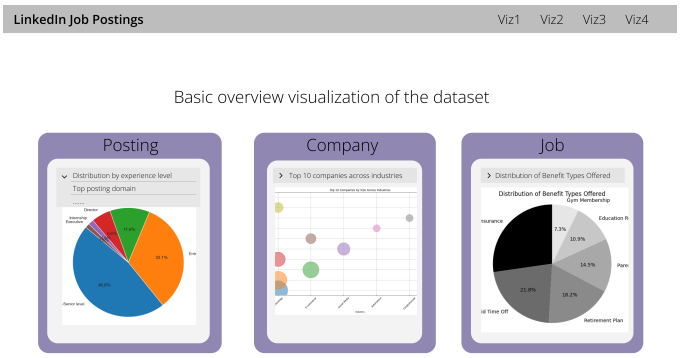
1 VISUALIZATION

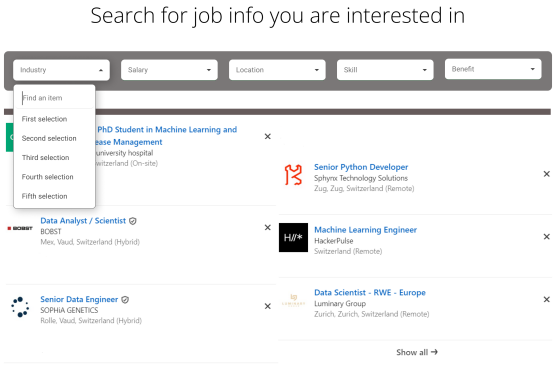
1.1 Basic Overview of Dataset



There are 3 visualization cards displaying an overview of the dataset, each card represents some basic visualizations of descriptive analysis for postings, companies, and jobs. For example:

- **Posting**: A pie chart showing the distribution of LinkedIn job postings by expected experience level. Users can interact with this pie chart by hovering over the segments to get more details such as the exact number or percentage of job postings in each category.
- **Company**: A bubble chart representing the top 10 companies by size across industries. Moving the cursor over a bubble enables users to see a tooltip with more detailed information, such as exact company size, country, and number of employees.
- **Job**: A pie chart showing the distribution of job benefit types. When users click each segment, the job postings offering that benefit would appear, giving them a quick and clear understanding of the benefits landscape.

1.2 Searchable Job Posting Table



A Searchable Job Posting Table allowing users to access the table with job postings that match the filters applied. Columns include the job title, company name, location, salary range, and a brief description. Users can click on a job title to get more details, sort the table by any of the column headings, and use a search bar to refine the results within the filtered subset further.

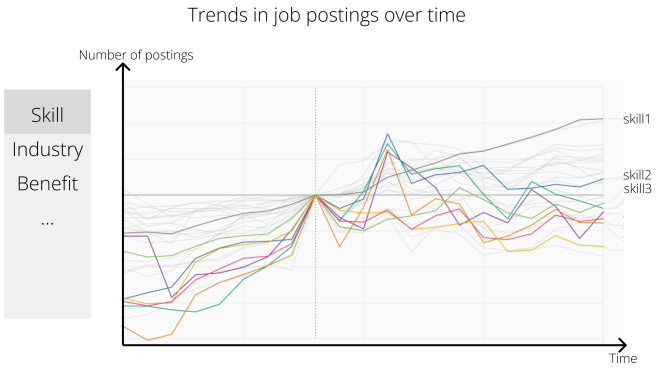
1.3 Interactive Job Postings Map

An interactive map that users can zoom in on a particular region on the map to explore more information on jobs or companies in this area. Users can choose different aspects they are interested in on the left panel to refine the data displayed

on the map. For example, the 'Quantity' field will show the geographical distribution of the number of companies in the map, while clicking 'Industry' would update the map to show the location distribution of various industries. Several interactions are as follows:

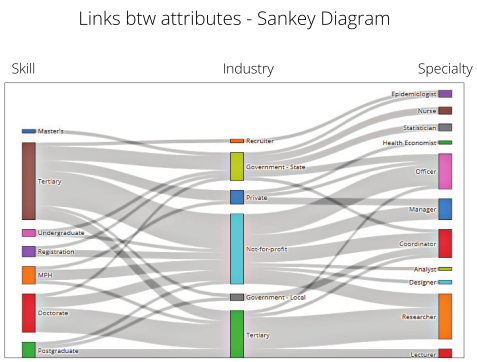
- **Zooming in** a certain area for more details on additional information about job postings.
- **Hovering over** a hexagon can display a tooltip with more detailed information, such as the exact number of job postings, the most popular industries, or the average salary range for that location.
- **Clicking on** a hexagon will drill down to a more detailed view of job postings in that area or open a sidebar with a list of available jobs, companies posting jobs, and other statistics.

1.4 Trends in Job Postings over Time



A line chart showcasing the trend in job postings over time, such as the fluctuations in demand for various skills or industries, the rise in remote job opportunities... Users can choose one certain panel to check its changing trend. When hovering over a line, this line would be highlighted and some related information will be shown beside.

1.5 How Different Skills Relate to Various Industries and Specialties



A Sankey diagram to illustrate how different skills relate to various industries and specialties. The width of the bands connecting these categories represents the volume from one category to another. For example, a wide band flowing from skill "Analyst" to industry "Information Technology & Services" and then converging on specialty "Consulting" suggests that a significant number of people with analyst skill are employed in this industry as consulting. Users could hover over the flows to see additional information, such as the percentage of each of different skills required for a particular industry, what skills are required of employees in a particular position and their corresponding proportions. There also could be interactive filters that allow users to refine the diagram by skill level, industry sector, or specialty.

2 TOOLS

- **d3.js**: A JavaScript library for creating dynamic, interactive charts and data visualizations.
- **Figma**: A platform to design the prototype of a website.
- **Boostrap**: A front-end framework for rapid, responsive development of web pages.
- **leaflet**: A JavaScript library for creating interactive maps.
- **jQuery**: A JavaScript library to improve development efficiency and code maintainability.
- **Python**: Data processing for further data visualization.

3 LECTURES

- We will build the foundation of our project using the basic web development skills covered in weeks 1-3, including HTML, CSS, and JavaScript.
- For data visualization, we will make extensive use of the D3.js library introduced in the lectures of weeks 4-5. Our project will benefit from D3.js for its ability to create interactive and dynamic visualizations that allow users to explore job market trends and details within our dataset.
- The practical mapping techniques learned in week 7 will be used to present an interactive map, showing the distribution of job postings across different regions. This will enhance our user interface by providing a spatial analysis of job opportunities.
- The lectures on tabular data in week 12 will be invaluable in manipulating and managing tabular data formats, ensuring that our back-end data handling is as seamless as the front-end experience.

4 ADDITIONAL IDEAS

- Real-time Data Visualization: Incorporate updates to the visualization as new job postings are added to LinkedIn, allowing users to see trends and changes in real-time. This will help in tracking the dynamics of job markets across different industries and locations as they evolve.
- Skill gap analysis visualization: Create a visualization that compares the skills required in job postings with the skills listed in the LinkedIn profiles of users who applied for those jobs. This can help identify skill gaps in different industries or specific job roles. The visualization can use heat maps or gap charts to show where demand exceeds supply and vice versa, providing insights for both job seekers looking to upgrade their skills and educational institutions designing curriculum.
- Predictive trend forecasting: Integrate machine learning models to predict future trends in the job market based on historical data from 2023 job postings. The visualization can show predicted hotspots for job growth, industries expected to expand, and skills likely to be in higher demand. By presenting this data in an interactive area chart, users can more effectively plan their career paths or business strategies.