**Design Patterns Required for the Navigation Module**

The navigation module is made up of many sub-systems. These include finding the location of the user and obtaining the users preferred destination; using the user’s information to plot a route based on all constraints and preferences that are provided by the user and lastly to save the route that was plotted onto the server so as to use it as a future reference if other users input the same info, it will be a common route.

To obtain the location of the user we will be making use of the Observer design pattern. This is used so as to always update the server of all user’s positions so that it can plot a route with less traffic for the user. After the user’s position is observed, it will be updated on all other devices and the server. We will combine the Observer pattern with the Command pattern. This will allow the user to input his destination as well as allowing the application to read it and update the server accordingly.

Afterwards

Lastly we will make use of the memento design pattern to save the route to the server, thereafter the prototype pattern will be implemented to clone the saved route to all connected devices as a commonly used route if the route is always being used.