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Inspiration:



KAT
KNOXVILLE AREA TRANSIT

Menu

Trip Planner

Detours

FROM

Where are you starting?


TO


Where are you going?


WHEN DO YOU PLAN ON TRAVELING?


Leave Now


GO


 New to KAT?
Here's How to Ride!

 KAT CLOSED ON THANKSGIVING
(THURSDAY, 11/28/24)
KAT OPERATING ON A SUNDAY
SCHEDULE ON BLACK FRIDAY
(11/29/24). THE KAT CUSTOMER
SERVICE COUNTER WILL BE OPEN
FROM 8:00 A.M. – 12:00 P.M.

 STARTING JANUARY 2, 2025:
KAT WILL NO LONGER ACCEPT
PAPER TICKETS ON BUSES

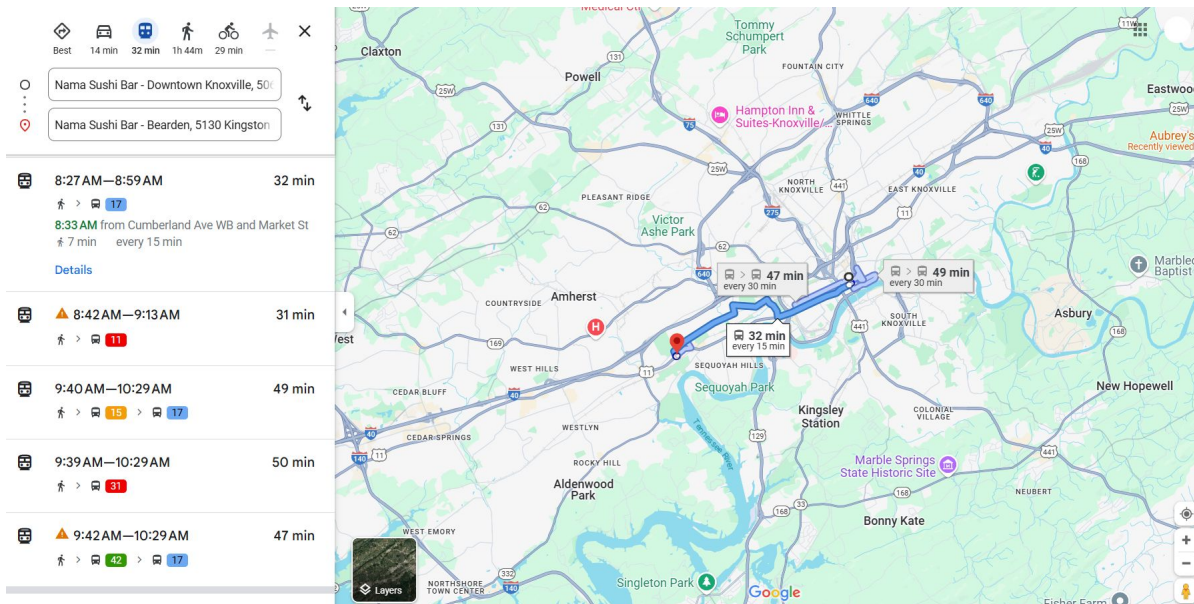
 KAT PROPOSES ADJUSTMENTS
TO SEVERAL ROUTES – CLICK
FOR DETAILS & PUBLIC
HEARING INFO

 FOOTBALL SHUTTLE SERVICE
CHANGES & PASSENGER
PLAYBOOK



Inspiration

- KAT's website essentially goes to Google Maps's transit option, which could use a variety of different public and private transportation.



Inspiration:

- Basically, Knoxville Area Transit's website and their route calculation is horrible.
- (They basically redirected to and **COPIED** Google Maps. How are we supposed to plan our trips using only KAT's bus routes?)
- We are seeking to make this better so people can better plan for the future using KAT's system.

This is what we're doing to the KAT website and their route calculation.



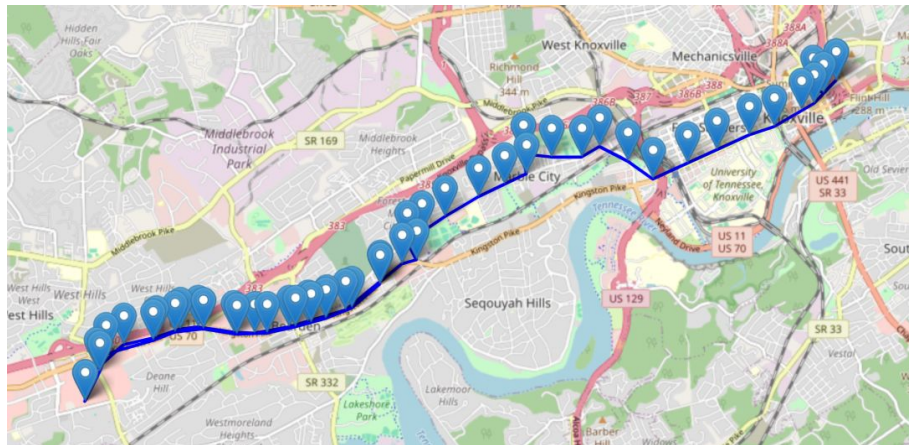
Route Calculation:

- We want to do this calculation right rather than redirecting to Google Maps.
- So we made a route calculation using (mostly) only KAT bus routes.
- We use Google Maps's API sparingly. It is only used if the locations input are not KAT bus stops.

Example:

From: Nama Sushi on Gay Street

To: Nama Sushi in Bearden

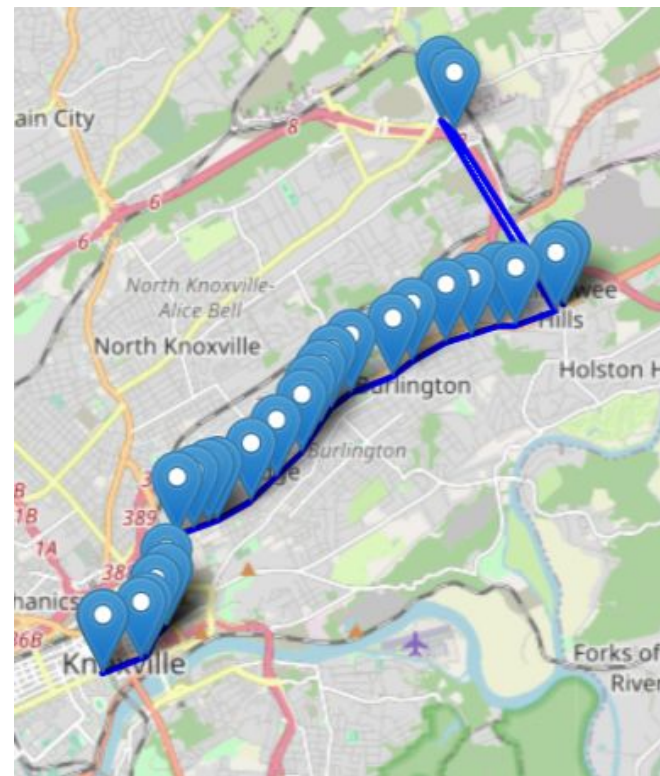


Finding Routes and Time Sensitivity

- Sometimes the route calculation fails, so it will choose other, nearby bus stops.
- Time is also important when planning, so there is an option to add in a time for departure.
 - *Note: since KAT's routes run at different times, the route may not output a start time close to the desired departure time.*
- This allows flexibility in our plans in terms of time and location.

Non Bus Stop Example:

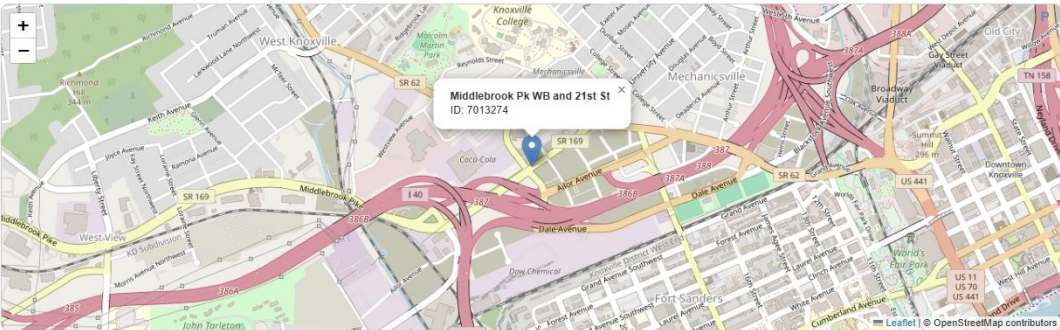
- Find a route between Min Kao and the White House
- Location validity is checked with the Google Maps API.
- The calculation finds the closest bus stops using a version of the Haversine formula.



Trip Details

Gives additional details about a bus stop that might be useful like upcoming arrivals and which routes it services.

Middlebrook Pk WB and 21st St (ID: 7013274)



Bus Stop Details

Location: Latitude: 35.96471, Longitude: -83.943161

Nearby Landmarks: N/A

Accessibility: Wheelchair accessible

Shelter Availability: Available

Recent Notices: Construction on nearby roads until May.

Upcoming Arrivals


Bus 5A to Downtown arriving at 10:15 AM
Bus 12B to Uptown arriving at 10:20 AM

Bus Routes Serving This Stop

Route 5A
Route 12B
Route 7C

[Back to Map](#)

Register/Login

 [Home](#) [Map](#) [Register Account](#) [Login](#)

Register

Register

Username/Email:

Password:

Login

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Settings

Settings

Manage your account settings here.

Change Password

Current Password

New Password

Confirm New Password

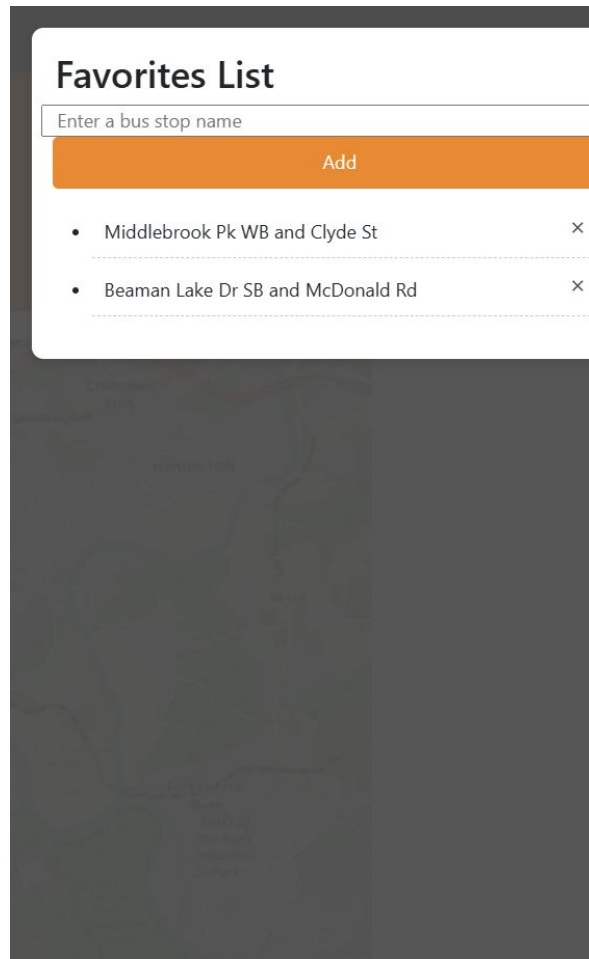
Change Password

Account Actions

Delete My Account

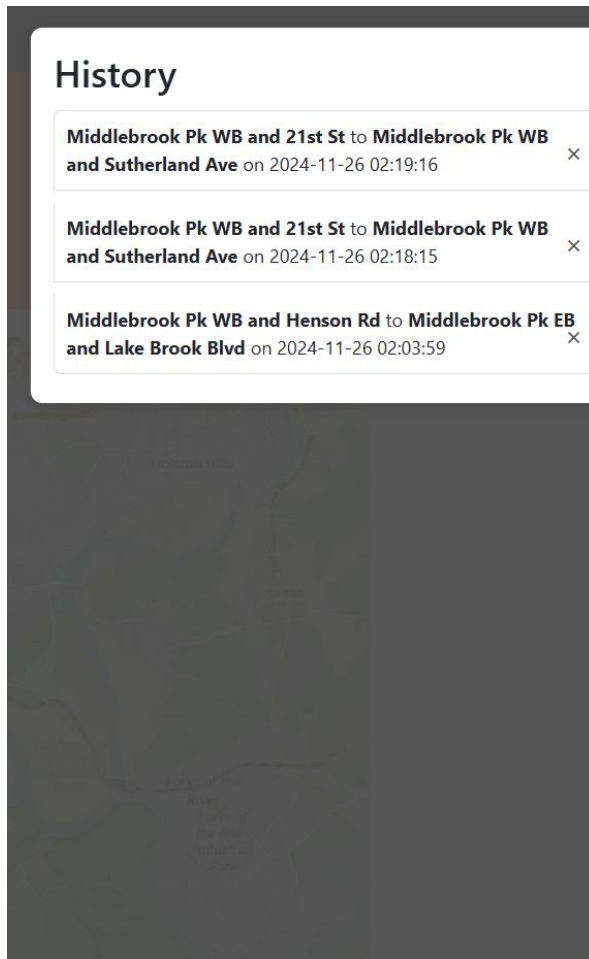
Favorites List

- Adds additional functionality not found in the Kat website to allow easier use.
- Allows users to add frequently used bus stops to a list for quickly selecting bus stops when finding a route.
- Personalized to the user as it is saved to your account.



History

- To further personalize the user's experience, we added a history list of the routes that the user has taken in the past.
- The history list allow a user to view their travel history over time and keep track of when they used the website.



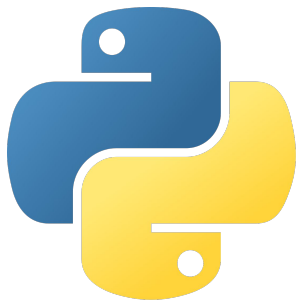
Languages and Frameworks

Programming Languages:

- Python
- JavaScript
- HTML
- CSS

Database:

- SQLite



Python Frameworks and Libraries:

- Flask
- Flask-Login
- Flask-WTF
- Flask-Migrate
- Flask-SQLAlchemy
- Jinja2
- SQLAlchemy
- Pandas
- NetworkX
- Werkzeug
- Email Validator
- Google Maps Services

Frontend Libraries and Frameworks:

- Bootstrap
- jQuery
- jQuery UI
- Leaflet.js
- Ajax (Asynchronous JavaScript and XML)

APIs and Data Formats:

- GTFS (General Transit Feed Specification)
- Google Maps Geocoding API
- OpenStreetMap Overpass API
- HTML5 Geolocation API

