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CS3216 Assignment 3

ShareTaxi

*“One ride, multiple stops.”*

Most of us do not take taxis alone - it is just too expensive when compared to other modes of transport. It is hence a common sight that when a person wants to take a taxi, they ask around for people who want to share one with them, to split the cost.

From our experience, this process is often unsatisfactory. It takes time and effort to determine the “best” order of stops to drop each person off, especially when the group’s knowledge of the relevant areas and roads are limited. The seemingly omnipotent Google Maps does little to help us in this regard, as it does not provide multiple-stops routing directions on mobile, and even on desktop pages does not optimise the route for the shortest distance. Ultimately, the group, unsure of how to better estimate the best route and often desperate to go home, will just settle on a route they think is “good enough”.

We felt that this process could be better. ShareTaxi was hence built with the desire to simplify the process of routing a shared taxi, and empower users regarding ride-sharing in general.

Our first priority was to make the workflow of computing a route as short as possible. A common situation for sharing a taxi is when going home after a late night out. In these situations we are likely to be tired and want to get home as soon as possible. The feature to plan a new route was designed to be one press away from the main view of the app, and the form that pops up only has 3 fields to fill. The form was designed to be explicitly straightforward and intuitive to fill in, with assistive autocomplete to speed up the process further. Upon submission of this form, the app immediately shows the optimised route on the map, with an information bar showing the estimated time, distance and minimum cost of the trip, for quick reference.

Of course, our app was not built just for late nights out. We considered as many use cases as possible, and framed them in a way that fit in with the user’s mental image. Our app takes in two fields for routing: “From” (start points) and “To” (end points). We wanted to allow users to share a cab from or to different places, and even both - using ShareTaxi, you could pick up and drop off a friend along the way, as if you were a driver giving a friend a lift. We used the placeholders for these fields to exemplify this functionality, for example telling the user “*choose a starting point for yourself*” and replacing it with “*choose a starting point for a friend (optional)*” when they had input at least one starting point.

This brings us to our next feature. When we allow people to start from different places, how do they decide on the stops for the taxi? One way is to contact the person directly, and discuss their respective start and end points there. This could be troublesome - there would need to be an exchange of addresses, and each user would have to check if the route made sense to them. To simplify this process, we built the share and browse features, which allow users to easily share their route information with their friends, find existing routes from their friends, and send requests to add their own stops to a friend’s route. This collaborative feature will also allow users to use a link to share their route via any platform they wish.

As a final feature, we designed our app for mobile first, following the design language and layouts that look pleasant on smaller screens and are familiar to users. As mentioned earlier, our app was initially built for speed of input and for people who are outside. Having our app on mobile allows for people to collaborate on the go, which would fit in with those who have busy lifestyles and may not be in front of a computer often.

Looking forward, our app has the potential to be useful beyond just taxis. With some minor changes, it can be used for car-pooling: we just need the driver to determine his start and end points, and others can add in their own stops in-between. We already have the interface for directions, and just have to improve it to verbally guide the driver to the multiple stops. Another use for multiple-stop routing is in the delivery business. Restaurant delivery services in particular usually need to serve to multiple locations, and then return to their base location. An extension of this is delivery as a service, where deliverymen go to an outlet to pick up an order and send it to the customer (e.g. FoodPanda). By nature, this type of delivery would be heavily reliant on routing for multiple stops to improve efficiency.

All in all, we believe ShareTaxi solves a problem we all face at some point in time, is designed for speed and on-the-go users, and has plenty of potential to develop further.

We hope you think so too!