**Job-vacancy-retrieval**

**Project Overview**

This repository contains an **interactive dashboard** designed to **automate job vacancy retrieval** for **Data Analyst, Data Engineer,** and other related roles. The application scrapes job listings from multiple job boards, extracts relevant information, and displays it through **bar charts, bubble charts,** and a **demographic information panel**. Additionally, it sends email notifications with the latest job opportunities twice daily at **12:00 AM and 12:00 PM**.

The targeted salary range is **$100,000 or more**, and positions can be **office-based, remote, or hybrid** with openness to relocation.

**Features**

* **Interactive Dropdown:**  
  Allows users to select different job titles and update charts and metadata instantly.
* **Bar Chart:**  
  Displays the **top 10 job listings** based on salary and relevance to the skill set.
* **Bubble Chart:**  
  Visualizes all available job listings with details like salary range, location, and company.
* **Demographic Metadata:**  
  Displays job-specific information such as **location, company, salary range, and required skills**.
* **Email Notifications:**  
  Sends a summary of high-matching jobs twice daily.

**Code Structure**

**1. JavaScript Code:**

* **File:** app.js
* **Purpose:** Handles data fetching from job boards, building charts, and managing user interactions.
* **Technology:** Uses **D3.js** for data binding and **Plotly.js** for visualization.

**2. Python Code:**

* **File:** scraper.py
* **Purpose:** Handles web scraping using **Beautiful Soup** and **Selenium**, processes data, and stores it in **SQLite**.
* **Email Alerts:** Uses **smtplib** to send job summaries.

**3. HTML and CSS:**

* **Files:** index.html and style.css
* **Purpose:** Define the layout and styling of the dashboard.

**Dataset**

* **Source:** Scraped dynamically from job boards such as:
  + Monster, Indeed, LinkedIn, Glassdoor, ZipRecruiter, and more.
* **Format:** Data is stored in a local **SQLite database** and fetched dynamically using AJAX in **JSON format**.

Data Sources:

* **Monster**: <https://www.monster.com>​
* **ZipRecruiter**: <https://www.ziprecruiter.com>​
* **Interview Query**: <https://www.interviewquery.com>​
* **Wellfound (Formerly AngelList Talent)**: <https://wellfound.com>​
* **Instahyre**: <https://www.instahyre.com>​
* **Hirist**: <https://www.hirist.com>​
* **Open Data Science (ODSC)**: <https://opendatascience.com>​
* **DataJobs.com**: <https://www.datajobs.com>​
* **DataYoshi**: <https://www.datayoshi.com>​
* **Data Umbrella**: <https://www.dataumbrella.org>​
* **Outer Join**: <https://www.outerjoin.us>​
* **Blind**: <https://www.teamblind.com>​
* **Starbridge Partners**: <https://www.starbridgepartners.com>​
* **Underdog**: <https://www.underdog.io>​
* **Arc.Dev**: <https://arc.dev>​
* **Untapped (Formerly Jumpstart)**: <https://www.untapped.io>​
* **Ai-Jobs**: <https://ai-jobs.net>​
* **Indeed**: <https://www.indeed.com>​
* **Glassdoor**: <https://www.glassdoor.com>​
* **LinkedIn Jobs**: <https://www.linkedin.com/jobs>​
* **Hired**: <https://hired.com>​
* **CareerBuilder**: <https://www.careerbuilder.com>​
* **SimplyHired**: <https://www.simplyhired.com>​
* **Remote.co**: <https://remote.co>​
* **Dice**: <https://www.dice.com>

STEPS:

**Job Vacancy Retrieval Dashboard: How It Works (In Simple Terms)**

**Project Overview:**

Imagine having a personal assistant that searches for job listings for you every day, organizes them nicely, and sends you an email with the top options twice a day. This project is just like that assistant!

It’s an **automated job search tool** that:

1. **Finds job listings** from various job boards like **Monster, Indeed, LinkedIn,** and more.
2. **Saves the jobs** it finds in a list, organizing them by job title, company, salary, and location.
3. **Displays the job information** on a simple website with interactive charts.
4. **Sends you an email** twice a day with the latest and most relevant jobs.

This tool is made using **Python** for the backend (data fetching and email sending) and **JavaScript, HTML, and CSS** for the website part.

**Step-by-Step Explanation of How It Works:**

**Step 1: Finding Job Listings (scraper.py)**

**Purpose:** This part of the code is like a digital detective that visits different job boards and gathers information about job openings.

**How It Works:**

* It reads a list of job board websites from a file called data\_sources.json. This file is like an address book with links to all the job boards we want to visit.
* For each job board, it searches for jobs related to **Data Analyst** and **Data Engineer** positions.
* It picks out details such as:
  + **Job Title:** What the job is called (e.g., Data Analyst).
  + **Company:** Who is offering the job.
  + **Location:** Where the job is based or if it’s remote.
  + **Salary:** How much it pays (if listed).
  + **Link:** A direct link to the job posting.
* All this information is saved in a simple list.

**Step 2: Organizing the Job Data (jobs.db - Database)**

**Purpose:** Imagine a neat filing cabinet where every job listing is saved in an organized way. That’s what this part does!

**How It Works:**

* It saves all the job listings into a small **database file** called jobs.db.
* This file is like a notebook where each job listing is written down, making it easy to look up later.
* The database keeps track of:
  + Job title, company, location, salary, and a link to apply.
  + When the job was found (date and time).

**Step 3: Displaying Jobs on a Website (index.html + app.js + style.css)**

**Purpose:** This part is like the window display of a store – it shows all the best jobs in a simple and attractive way.

**How It Works:**

* **HTML (index.html):** Creates the basic layout of the website with sections for charts and job details.
* **CSS (style.css):** Makes the website look nice with colors, fonts, and spacing.
* **JavaScript (app.js):** Does the following:
  + Fetches job data from the database.
  + Displays the jobs in two types of charts:
    1. **Bar Chart:** Shows the **top 10 highest-paying jobs**.
    2. **Bubble Chart:** Shows all available jobs with information like salary and company.
  + Shows job details (like company, salary, and location) when you click on a job.

**Why Charts?**

* Charts help you quickly see which jobs pay the most and which companies are hiring the most.

**Step 4: Sending Email Alerts (email\_notifier.py + config.py)**

**Purpose:** Think of this as a friendly assistant who sends you a text message with the best job options.

**How It Works:**

* It checks the latest jobs saved in the database.
* Picks out the best matches based on salary and your skills.
* Sends you an email twice a day with a summary of the best jobs, including:
  + Job title, company, salary, and a link to apply.
* Uses a simple **email server** to send messages to your inbox.

**Step 5: Automating the Process (scheduler.py)**

**Purpose:** This part makes sure the assistant does its job every day without you having to remind it.

**How It Works:**

* Uses a tool called **APScheduler** that acts like an alarm clock.
* It tells the scraper to:
  + **Fetch new jobs** twice a day (12:00 AM and 12:00 PM).
  + **Send email alerts** right after fetching new jobs.
* This keeps the job listings **fresh and up-to-date**.

**How to Use the Job Search Tool:**

1. **Open the website:**
   * Click on job titles to see more details.
   * Use charts to find the highest-paying jobs quickly.
2. **Check your email:**
   * Get a summary of the best jobs twice a day.
3. **Click and apply:**
   * The email includes direct links to the job postings.

**Key Benefits:**

* **Saves Time:** No need to manually search multiple job boards.
* **Keeps You Updated:** Fresh listings twice a day.
* **Organized View:** Easy-to-read charts help you decide fast.
* **Direct Links:** Click and apply without extra steps.

**Summary: Why This Tool is Useful**

* It’s like having a smart, tireless assistant that:
  + **Finds the best jobs** based on your skills and salary goals.
  + **Keeps you informed** with friendly email updates.
  + **Makes it easy to apply** by providing direct links.

This tool helps you **focus on applying** instead of wasting time searching, making your job hunt faster and easier! 🚀

Would you like to see how a specific part of the tool works in more detail? 😊