AffordAustin Technical Report - Phase II

Dinesh Balakrishnan

Scarlett Shires

Jay Park

Presley Heikkila

Sabeer Shahzad

Contents

Section 1 - Motivation

The cost of living in Austin has reportedly risen 17.8% since 2010. In the past year alone, the listing prices for houses spiked 28%. Numerous major companies are allocating increased resources in the Austin area as in the case of Tesla announcing their headquarters will be based there as well. Thus, we can only expect a similar steady increase of price as Silicon Valley.

At AffordAustin, we strive to provide plausible living situations in Austin amidst harsh inflation by streamlining the process of finding economical housing, child care, and work.

Section 2 - User Stories

2.1 Phase I User Stories

User Story #1 - Add rating for a job listing's company

"I would like to be able to see the rating a company associated with a job listing has. This way I can learn about a company from actual employees, and not HR. By doing so I will get a more accurate reflection of the workplace and better decide if I want to work there."

This was a goal we had for this phase. We added job ratings by including the value we scraped as part of our jobs API call.

User Story #2 - Add information about quick/affordable food in the area

"When thinking about the priorities of low-income residents, one thing my mind immediately goes to is food security. While many people will just go to local fast food places most days in order to save time/money on getting a hot meal for their family, perhaps if your database was somehow able to also track quick, nearby, and healthier options it may help to alleviate some of the issues that come with trying to get quality food on the table when your time and resources are too limited to cook yourself."

We think that is a great idea! It is, unfortunately, out of the scope at this moment as it would involve adding a fourth model which we do not have the resources to do.

User Story #3 - Add information about the quality of school districts

"I know for many parents the quality of the schools they are sending their children to is very important. Under housing, y'all could add information about the school district or schools in the area, maybe a general rating, so parents are aware before moving. This also goes hand-in-hand with the child care information because some schools have before or after school programs."

We think this could've tied really well with schools being a separate model. The idea of having additional models is appealing, but we don't have the resources to add them to our website as of now.

User Story #4 - Links to the job listing website

"As someone looking for jobs in an area, it would be useful if the media for a job includes links to the application page for the company. This will ensure that I can apply directly from the website without having to go to the trouble of looking up the company website separately. This will make the job searching process easier for your customers."

We ended up integrating this by creating a button with a link to the application page provided by our API.

User Story #5 - Add information about rating/reviews of housing locations

"As a user I would want to know how other residents of a certain location would rate the place."

We actually thought about this, but a lot of the apartment locations don't have a rating on Google. As such, we won't be able to satisfy this requirement.

2.2 Phase II User Stories

User Story #1 - Add top reviews for a job listing's company

"I would like to be able to see the top reviews of a job listing's company. This way I know more than just a rating number. By doing so I can make a better decision about if that company's workplace is right for me."

We talked about this in our last meeting and aren't sure we'd be able to include the top rating because it isn't something we can programmatically get for each job. However, we can provide a link to the original job reviews page by publishing the link our API provides us with.

User Story #2 - Fix website links on childcare pages

"The website links on the childcare pages do not correctly route to the center's website. The website of the childcare location is very helpful in providing more information"

We fixed this issue by correcting the link object on our ChildCare page to route to the https address instead of exactly what the API served us.

User Story #3 - Displaying connected instances on Housing and Childcare pages

“On the Housing and Childcare instance pages, connected instances are displayed with a button that says "Find nearby ...". This is a little misleading since there could be more than one nearby listing, but the link only takes you to a single instance. Instead, you could change it to display the links to different instances with the name of the listing, similar to what has been implemented for the Job instances.”

We standardized our model pages to match the job instances, and we plan on implementing this further in phase 3 when we're able to filter by location and give a useful link.

User Story #4 - Ability to filter jobs by rating

“As a customer I want to be able to filter a job by its rating from high to low. This will help me to find job postings that are of higher quality. A low to high function as well may be useful in some scenarios.”

This is definitely something we will consider in phase 3 when we implement filtering and sorting.

User Story #5 - See current going price for housing

“I think it might be nice to be able to see explicitly on both the instance pages and cards for housing what the currently listed going price of the property/lease is whenever that price is available, and not just the price point.”

Exact prices are not a resource we can scrape for in nearly all cases. Prices are provided to those who make inquiries with the company, so we’re not going to be able to include that information for this project.

2.3 Phase I Customer Stories

Customer Story #1 - Farmer’s Market dates

“I'd like to know the date the farmer's market runs for if it's possible to get that information. Farmer's markets are normally temporary so I want to make sure I know if it's still running. Want to be able to plan a trip rather than only check the website the day of.”

The farmer's markets' start dates and end dates have been added to each instance page.

Customer Story #2 - Recipe Main Ingredients

“When I'm buying a fresh ingredient, I want to really enjoy *that* ingredient. I'd like to be able to sort and see recipes where my fresh food is the main ingredient instead of a small component. If I buy fresh celery, I want to be able to prioritize recipes for things like celery soup and stir fried celery instead of meaty soups that include celery.”

I can definitely see why you would want to enjoy the fresh ingredient you just bought. I think that you can already do this by searching each recipe by the name of the dish. I don't think there are many dishes where the main ingredient is a celery, but the name of the dish doesn't have the word celery in it.

Customer Story #3 - Recipe Attributes

“Your proposal lists meal type as an attribute for recipes, but I wasn't sure if that meant like breakfast/lunch/snack/etc. I would like to be able to filter recipes for certain diet restrictions. I think the main ones would be vegetarian, vegan, gluten-free, and dairy-free.”

I'm not sure if this information will be easy to get but we should be able to put that information in ourselves if we can't just get the info ourselves. If it's not too difficult, I think this would be implemented in phase 4.

Customer Story #4 - Recipe Origin

“Would it be possible to search for the recipe by where it was originally developed? This could possibly tie well with the other models. I'm not sure whether the current APIs would allow for such a parameter to be passed in, but there might be another API to tie in the location data.”

Yea! This is a good idea. I think that we should be able to implement this in phase 2 or 3. I think there should be some API's with this information.

Customer Story #5 - Add ratings for the Farmer Market Location

“I am not much of a risk taker: before I decide to go somewhere for the first time, I like to check out their ratings and reviews. It would be nice to be able to see the ratings as an attribute of the Farmer Market Location. This way, I can much quicker decide which location works the best for me.”

I think this would be a good idea, but our current api doesn't hold this data currently. I think we might be able to implement this in phase 3 or phase 4.

2.4 Phase II Customer Stories

Customer Story #1 - Fixing Recipe Instances

“I feel as though it would help to have the recipe information in each of the instance pages. Linking to an outside source hurts the user experience. Also, how exactly are the farmer's market links going to be determined for each recipe? Would this be proximity based? What if some farmer's markets sell the same ingredients?”

Customer Story #2 - Decimal places for the recipes

“I think it would be a little more visually pleasing if the decimal places for the recipe pages were rounded as I am not sure if 12 is necessary. It could be rounded to two decimal places similar to the products page. I would try to round the different bullet points to the same decimal place despite some being different units as it will likely look cleaner.”

Customer Story #3 - Quantity/Quality of Health Labels

“While I appreciate the variety of Health labels that are presented on the recipe cards, It feels like there is too much information at once. I feel that you should definitely reduce the amount of labels that you include on the card itself, maybe to the more important labels such as peanut-free, gluten-free, etc. For example, while I know that Peanut allergies are important to adhere to, I'm not sure about how important it is to present a dish as celery-free on the model page. You could definitely keep the exhaustive list on the actual instance page, but I feel that reducing the amount presented on the model page would make it easier to implement searching and filtering as well.”

Customer Story #4 - Website Navigation

“As a user, navigating the website was a bit inconvenient. For produce, the button to visit the instance page wasn't visible without scrolling down and I expected to be able to click anywhere on the card anyway. On the homepage, I scrolled down to read the descriptions of each section, and expected to find a link there instead of having to scroll all the way back to the top.”

Customer Story #5 - Locations Card Presentation

"I love being able to see all of the products a farmer's market will be offering! However, I feel like presenting the information as a wall of text is difficult to interpret at first glance. A bulleted list would make it easier to skim and find a specific item I'm looking for. It might be more difficult, but a table of some kind may work as well, grouping products broadly into categories such as vegetables/fruits/meats."

Section 3 - RESTful API

Full Documentation here:
https://documenter.getpostman.com/view/19702236/UVksLu2r

3.1 Housing requests/responses

- GET All housing - /housing
    - Sample Request: curl –location –request GET ‘https://api.affordaustin.me/api/housing’
    - Request Headers:
        - Accept: application/vnd.api+json
        - Content-Type: application/vnd.api+json
    - Description: Retrieve list of all housing instances.
    - Sample Response: https://wtools.io/paste-code/bA7h

- GET House by the ID - /housing/houseID
    - Sample Request: curl –location –request GET ‘https://api.affordaustin.me/api/housing/1’
    - Request Headers:
        - Accept: application/vnd.api+json
        - Content-Type: application/vnd.api+json
    - Description: Retrieve all metadata related to houseID instance.
    - Sample Response: https://wtools.io/paste-code/bA7i

3.2 Child Care requests/responses

- GET All child care services - /childcare
    - Sample Request: curl –location –request GET ‘https://api.affordaustin.me/api/childcare’
    - Request Headers:
        - Accept: application/vnd.api+json
        - Content-Type: application/vnd.api+json
    - Description: Retrieve list of all child care service instances.
    - Sample Response: https://wtools.io/paste-code/bA7j

- GET Child care service by ID - /childcare/childcareID
  - Sample Request: curl –location –request GET 'https://api.affordaustin.me/api/childcare/childcareID'
  - Request Headers:
    - Accept: application/vnd.api+json
    - Content-Type: application/vnd.api+json
  - Description: Retrieve all metadata related to childcareID instance
  - Sample Response: https://wtools.io/paste-code/bA7k

3.2 Jobs requests/responses

- GET All jobs - /jobs
  - Sample Request: curl –location –request GET 'https://api.affordaustin.me/api/jobs'
  - Request Headers:
    - Accept: application/vnd.api+json
    - Content-Type: application/vnd.api+json
  - Description: Retrieve list of all job instances
  - Sample Response: https://wtools.io/paste-code/bA7l

- GET Job by ID - /jobs/jobID
  - Sample Request: curl –location –request GET 'https://api.affordaustin.me/api/jobs/1'
  - Request Headers:
    - Accept: application/vnd.api+json
    - Content-Type: application/vnd.api+json
  - Description: Retrieve all metadata relating to jobID instance
  - Sample Response: https://wtools.io/paste-code/bA7m

Section 4 - Models

4.1 Housing

Media:

- Image of the house
- Data about the house
- Google Maps pin of the location

Attributes:

- *Filter:*
    - Number of Units
    - Tenure
    - Zip Code
    - Unit Type
    - Ground Lease
- *Search:*
    - Address
    - Property Manager Company
    - Property Manager Company name
    - Status (where in the building process)
    - Calculated Fee in Lieu
- Address
- Number of units
- Affordability Period
- Property Manager phone number and email
- Full list of attributes here: https://data.austintexas.gov/Housing-and-Real-Estate/City-of-Austin-Affordable-Housing-Inventory/x5p7-qyuv#:~:text=Columns%20in%20this%20Dataset

Number of Instances: 1000+

4.2 Child Care

Media:

- Image of the facility
- Data about the service
- Google Maps pin of the location

Attributes:

- *Filter:*
  - Days of Operation
  - Hours of Operation
  - Location Address
  - Programs provided at the Operation
  - County of the Facility / Operation
  - Subsidized Facility / Operation
- *Search:*
  - Website Address
  - Mailing Address
  - Administrator / Director for the Operation
  - Phone Number
  - Email Address
- Full list of attributes here: https://data.texas.gov/Social-Services/HHSC-CCL-Daycare-and-Residential-Operations-Data/bc5r-88dy#:~:text=Columns%20in%20this%20Dataset

Number of Instances: 500+

4.3 Jobs

Media:

- Image of the facility
- Data about the job
- Google Maps pin of the location

Attributes:

- *Filter:*
  - Zip
  - Industry
  - Mobile optimized job
  - Job type (full time, part time, etc)
  - Salary
  - Company's revenue
  - Company size
  - Rating
  - Reviews
- *Search:*
  - Date
  - Job Description
  - Job type
  - Company's social networks
  - Company's monthly visitors
  - Title
  - Apply Link
  - Company name

Number of Instances: 200

Section 5 - Tools

5.1 Development Tools

- React (https://reactjs.org/)
  - Building the web app
  - UI Components
    - Bootstrap (https://react-bootstrap.github.io/)
- Amplify (https://aws.amazon.com/amplify/)
  - Frontend deployment
- RDS (https://aws.amazon.com/rds/?nc2=type_a)
  - Database hosting
- GitLab (https://gitlab.com/)
  - Git repository manager
  - Issue tracking
  - CI/CD Pipelines
- Postman (https://www.postman.com/)
  - Design RESTful API
  - Unit testing
- NameCheap (https://www.namecheap.com/)
  - Domain name acquisition
- Docker (https://www.docker.com/)
  - Package management through use of containers
- Selenium (https://www.selenium.dev/)
  - Acceptance tests of the GUI
- Flask/Flask-Restless-NG
  - Building the API from the database
  - Pagination of data

5.2 APIs

- Housing in Austin
  - https://data.austintexas.gov/Housing-and-Real-Estate/City-of-Austin-Affordable-Housing-Inventory/x5p7-qyuv
- Child Care services
  - https://data.texas.gov/Social-Services/HHSC-CCL-Daycare-and-Residential-Operations-Data/bc5r-88dy
- Job listings
  - https://serpapi.com/google-jobs-api

Section 6 - Hosting

We used NameCheap to obtain the domain name affordaustin.me then used Custom DNS to connect to AWS Amplify. The Amplify app is stored in two different branches in GitLab: main which is hosted at affordaustin.me and development hosted at https://development.d4sk31j15mtaj.amplifyapp.com. Each time a commit is pushed to the branch, Amplify will redeploy to match the code changes.

Section 7 - Phase II Features

In Phase II, the main features we implemented included a database, pagination, and better testing. The database is hosted in RDS from AWS with the engine PostgreSQL. We used psycopg2 as a driver to connect to the database and add tables of the data we scraped from our apis. We then used Flask-Restless-NG to allow for this data to be available at https://api.affordaustin.me/api/.

Our Flask-Restless-NG begins the pagination process by serving a json with 21 instances when queried by our frontend. On the front end we use bootstrap's pagination component to allow the user to select which page they want to view.

In Postman, we added unit tests in order to ensure proper response status and schema. In unittest, we ensure that the api calls return a valid response status (HTTP 200 OK) for each endpoint, and have added tests for pagination making sure that pages that shouldn't exist are empty. We use Jest to check our models and grid pages against snapshots to ensure they remain consistent through app changes. Finally, we used Selenium. Selenium is used to test the user experience, which is done by ensuring that the links in the pages redirect to the correct instances, that there are more than 9 instances per paginated grid page, and that at least 100 instances are present for each model.

Section 8 - GitLab

You can view our repository at:
https://gitlab.com/dinesh.k.balakrishnan/cs373-website

Section 9 – References

https://www.kvue.com/article/money/economy/boomtown-2040/austin-cost-of-living-increase-filterbuy/269-de1d7216-fdcb-4c12-b858-081be5869712

https://www.kxan.com/news/local/austin/report-austin-home-listing-prices-increased-by-28-year-over-year/#:~:text=REPORT%3A%20Austin%20home%20listing%20prices,28%25%20year%2Dover%2Dyear&text=AUSTIN%20(KXAN)%20%E2%80%94%20Colder%20weather,10%25%20in%20the%20last%20year.

https://do512.com/p/big-companies-moving-to-austin