

OpenStreetMap:

- OpenStreetMap provides free access to geographical data that is crowdsourced, can ensure that the map data is often more up-to-date and detailed
 - Plethora of key details such as: Motorway, track, footways, lakes, and different form of terrain such as Farmland, grass, bare rock - OSM is extremely detailed in terms of what is expected when traveling through certain areas
 - Has libraries and tools that can parse OpenStreetMap data and extract indoor information:
 - OSM2Indoor: OSM2Indoor is a Python library developed for extracting indoor mapping information from OpenStreetMap data. It allows developers to parse OSM files and extract indoor features such as rooms, hallways, and dead ends.
 - IMDF (Indoor Mapping Data Format) Tools: IMDF is a standardized format for indoor mapping data, supported by Apple. There are various tools and libraries available for working with IMDF data, including conversion tools to import OSM data and generate IMDF files suitable for indoor traversal.
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- As it is open source, quality and consistency is not guaranteed and depending on the region, may have little to no data
 - Can be difficult to parse and use the data:
 - OpenStreetMap data is stored in XML or PBF (Protocolbuffer Binary Format) files, which can be large and complex, especially for large geographic areas.
 - OpenStreetMap data is parsed, it needs to be managed and stored in a format suitable for the application's needs. This may involve importing the data into a database
 - This may need a special data structure so we can access user inputs efficiently without looking through each floor, each room, etc...
 - Learning curve and familiarizing ourselves with data models and how to manipulate the models and libraries so it can work for us
 - Indoor mapping is not guaranteed, it would have be researched more extensively

Google Maps Platform

- provides a wide range of APIs and software development kits such as geocoding, directions, distance matrix calculations, and real-time traffic data. Any of these 3 can potentially be used to help with potential implementation if we do decide on giving users an estimated time of arrival alongside their directions.
 - Google Indoor Maps provides detailed floor plans, indoor navigation, and points of interest information for select venues such as airports, malls, and universities.
 - We can forcefully add indoor flooring to Google Maps:
<https://www.youtube.com/watch?v=XNvFjX9t-Zk&t=24s>
 - https://support.google.com/maps/answer/2803784?hl=en&visit_id=638433855982378645-278692534&rd=1
 - We would have to ask for the floor plan of every floor to get this to work
 - Using the Directions API to calculate indoor routes and provide turn-to-turn directions, we can implement routing indoors
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- Access is limited and possibly behind a paywall behind the free limits of what we can use
 - . Customization options may be limited to the features and functionalities provided by Google's APIs and SDKs. Unlike OpenStreetMap which allows for more flexibility
 - Being completely dependent on Google would potentially raise issues about privacy as uploading floor plans to a building can warrant potential trouble from UB

MapBox

- Mapbox provides extensive customization options, allowing developers to create highly customized and visually appealing maps tailored to their specific needs
 - <https://www.youtube.com/watch?v=CPHN7-6f5jA>
 - Has open source APIs and SDKs for integrating mapping and location services into applications. These tools provide developers with flexibility and control over how they use and interact with map data. With flexibility to create our own map, can be valuable
 - Visually easy to do with standalone tutorial for using Mapbox
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- Behind a paywall - 100 monthly users is Free and past that, we must pay
 - <https://www.mapbox.com/pricing>
 - Indoor floor plan and adding floor plans is exclusive to only Japan at the moment, floor plans would have to be done manually
 - Being dependent to MapBox would mean we are not in control of our service if we manage to exceed limits set by MapBox or if they change their policies throughout the project

The worst option out of the 3