Question 5

To build a Public Transport Mapper Web Application:

On the frontend I would use HTML as the base of the web pages and CSS with external libraries like Bootstrap and Materialize for styling. React a JavaScript Library would be used with JavaScript to create an intuitive user interface to improve the accessibility to users. React would allow the webpages to be updated quickly to reflect changes and make the user's experience better. These pages would also be responsive so that they are suitable for users accessing the application via mobile device.

These webpages would be dynamically served using a Flask application, the flask applications would be used for the bulkier operations like retrieving search results from the database and results from the external APIs integrated. It would also be used for CRUD (Create, Read, Update, Delete) operations on the webpages.

I would use a cloud hosted MongoDB database for persistence since it is a real-time database with high performance capabilities. A public transportation app is expected to be used by many users simultaneously and the database would have to be reliable and dependable. It would be used to store images uploaded, routes created by users and to securely stored user data generated data.

The Google Maps API and Directions API would be integrated and used along with React to create and display routes. It can also be used to search for directions and adapted to support public transport routes created. Google maps also has several additional services which can be used.

I would host the entire application including the database on Heroku preliminarily since it provides free hosting and can be used to maintain and continuously update the application while it is deployed. If more resources are made are available and a more permanent solution is needed, I would consider using Amazon Web Services for hosting.