ATX Assist
Group 10 Phase 1 Technical Report

Grace Choi, Eshi Kohli, Benjamin Zimmerman, Saketh Kotamraju, Tvisha Andharia

Motivation

As Austin sees a growing influx of residents, an increasing number of low-income communities are facing displacement due to gentrification. This has caused the cost of living to soar, putting many individuals and families in difficult positions. Our project seeks to establish a dedicated space for underserved communities to learn about essential resources. By connecting Austin residents to information about affordable food, clothes, and housing, we hope to make an impact in our local community.

User Stories

Show a picture of an example of a thrift store on the home page

In response to this user story, we created a card for each of our models at the bottom of the home page. We feature an image of a thrift store on the thrift store card, which offers a sneak peek and serves as an engaging entry point for users.

Display a small slogan / title in big text on the home page

In response to this user story, we displayed a succinct slogan on the home page that encapsulates the mission and purpose of our platform. This addition serves to create a strong initial impact and communicates the essence of our services to users at a glance.

Show the number of total instances for each model at the top of their pages

We added the total number of instances available at the top of each model page. This provides users with a quick reference point, allowing them to gauge the scope of information within each category – be it food pantries, thrift stores, or affordable housing.

Add a brief description for each model page explaining the model

To enhance user understanding, we included concise descriptions for each model in the cards at the bottom of the home page. Additionally, we added an even shorter description at the top of each model page, offering users a clear overview of each respective model.

Show a picture of an example food pantry on the home page

In response to this user story, we created a card for each of our models at the bottom of the home page. We feature an image of a food pantry on the food pantry card, which offers a sneak peek and serves as an engaging entry point for users.

RESTful API

https://documenter.getpostman.com/view/32820631/2sA2r545aP

Our RESTful API will have endpoints to GET all food pantries, thrift stores, and affordable housing instances. This API also has endpoints to GET specific instances of these models.

Models

Our project uses 3 models - thrift stores, affordable housing locations, and food pantries. Each model has 5 or more attributes associated with it:

Thrift stores:

1. Name
2. Location
3. Rating
4. Number of reviews
5. Image
6. Location
7. Website
8. Description
9. Phone number

Affordable Housing:

1. Property Name
2. Address
3. Students Only
4. Community Disables
5. Has a Waistlist
6. Website
7. Street view URL
8. Google Maps URL

Food pantries:

1. Place Name
2. Address
3. Hours
4. Website
5. Ratings
6. Number of Ratings
7. Street View URL
8. Google Maps URL

Tools

In this phase, we leveraged the following tools for various aspects of our project:

AWS API Gateway

- Enabled us to construct a publicly accessible REST/HTTPS API and seamlessly route it under our custom domain name.

Gitlab

- Functioned as our repository for storing files related to the full-stack website and backend code. Additionally, it provided features for project planning through issue trackers and milestones.

React/TypeScript

- Allowed us to create an interactive UI for our website with ease.

React-Bootstrap

- Provided a framework and design templates for enhancing the UI of our website.

React Router

- Facilitated efficient routing within our website.

Node js

- Enabled the development of the backend server responsible for processing the logic of our main API, supporting concurrent requests efficiently and ensuring seamless data loading for our website.

AWS Elastic Cloud Compute (EC2)

- Utilized for hosting our Node.js server and other backend code.

AWS Lambda functions

- Implemented to connect with our API in AWS API Gateway. These functions routed API requests to the corresponding Node.js server endpoint and efficiently returned the required data.

Zoom

- Employed for remote meetings to discuss various aspects of the project.

Slack

- Used as a communication platform for project-related discussions with the Teaching Assistants.

VS Code

- Served as an Integrated Development Environment (IDE) for debugging and version control using Git.

Postman

- Utilized for documenting our API.

AWS Simple Storage Service (S3)

- Hosted our frontend website.

Ed Discussion

- Used to ask questions to peers and TAs.

Hosting

We are hosting the website at http://www.atxassist.me/ through AWS S3.

Challenges

Throughout this phase, we encountered the following challenges:

Learning how to scrape and retrieve the data from other sites

- We had to figure out how to use APIs to get information, which was something new for us. We followed tutorials to understand this better.
- With our REST APIs, we faced a challenge because only one source, the Yelp API, gave us all the data we needed. The Affordable Housing API had most of the information we wanted, but it didn't have pictures. To solve this, we used Google Maps' API to get the missing images. For food pantry data, where there was no dedicated API, we used Google Maps' API to find a way to get all the information we needed.

Understanding the aspects of Postman and how to document an API

- Before this project, none of us had experience with Postman or documenting an API, so we had to learn from tutorials.
- Designing our API was tricky because we couldn't test or implement it properly. This made it confusing to come up with realistic and practical designs. We overcame this challenge by investing a lot of time in understanding different aspects of an API, like defining endpoints, the different methods (POST/GET/DELETE/PATCH), and creating various method calls.

Creating the architecture for our backend

- Creating a full-stack system and designing the backend structure for a project was new for us, so it took considerable effort to come up with a strong system for our API and to make it functional.
- We spent numerous hours researching the various tools and components of AWS, figuring out which ones were the most helpful for different parts of the backend. Through this process, we learned that EC2 was the best fit for hosting our Node.js backend, API Gateway was ideal for crafting the REST API, and AWS Lambda proved most useful for writing the logic for our API and invoking the endpoints set up in our Node.js server.

AWS Identity Access Management (IAM)

- Setting up EC2 servers, API in API Gateway, and Lambda functions turned out to be a bit challenging because AWS required permissions to be set up as IAM roles each time we wanted to perform an action.
- Solving this challenge required extensive research to understand how to correctly assign the right permissions to each team member for backend work. We had to navigate through various AWS settings to ensure everyone had the necessary permissions with the proper IAM roles to successfully complete their tasks.

Learning/gaining experience with React, TypeScript, HTML, and CSS

- Only having little bit of experience in these areas caused progress to be slow. We had issues with getting the exact layout we wanted and struggled to make pages look good. We also rewrote certain aspects of our website several times to explore a better approach. This was extremely time-consuming.
- We solved this challenge by helping each other (sharing the knowledge), consulting the TAs, reading documentation, and watching tutorials online.

Correctly installing packages and dependencies

- We experienced some issues with installing packages and dependencies. Some of the issues included old versions and packages not being recognized. It was extremely time-consuming to look into and resolve, and it felt like no real progress was being made, which was discouraging.
- We overcame this challenge by getting help from the TAs and looking at online resources.