Project Title: JobInsights

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Summary:

In this project, we will develop an application that helps job seekers in an increasingly competitive job market. The application will provide comprehensive job opening information by aggregating and analyzing data from various sources. This information will offer users insights into the latest hiring trends, demand for specific roles, and compensation for different positions across industries. Also, the users can upload their personal job information to the website to help future job seekers.

By offering an interface that incorporates job openings, salaries, and recommendations, this tool will help job seekers make informed career decisions, focus their job search on high-opportunity areas, and enhance their chances of success in the hiring process.

Description:

The application will analyze job openings in different industries and roles related to tech and offer data-driven insights to job seekers and professionals. This will allow users to target high-growth sectors and align their job search with the most in-demand positions.

Additionally, the application will provide salary analytics which is displayed by visualizations such as heatmaps and pie charts. Users will be able to explore current salary ranges based on factors such as location, experience level, and company size.

In the end, the application supports job recommendations based on the user's collection of their favorite jobs from the website and their personal profile (matching roles, years of experience, location preferences, and so on).

Usefulness:

Our application will offer many functions such as job filter, job analysis and visualization, favorite job list and recommendation. The application will allow users to make career decisions based on visualized data and customized job recommendations.

Our application has many functions, Visualization can allow user to explore the job visually filtering jobs by criteria. Users can have a favorite job collection, where user can add or remove certain jobs. Out system will recommend similar jobs based on the user's collection. The user also can upload or update their jobs to provide more information to other users.

There are similar websites such as Glassdoor or levels.fyi. However, our visualization tool and recommendation system will allow users to plan their careers better with those information. For example, a person who doesn't want to stay in their hometown can find out what kind of job is best in their hometown and decide career path.

Realness:

Our datasets are from the Kaggle website. They are in csv format. U.S. Technology Jobs on Dice.com dataset has 22000 rows and 12 columns. US Software Engineer Jobs dataset has 58433 rows and 29 columns. Those datasets capture the roles and detailed

information about the jobs. The salary dataset contained different information about jobs, locations, and salaries.

Creative Components:

Firstly, we will go beyond basic visualizations and implement advanced interactive visual elements such as heatmaps, scatter plots, and dynamic bar charts. When users filter job features and search for information, the statistics of jobs will be visualized and shown to users. These visualizations will be used for different job categories, industries, salary distributions,etc. For example, users can explore a heatmap highlighting job market saturation across different regions, helping them identify where specific roles are most in-demand. This will require using advanced visualization libraries such as **D3.js**, **Plotly**, and **Deck.gl**, combined with backend engineering to ensure a smooth user experience. It will make it easier for users to navigate the most popular jobs.

Secondly, in order to help users further and provide better user experience, we will implement personalized job recommendations. We allow users to add jobs that they are interested in to their favorite collection. Based on this, we will apply recommendation algorithms to provide recommendations to users (e.g. Maybe you also like …). We will try different methods/models to balance efficiency and performance.

Functionality:

1. Dashboard: Users can select different features.
2. Feature 1: Job Information and Visualization: Users can filter the features and get a set of jobs or use the favorite jobs table, and see corresponding visualization (including heatmap, pie charts, etc.).

3. Feature 2: Uploading Personal Job Data: Users can upload, update, or drop their past personal job information, aiming to enrich the database and help others. If users upload or update some information, the admins will check it and decide whether it can be uploaded/updated to the database.
4. Feature 3: Favorite Job Collection and Job Recommendation: Users can add some favorite jobs to their Favorite Job Collection. The application will generate some recommendations based on their collection.

Datasets:

https://www.kaggle.com/datasets/PromptCloudHQ/us-technology-jobs-on-dicecom?resource=download

https://www.kaggle.com/datasets/mexwell/us-software-engineer-jobs/data

https://www.kaggle.com/datasets/thedevastator/know-your-worth-tech-salaries-in-2016

Project work distribution:

Frontend and interface: Qijian

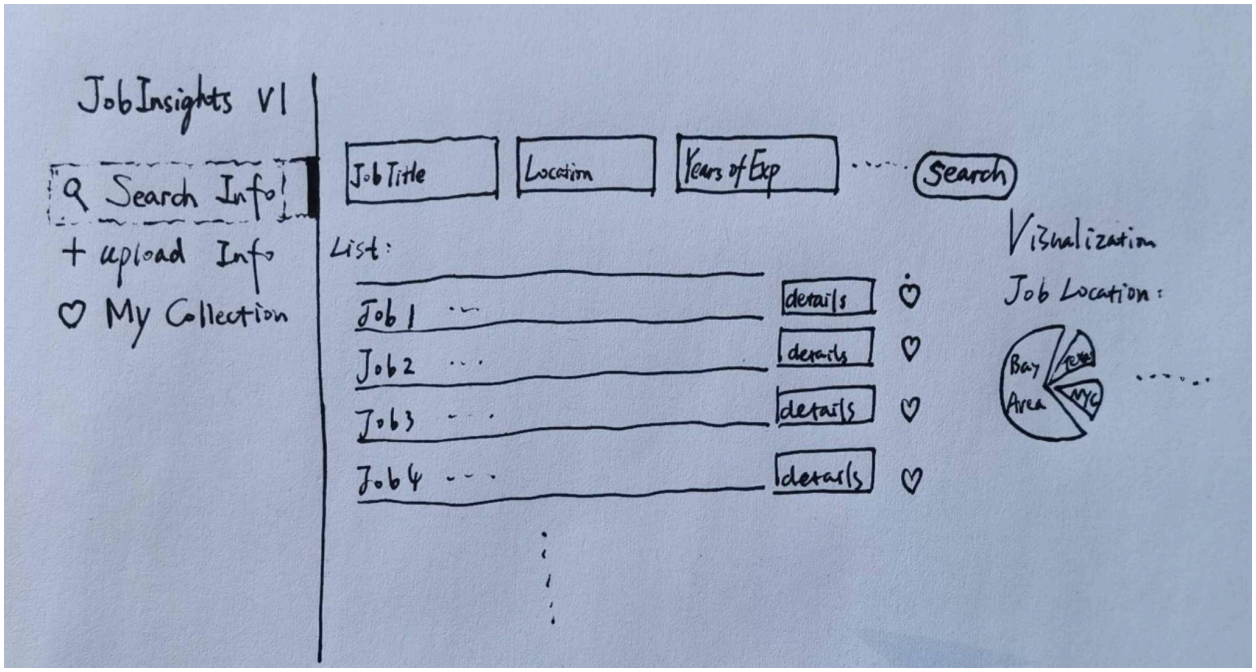
Upload Personal Job: Qijian

Visualization: Xinhao

My Collection: Xinhao

Job Recommendation: Yifan

Miscellaneous: Collaborative


JobInsights V1
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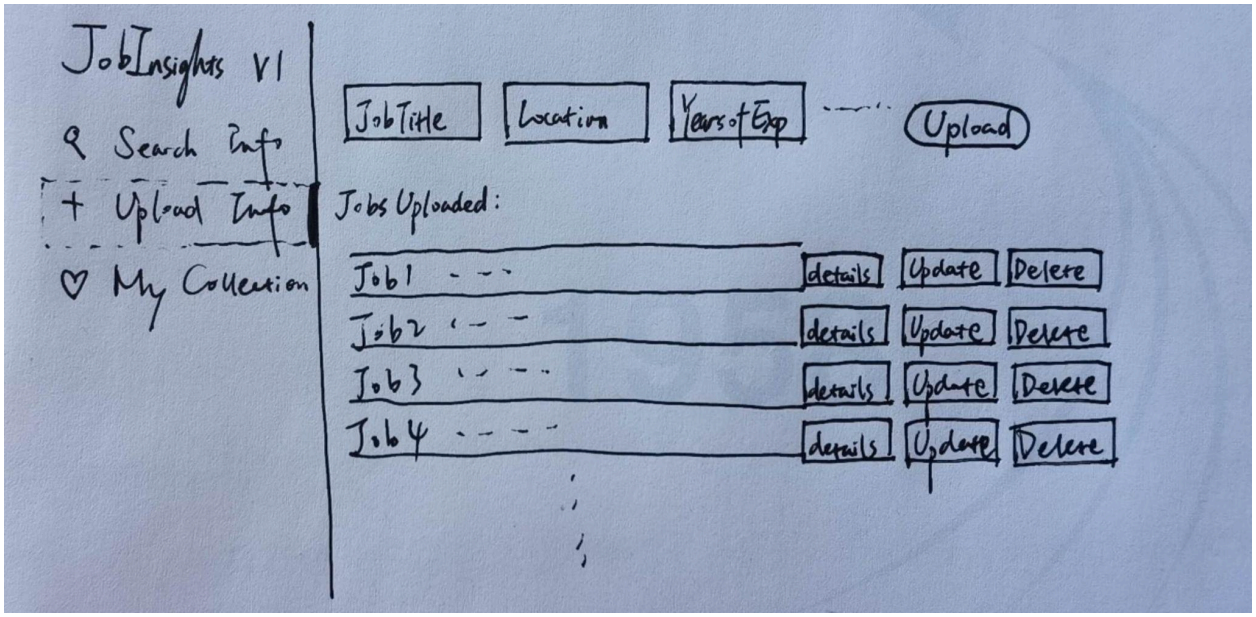
JobInsights V1
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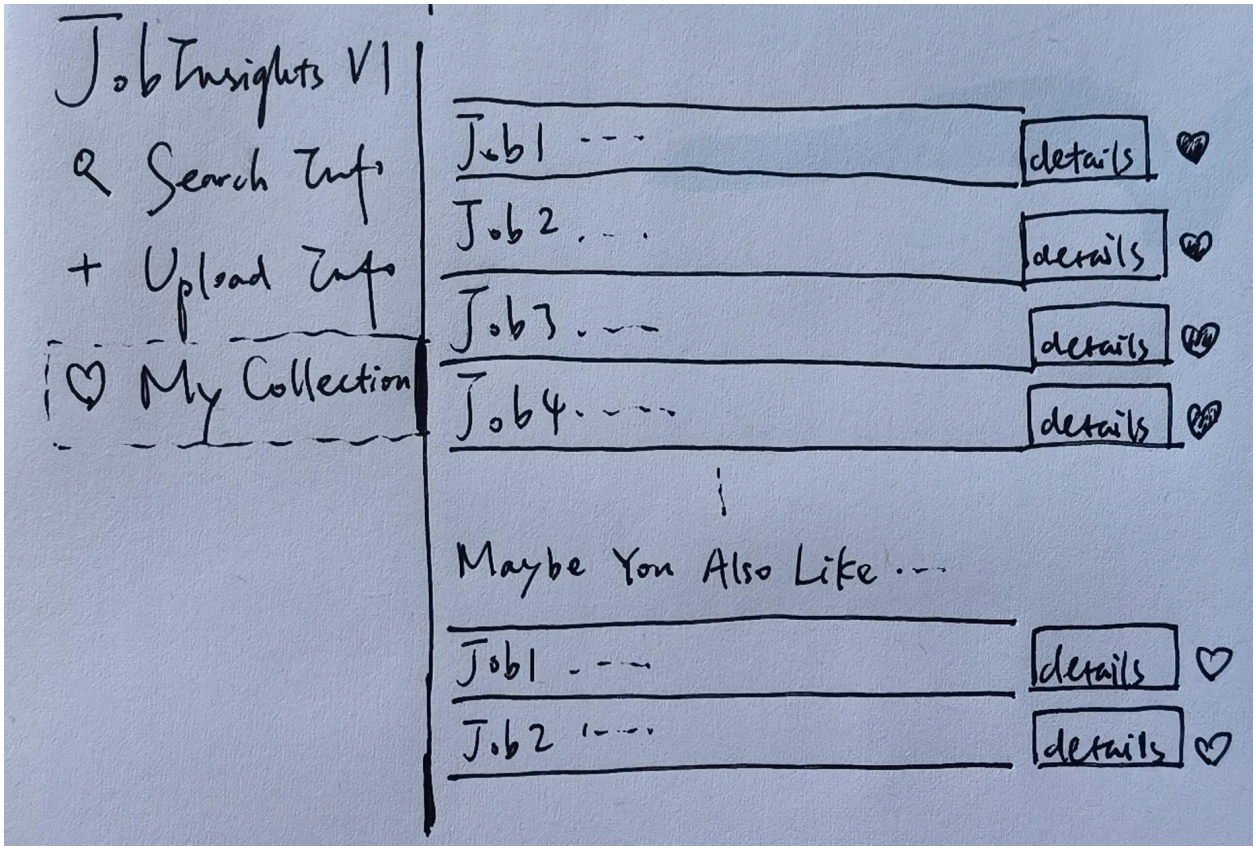
Job Insights V1
Search Info
+ Upload Info
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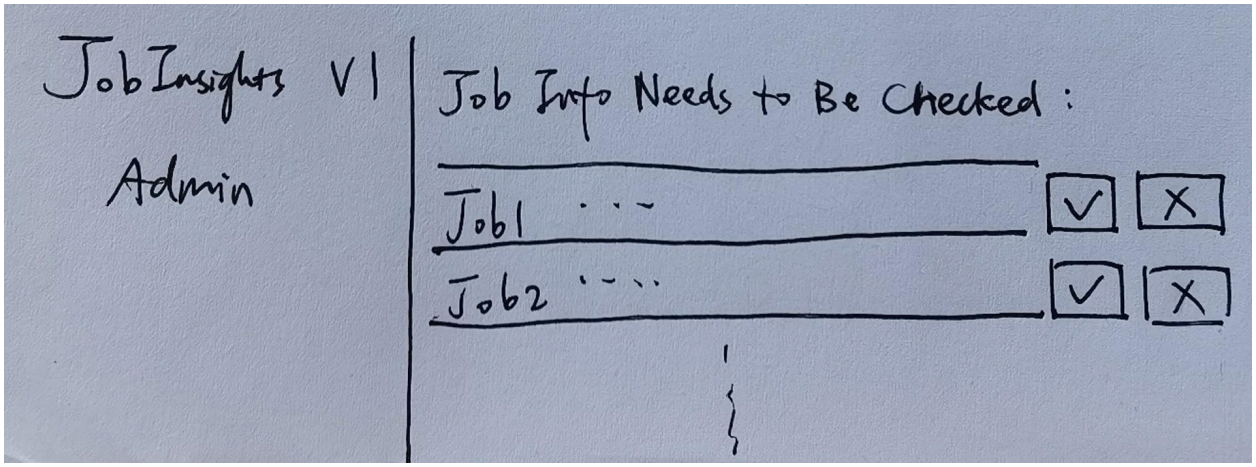
Job Insights V1
Admin
Job Info Needs to Be Checked :
Job1 ...
Job2 ...