

VS

Company Count Application

Overview

Your task is to create a Web application using Django. The application will allow users to login and filter the database table using a form.

Once the user submits the form, display the count of records based on the applied filters.

Technical Requirements

1. Project Setup

- **Framework:** The application should be built using the Django framework to leverage its performance and modern features. Name the application as **catalyst-count**.
- **Programming Language:** Python 3.x
- **Virtual Environment:** Use virtual environments to manage Python packages.

2. Database Configuration

- **Database:** PostgreSQL. It should store user data and the uploaded CSV data.
- **ORM:** Utilize Django ORM to facilitate database interactions.
- **Company Data Model:** Download the test data set from [here](#). Create a model schema (table) by as per the data set. Import this csv into a Postgres table.

3. Environment and Repository

- **Environment Variables:** Securely manage environment variables using **django-enviro**.
- **Version Control:** Initialize a Git repository to maintain the project versioning. Host the project on GitHub or Bitbucket.

4. Authentication

- **User Authentication:** Implement user session authentication using **django-all-auth**.

5. File Upload and Processing

- **File Upload:** Implement a file upload mechanism capable of handling large files (up to 1GB) with a visual progress indicator.
- **Background Processing:** Upload file and update the database asynchronously to prevent blocking the request-response cycle.
- **Data Model:** Design and implement models to store & retrieve the CSV data efficiently in PostgreSQL.

6. User Interface

- **Template Engine:** Utilize Django template engine for front-end design to ensure a responsive and intuitive user interface. Feel free to use Bootstrap 4 to create your own UI.
 - **Pages:** The application should include the following pages:
 1. **Login Page:** For user authentication.
 2. **Upload Data Page:** Allows users to upload CSV files.
 3. **Query Builder Page:** Enables users to filter the uploaded data and query & view the count of records matching the filters.
 4. **DRF API:** Querying should be done using an API. Use DRF to create this API.
 5. **User Management Page (Optional):** For viewing and managing user accounts.
7. **Documentation**
- **README.md:** Include a README file in the repository with detailed setup instructions, environment configuration steps, and how to run tests.
8. **Testing (Optional)**
- **Unit Testing:** Write unit tests for all functionalities, focusing on the file upload process, database operations, and query builder logic.
9. **Containerization using Docker (Optional)**
- **DockerFile:** Package your application and all its dependencies together in the form of container.

Functional Requirements

10. **User Authentication**
- Users must be able to register, log in, and log out.
 - Only authenticated users must be able to interact with application features.
11. **Data Upload and Management**
- Users should be able to upload CSV files up to 1GB in size.
 - The system must provide feedback on the upload progress.
 - Once uploaded, the system processes the file in the background and updates the database with the new data.
12. **Data Interaction**
- Users should be able to apply filters to the data through a query builder interface.
 - The application displays the count of records that match the applied filters.
13. **User Interface**
- The interface should be user-friendly, responsive, and accessible on various devices and screen sizes.
 - Ensure secure and accessible forms for data entry and authentication.

Non-functional Requirements

14. Performance

- The application should handle large file uploads and data processing efficiently without significant delays.
- Optimize database queries to handle large datasets effectively.

15. Scalability

- The system should be designed to accommodate an increasing amount of data and users.

16. Security

- Adhere to best practices for web security to protect sensitive data and prevent common vulnerabilities.

Deliverables

1. Source code hosted on a public Git repository on GitHub.
2. A functional web application ready to be deployed to a development server.
3. Documentation including setup instructions, environment variable configuration, and test execution details.
4. A suite of unit tests covering critical functionalities (Optional)

Sample UIs

The following are the approximate reference UIs for the task.

Application Login



The image shows a login form with the following elements:

- A header: "Login to Continue"
- A text input field labeled "Username"
- A text input field labeled "Password" with a small eye icon to its left, indicating a visibility toggle.
- A blue button labeled "Login"

Query Builder

Upload Data **Query Builder** Users Logout

✔ 342 records found for the query ✕

Query Builder

Keyword Industry Year Founded

City State Country

Employees (From) Employees (To)

Upload Data

Upload Data Query Builder Users Logout

Upload Data

Select File

Upload Progress

Users

Upload Data Query Builder **Users** Logout

✔ New user added ✕

Users

John Doe	johndoe@gmail.com	Active	✕
Jane Doe	janedoe@gmail.com	Active	✕
Johnny Doe	Johnny.doe@gmail.com	Active	✕