Problem Statement:
Public transportation is a growing necessity for cities as they grow. Riders being able to quickly access ride information to help plan their trips and efficiently move from place to place is a top priority. The managers of transportation will be able to access information on the buses and their riders which will help them evaluate their routes, drivers, and riders.

Through an interconnected system that provides riders with information about the buses they ride, as well as provides the managers information, this could be used to improve the areas public transportation.

The current UNT Bus Tracker website will be used as a reference so that we can expand on the functionality to be more well rounded for the riders of DCTA.

List of Users:

- Riders of the local bus system
- Administrators of city transit

List of Functions for each user to use:
For Riders:
They will be more aware of their options for transportation and have more efficient routes, even with the option for reminders. All of this together will lead them to be on time to their destinations more often with less stress.

1. They will be able to visibly see routes on the map
    1.1. The routes will be outlined in different colors, bus stops will be marked, and buses will be shown (updated in real time with gps data)
2. There will be a way for the user to track the bus they are currently wishing to ride.
    2.1. This feature would show you the bus you want to ride on a map and notify you when it's about to arrive
3. There will also be sorting functions such as the closest arrival time.
    3.1. This will be based on the route that you choose and your current location.
4. We would also like to implement a rough estimation on how full the bus is going to be at certain periods of the day.
    4.1. By potentially using the information that is gathered by the bus drivers, we could gain an understanding on how many people get on the bus.
5. The user will also be able to create their own account so they can have a more personalized experience
    5.1. The user would be able to sign up using their email which helps save their favorite buses, bus routes, and destinations
6. We also want to implement an optional reminder system for arriving to a destination at a desired time
    6.1. Users can set a destination and what time they want to arrive by, and the website will calculate which bus they need to take and at what time

7. We could also implement a rating system on how well the routes for the bus system are, so that way administrators can get more up-to-date feedback.
    7.1. With new routes being implemented during construction, DCTA can get feedback from riders on how they feel about the current routes. We may even allow them to send messages to give a more indepth review of the routes.

For administrators:
There will be tools to allow them to monitor their buses and adapt to the changing nature of the city.

1. One such feature will be a way to change the route the bus takes.
    1.1. This will be useful whenever a road is shut down for construction and display the changes on the website.
2. Monitoring reviews of buses and routes
    2.1. This way administrators could see if there needs to be changes made to the routes or add more buses.

List of Potential Technologies used:
We will be writing the structure of the program with python using Django for the web framework to quickly build a functioning website. We will use javascript for the frontend user interface by using React. We will likely use some form of SQL database to hold necessary data. Our version control system will be with GitHub. PyPDF2 will be used if a PDF reading function is used to be able to put in more data about road closures.