Amne Backend SWE/DE Onsite Project
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Project Description is available in the folder

Part I
Data recovery, cleaning and storing

I used Jupyter notebook to do some initial data exploration and inspection. I took a look at the sizes of the datasets.

I used an online tool, Sqlizer, https://sqlizer.io, to convert different formats of files into SQL executables.

I used PosgreSQL as my database, and dumbed all converted SQL files into my local database.

I fixed a small issue of the mysterious offer_requests SQL file.

Part II
Building the API Ports

I used Node.js, Express to build the API server.
Detailed descriptions of different ports can be found on the project description
I inspected different datasets in much greater detail and had to do quite a bit of thinking linking those datasets, their relations, and different variables' meanings, such as

- What does mls stand for?
  An identifier for the real estate search website mls.com

- If two properties share the same exact address, does that mean it is the same listing?

  No, the same address can be on the market multiple time, with different status, such as sold, withdrawn, pending, etc. They could also be handled by the same agent.

- Since url strings does not allow spaces, how do I convert it to an address string where I can look up in the database, which can contain spaces in its text entries?

  I decide to ask the user to input underscore separated strings instead of space separated strings.

- If a port, as described in the project description, requires to return a collection of responses rather than a single dataset, should I delegate to separate sub-ports or just use one main port?

  I decided to delegate to separate sub ports, for ease of debug and better user experience. We will ask what the user specifically want and return them separately, rather than in a bigger chunk.

- How to check for the last listing by an agent?

  Use agent_contract_date, which is when the agent is commissioned to handle the listing, whereas date_status_contractual marks the date of the last status change.

- Use raw SQL queries, or other tools such as SQLAlchemy to interact with the database?

  SQLAlchemy is nice, however since most of the project requires GET operations, I decide to stick with raw SQL code to more directly interact with the data.

Part III
Building the Admin Portal/User Interface

I used React as my frontend framework. I used Python Flask in the past but I didn't find it as easy to maneuver as advertised as one needs to switch between Python and JS quite frequently, so I decide to try something new.

I read through the official tutorial:
https://reactjs.org/tutorial/tutorial.html
As well as a YouTube video:
https://www.youtube.com/watch?v=HPIjjFGYSJ4
Which was very handy and helpful.

The major challenge I faced was how to direct users to different ports depending on the user's input.

I decided to store a global dictionary of user inputs and mutate it every time user inputs the data, and then concatenate different fields into a complete URL string, which directs the user to the specific API port built in Part II.

I took me a while to debug and find out the best way to achieve this, but eventually I was able to implement a frontend that I think is relatively clear on guiding the user to access the data they want.

TODO: Part IV

I was really hoping to deploy the app online but it took me quite well to set up the AWS codebase and the Heroku framework, but I would keep working on that after the interview!

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Thanks guys, I totally enjoyed my time here! The project was not easy and I am really happy to have the opportunity to push myself and be able to learn and implement a technical project I am proud of.

Furthermore, I got the vibe and experience of such a vibrant, professional company with the help of so many great people, including, but not limited to Shu, Molly, James, Ryan, Eugene, Abjihit, Micky, Robert, Milan and of course, Richard, who drove me home and took me to coffee on my first night! Apologies again for not recognizing you as our CEO! Hope you enjoy your LA trip!