

# Intermediate Report for Geographically

UNSW Sydney 2019T1 SENG2021 - TeamA

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# Software Architecture

When considering the functionality of Geographically and what it needs to accomplish, selecting the API's wasn't too much of a challenge. In order to have a bare-minimum functioning application, we need to utilise some sort of map application, opting with Google Maps due to its extensive functionality. We also require an API to provide information about certain landmarks, opting with Wikipedia. Weather is also an important factor in trip planning, and through some researched we decided on WillyWeather API. The playback system is more of an accessory to the web app, and Spotify would be the best for that.

However, choosing the stack for the project was a lot more complicated than picking out the API. The group discussed the pros and cons of several web frameworks, initially opting for a MEAN stack frame utilising Angular.js. However, after considering several constraints such as time as well as the requirement of learning a new language, we settled on using Flask with HTML/CSS so that everybody can get started with writing code immediately. This is also the logic behind using Python as the core programming language.

## Software components

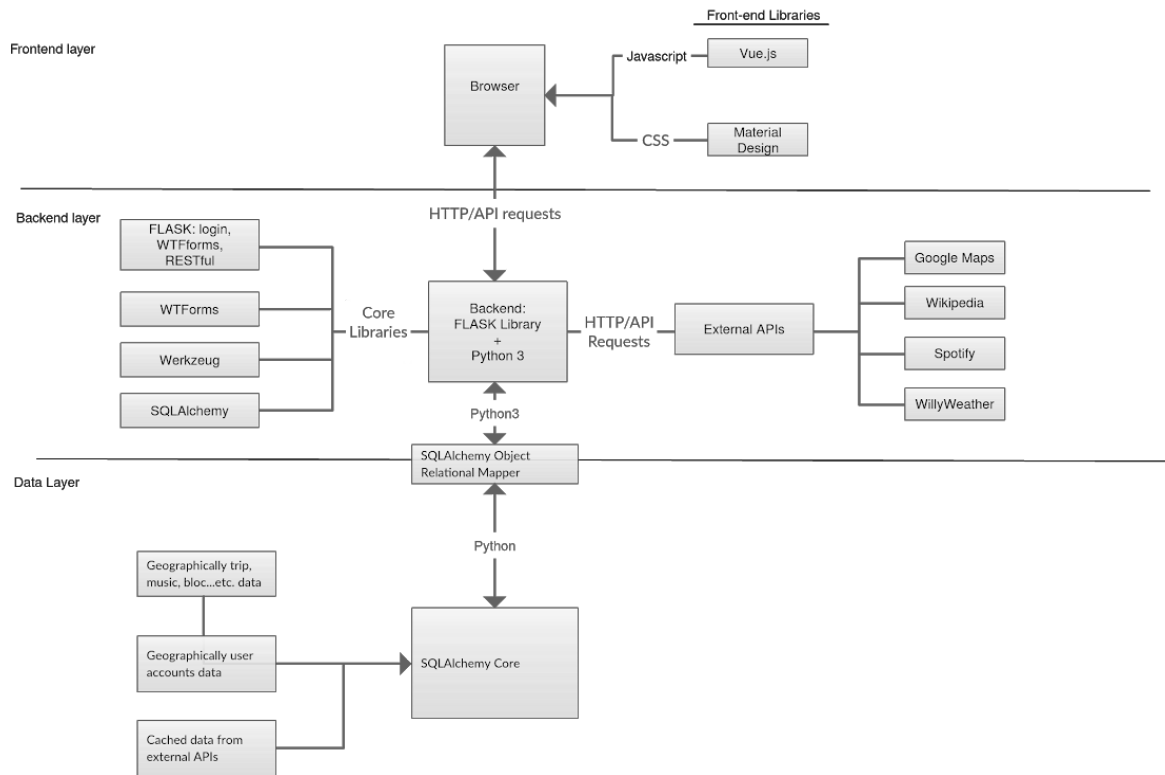
Frontend	Backend
<ul style="list-style-type: none"><li>• Vue.js</li><li>• Material design</li></ul>	<ul style="list-style-type: none"><li>• Python 3</li><li>• Flask + Flask RESTful</li><li>• Database:<ul style="list-style-type: none"><li>◦ SQLAlchemy</li></ul></li></ul>

## Machine Requirements

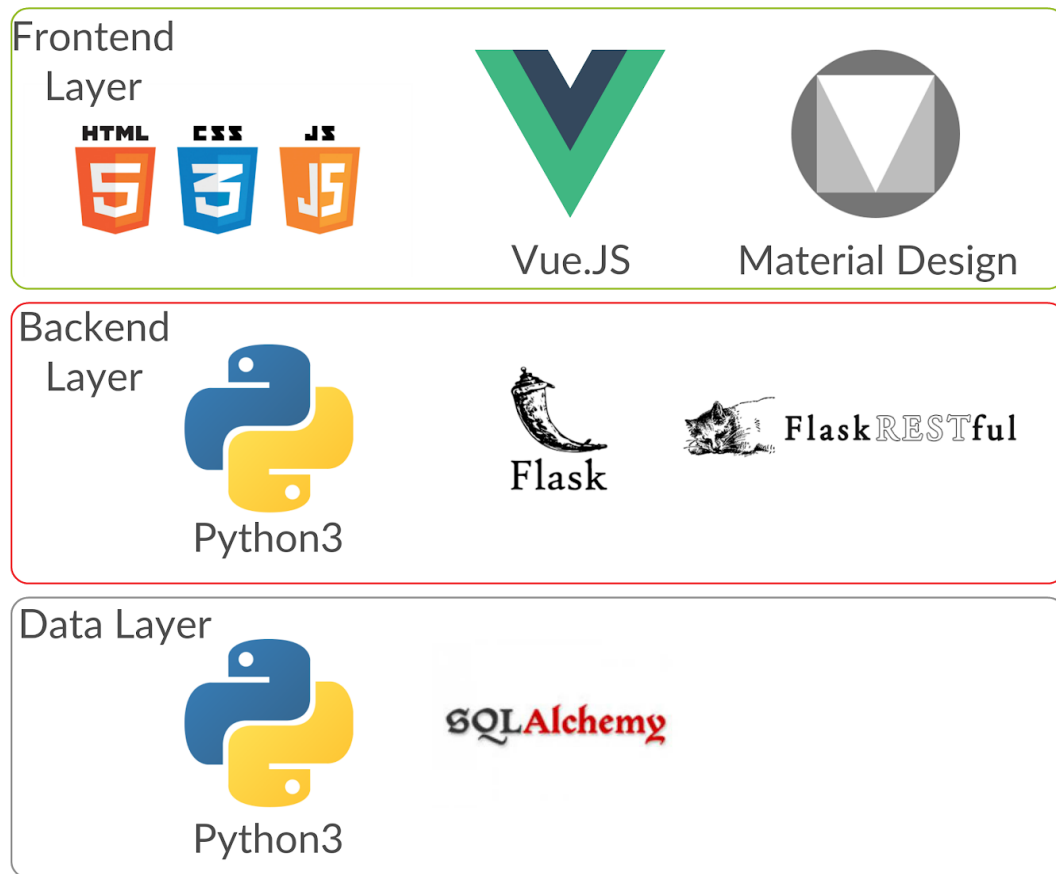
- Linux
  - Ubuntu 18.04
  - Ubuntu Server 18.04
- Windows 10

# Technology Diagrams

## Web flow diagram



## Technology stack diagram



## External data sources:

As our web application is multi-purpose, we require access to several APIs, with them accomplishing one purpose.

### Google Maps API

This is the core of the application, and we will likely utilise multiple of the Google Maps APIs, such as Embedded and Places. Google Maps Embedded will allow us to embed the Google Maps interface into our app, which is crucial in order to view destinations on a scale, and also to demonstrate the route a user would take. This would be combined with Google Places in order to retrieve information and ratings for a location - and this can be linked with the Wikipedia API. Google Maps is the most well-known maps application, with good reason as well. The amount of utility (detailed above) that it provides is unrivalled from other Maps applications, and implementing the API would greatly enhance the quality of the web app. The documentation is also clean and simple, being written in digestible segments for each API function.

## Wikipedia API

This will be used to retrieve thorough information about certain landmarks particularly in relation to the history of a location. Wikipedia is considered the largest easily accessible database of information on the web, so utilising it's API to retrieve information about travel destinations would be a good idea. Furthermore, the Wikipedia API has good documentation detailing easy to follow endpoints, as well as guides on how to handle inputs/outputs and errors.

## Spotify API

Primary objective is to get Spotify Playback and access to playlists on the application, but also possibly utilise the Spotify API to generate playlists based on the trip. Upon looking into several music player APIs, Spotify looked to be the most viable for several reasons. The lengthy and descriptive documentation is easy to understand, and details several API for each Spotify function. The endpoints are described clearly and thus will be easier to implement. However the main advantage that Spotify has is the endpoints that allow us to retrieve user information and statistics - this will be handy in allowing us to generate a recommended playlist.

## WillyWeather API

Utilising a weather API is also crucial for the web app because it will greatly assist the user in choosing the right time to visit certain locations. Upon research into the Bureau of Meteorology data services, we found that they currently provide long term forecasts and information through FTP however their real time data services require a paid subscription. Subsequently, we found an api which sources its data from the Bureau of Meteorology. WillyWeather satisfies this criteria thus provides detailed information about the weather forecast of certain locations in Australia down to the hour in an easy to use api. This is also essential for the generation of road trip playlists as we need to select songs based on the weather at a certain location at a certain time.

## Frontend

### Vue.js

We have chosen to use vue.js as it a progressive JS framework that creates the user interface for our web application. It has the advantage of being easy to learn (need to be familiar with HTML and JS), which is very beneficial on a tight schedule). It is also very flexible, allowing for the option to write templates in either HTML or JS, and is able to be integrated simply with the rest of the app as it is built on JS.

## Material Design

Material Design provides the opportunity for much cleaner design on the user interface, allowing for animation and transitions and layered interfaces.

## Backend

Group members are more comfortable with using Python and Flask for backend, as they have been used before for previous courses. This will allow us to cut time required to learn new languages. It allows for interaction with RESTful APIs, which is necessary for the web app, and it is easy to integrate the database of choice (in this case either MongoDB or SQLite).

## MongoDB

MongoDB is a noSQL database that can handle schemaless data models, which is ideal as during development models will most likely undergo changes to their structure.

## SQLAlchemy

SQLAlchemy is a toolkit that allows us to interact with SQL databases, and is especially useful in allowing back-end written in Python.

## SQLite

SQLite is much simpler as it writes directly to ordinary disk files, but is much less flexible than MongoDB.

## User Stories

*Priorities in MOSCOW notation*

*User-story point = 2 hours*

**Feature:** View history and information of a location ✓

**As a user**

**So that** I can learn more about a tourist location I want to visit

**I want to** check the history of the location

**Scenario: View history and information of a location**

**Given** I am on 'Map Mode'

**When** I click on the location

**Then** I can view the history of the location

**Priority:** Must

**Time estimate:** 3 story points

**Feature:** Plan a trip ✓

**As a user**

**So that** I can pay a visit to a location

**I want to** find a route to get to the location

**Scenario: Plan a trip by searching location in the search bar**

**Given** I have chosen a particular location on the 'Plan' page

**When** I have type in the chosen locations I want to go to

**Then** I am given the shortest route to get to the location on a map

**Scenario: Plan a trip by being given a recommendation**

**Given** I have chosen a particular location on the 'Plan' page

**When** I have clicked on 'Add a stop' then click on a location recommended

**Then** I am given the shortest route to get to the location on a map

**Priority:** Must

**Time estimate:** 3 story points

**Feature:** Get recommended tourist attractions ✓

**As a user**

**So that** I can easily pick a tourist attraction I would like to go to

**I want to** be able to find tourist attractions I can go to

**Scenario: Receive recommendations via 'Add a stop'**

**Given** I am currently on the 'Plan Page'

**When** I click 'Add a stop'

**Then** I am able to see tourist attractions and their ratings

**Scenario: Receive recommendations on 'Home'**

**Given** I click on the Geographically logo where 'Home' is labelled

**When** I am on the 'home' page

**Then** I am able to see recommendation of tourist attractions under the 'Discover' section or the 'Plan a trip' section along with how it would take to get to that location from home

**Scenario: Receive recommendations under 'Go on a road trip'**

**Given** I have not picked a location yet on the 'Plan' page

**When** I look under the 'Go on a road trip' section

**Then** I am able to see a recommendation for a tourist attraction and a description about it from Wikipedia.

**Priority:** Could

**Time estimate:** 1 story point

**Feature:** Check weather of chosen location ✓

**As a user**

**So that** I can decide when to go to a certain location

**I want to** check the weather of a location on various days

**Scenario: Check weather of chosen location**

**Given** I am on 'Map Mode'

**When** I have clicked a location then clicked on the weather

**Then** I can view the weather for the location at any time

**Priority:** Must

**Time estimate:** 1 story point



**Feature:** Find nearby restaurants ✓

**As a user**

**So that** I can find something to eat nearby the chosen attraction

**I want to** be able to find nearby restaurants

**Scenario: Find nearby restaurants**

**Given** that I am on the 'Plan' page

**When** I click 'Add stops'

**Then** I click on 'Advanced Search'

**And** I click on 'Restaurants'

**Then** I can see the top-rated and nearby restaurants to the attraction

**Priority:** Must

**Time estimate:** 1 story point

**Feature:** Find nearby hotels/campsites ✓

**As a user**

**So that** I can have somewhere to sleep if I take a trip over multiple days

**I want to** be able to find nearby hotels and campsites

**Scenario: Find nearby hotels/campsites**

**Given** I am currently on the 'Plan Page'

**When** I click 'Add stops'

**Then** I click 'Advanced Search'

**And** I click on 'Accommodation'

**Then** I am able to see nearby hotels and campsites and their ratings

**Priority:** Must

**Time estimate:** 1 story point

**Feature:** Save a trip ✓

**As a user**

**So that** I can possibly revisit the details of the trip plan

**I want to** be able to save the details of a trip I have planned

**Scenario: Save a trip**

**Given** that I am on the 'Plan' page

**When** I click on save trip

**Then** I am able to save various details of a trip I have taken, including the route, location weather and playlist

**Priority:** Should

**Time estimate:** 1 story point

**Feature:** View a saved trip plan ✓

**As a user**

**So that** I can read my trip plan and/or make changes to the plan if needed

**I want to** be able to view the details of a trip I have planned

**Scenario: View a saved trip plan**

**Given** that I am on the 'My Profile' page

**When** I click on the 'view trip details' button

**Then** I am able to see the various details of a trip I have taken, including the route, location weather

and playlist on the 'Plan' page

**Priority:** Should

**Time estimate:** 2 story points

**Feature:** Review and share a trip (Make a blog post) ✓

**As a user**

**So that** I can let other users know whether or not the trip was enjoyable

**I want to** be able to share the details of my trip with other users

**Scenario: Make a quick blog post**

**Given** I am on my profile page

**When** I click on 'Share your trip'

**Then** I am able to write up a blog post about my saved trip

**When** I have finished writing my review and click 'Share trip', I can share the post with other users on my blog

**Scenario: Make a long blog post**

**Given** I am on my 'Your Blog'

**When** I have written a blog post under 'Make a new post'

**And** I click 'save and post'

**Then** I can share the post with other users on my blog

**Priority:** Must

**Time estimate:** 2 story points

**Feature:** Delete a blog post ✓

**As a user**

**So that** the blog post is no longer shared with other users online

**I want to** be able to delete a blog post

**Scenario: Delete a blog post from the profile page**

**Given** I am on my profile page

**When** I click on trash can icon

**Then** I can delete a chosen blog post

**Scenario: Delete a blog post from the 'Your Blog' page**

**Given** I am on my 'Your Blog'

**When** I click on the trash can icon

**Then** I can delete the chosen blog post

**Priority:** Should

**Time estimate:** 1 story point

**Feature:** Edit a blog post ✓

**As a user**

**So that** I can make amendments to what the blog post will share with other users online

**I want to** be able to edit a blog post

**Scenario: Edit a blog post from the 'Your Blog' page**

**Given** I am on my 'Your Blog'

**When** I click on the pencil icon

**Then** I can edit the chosen blog post

**Priority:** Should  
**Time estimate:** 1 story point

**Feature:** View my blog post ✓

**As a user**  
**So that** I can read what I published on my blog post.  
**I want to** be able to view my blog post

**Scenario: View a blog post from the 'Your Blog' page**

**Given** I am on my 'Your Blog' page

**When** I click on the 'view blog post' button of a particular blog post I have published

**Then** I can view the chosen blog post

**Scenario: View a blog post from the 'My Profile' page**

**Given** I am on my 'My Profile' page

**When** I click on the 'view blog post' button of a particular blog post I have published

**Then** I can view the chosen blog post

**Priority:** Must  
**Time estimate:** 1 story point

**Feature:** Rate a location ✓

**As a user**  
**So that** I can let other users know the quality of those attractions/restaurants  
**I want to** be able to rate the attractions and restaurants from on my travel plan

**Scenario: Rate a location**

**Given** I am on my profile page

**When** I click on 'Share your trip'

**Then** I am able to add a 5 star rating to the chosen location

**Priority:** Could  
**Time estimate:** 2 story points

**Feature:** Check the popularity/crowdedness of an attraction (in real time) ✓

**As a user**  
**So that** I can plan my trips at more optimal times  
**I want to** be able to check the popularity/crowdedness of an attraction at my current time

**Scenario: Check the popularity/crowdedness of an attraction**

**Given** I am currently on 'Map Mode'

**When** I click on a location

**Then** I am able to view the trends of a place's popularity in real time.

**Priority:** Could  
**Time estimate:** 1 story point

**Feature:** Automatically generate road-trip playlist ✓

**As a user**  
**So that** I can get in the mood to enjoy the location by listening to the playlist  
**I want to** be able to generate a recommended playlist based on the attraction

**Scenario: Make a playlist**

**Given** I am the 'Plan' page  
**When** I click under 'My Trip Playlist' where the music icon is found  
**Then** I am linked to a page where I can link a playlist for that trip  
**When** I click on "Generate a Geographically planned playlist"  
**Then** I should see a playlist generated automatically for my trip

**Priority:** Must  
**Time estimate:** 2 story points

**Feature:** Remove a road-trip playlist from my trip plan ✓

**As a user**  
**So that** I don't listen to a playlist of music while on my trip  
**I want to** be able to remove a playlist from my trip plan

**Scenario: Remove a playlist**

**Given** I am the 'Plan' page  
**When** I click under 'My Trip Playlist' where the music icon is found  
**Then** I am linked to a page where I can remove a playlist for that trip  
**When** I click on the 'Remove playlist' button  
**Then** the playlist is removed from my trip plan

**Priority:** Should  
**Time estimate:** 1 story point

**Feature:** Login ✓

**As a user**  
**So that** I can access the features of the website, such as my saved trips and trip playlist  
**I want to** be able to login to my account

**Scenario: Login via the 'Sign up/Login' Link**

**Given** I am on the Home Page  
**When** I click on 'Sign up / Login' at the header  
**Then** I click on the 'Login' hyperlink from the 'Sign up' pop up  
**And** I filled in my login details in the give white spaces (email and password) and I click on 'Login'  
**Then** I am able to login to my account and access the features of the website

**Scenario: Login via the 'Try Geographically today' button**

**Given** I am on the Home Page  
**When** I click on 'Try Geographically today' button  
**Then** I click on the 'Login' hyperlink from the 'Sign up' pop up  
**And** I filled in my login details in the give white spaces (email and password) and I click on 'Login'  
**Then** I am able to login to my account and access the features of the website

**Priority:** Must  
**Time estimate:** 1 story point

**Feature:** Log out ✓

**As a user**  
**So that** I can leave my website  
**I want to** be able to log out of my account

**Scenario: Log out**

**Given** I am logged in on any page (except for the Home Page where the 'Try Geographically today' button is found)

**When** I click the door icon where 'logout' is read on my toolbar  
**Then** I am able to log out of my account

**Priority:** Must

**Time estimate:** 1 story point

**Feature:** Sign up ✓

**As a user**

**So that** I can login and access the features of the website, such as my saved trips and trip playlist

**I want to** be able to sign up for a new account

**Scenario: Sign up via the 'Sign up/Login' Link**

**Given** I am on the Home Page

**When** I click on 'Sign up / Login' at the header

**Then** I fill in my detail in the given white spaces

**And** I click the 'Sign up' button

**Then** I am able to create an account and be read as logged in such that I am able to access features of the website

**Priority:** Must

**Time estimate:** 2 story points

**Feature:** Change personal details in 'My Profile' page ✓

**As a user**

**So that** I can change my author name for my blog and/or home location which is used when I plan for my trips

**I want to** be able to change my name and/or home location

**Scenario: Change personal details in 'My Profile' page**

**Given** I am on 'My Profile' Page

**When** I click on the pencil icon near the heading 'My Profile'

**Then** I edit my name and/or my location in the given white spaces

**And** I click the save button

**Then** I have changed my personal details on my account

**Priority:** Should

**Time estimate:** 1 story point

2. Then include one sequence or interaction diagram for each use case. For those who are unsure about what sequence diagrams are, see lecture slides. You can use UML sequence diagram

Log out sequence diagram:

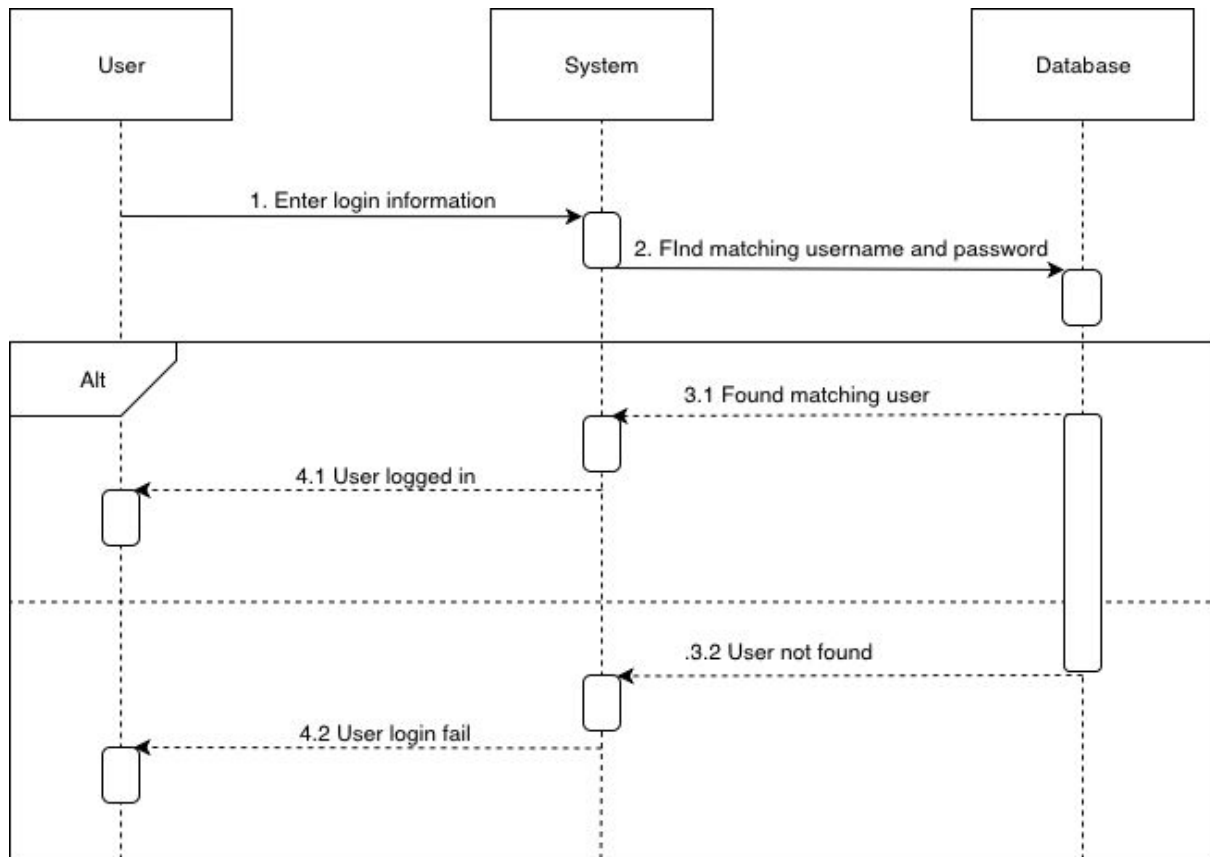
<https://www.dropbox.com/s/d8ezs1qggsaroa6=/Logout.drawio?dl=0>

Sign up sequence diagram:

<https://www.dropbox.com/s/eb5h02vvpak6mnq/Signup.-drawio?dl=0>

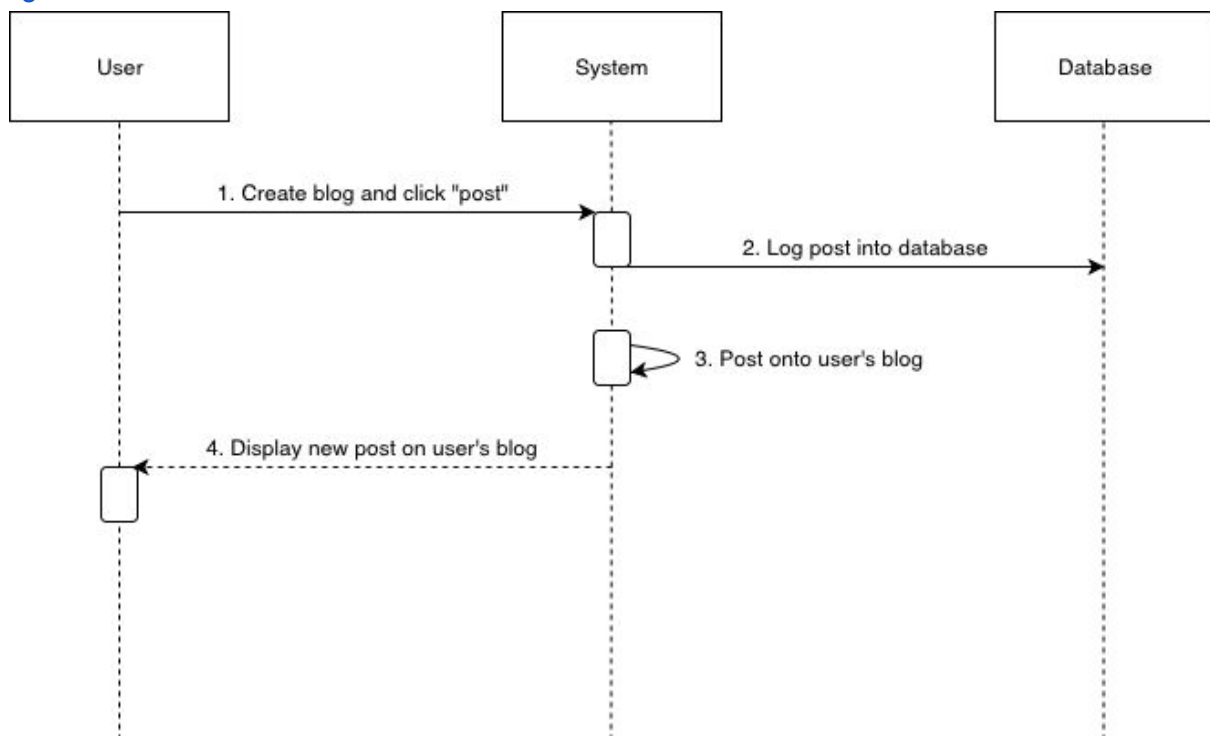
Login sequence diagram:

<https://drive.google.com/file/d/18t0NX1e-wQLXM3g9rCjHVeQhjE6Gy1a-/view?usp=sharing>



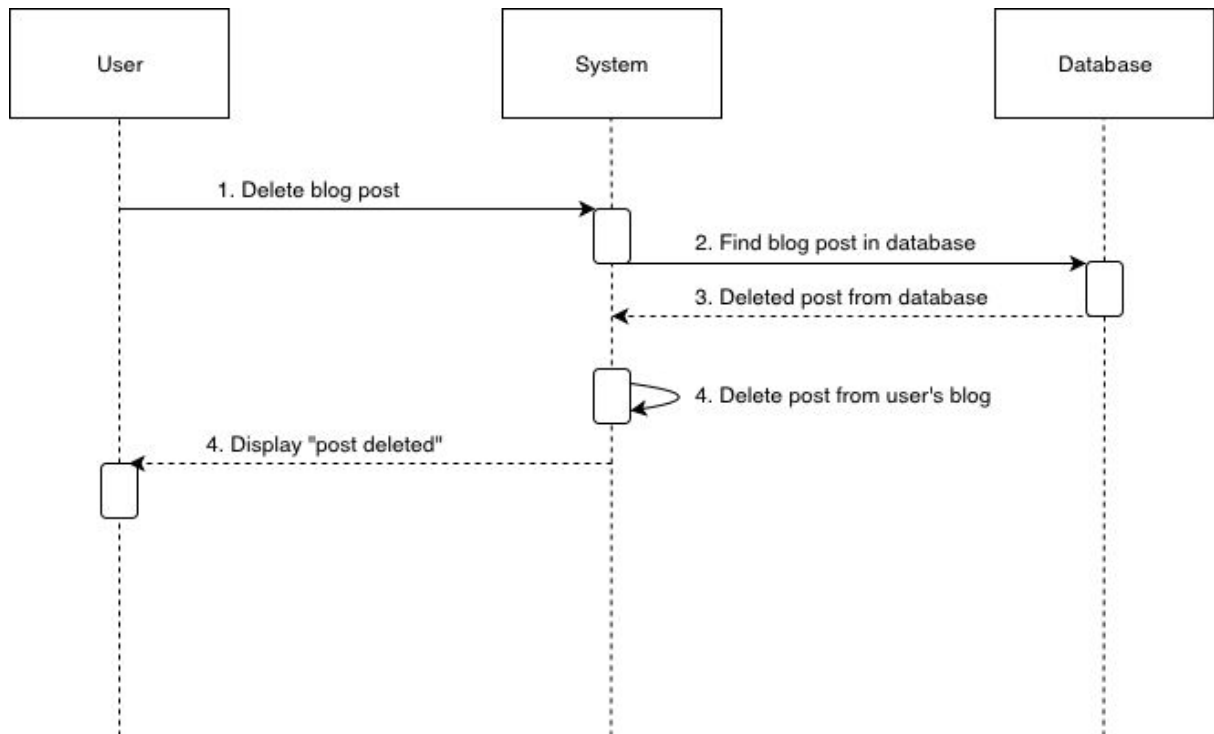
Create blog sequence diagram:

[https://drive.google.com/file/d/1CZC1\\_mVuz5V2wJl48KSHSXgDgG-WZyqs/view?usp=sharing](https://drive.google.com/file/d/1CZC1_mVuz5V2wJl48KSHSXgDgG-WZyqs/view?usp=sharing)



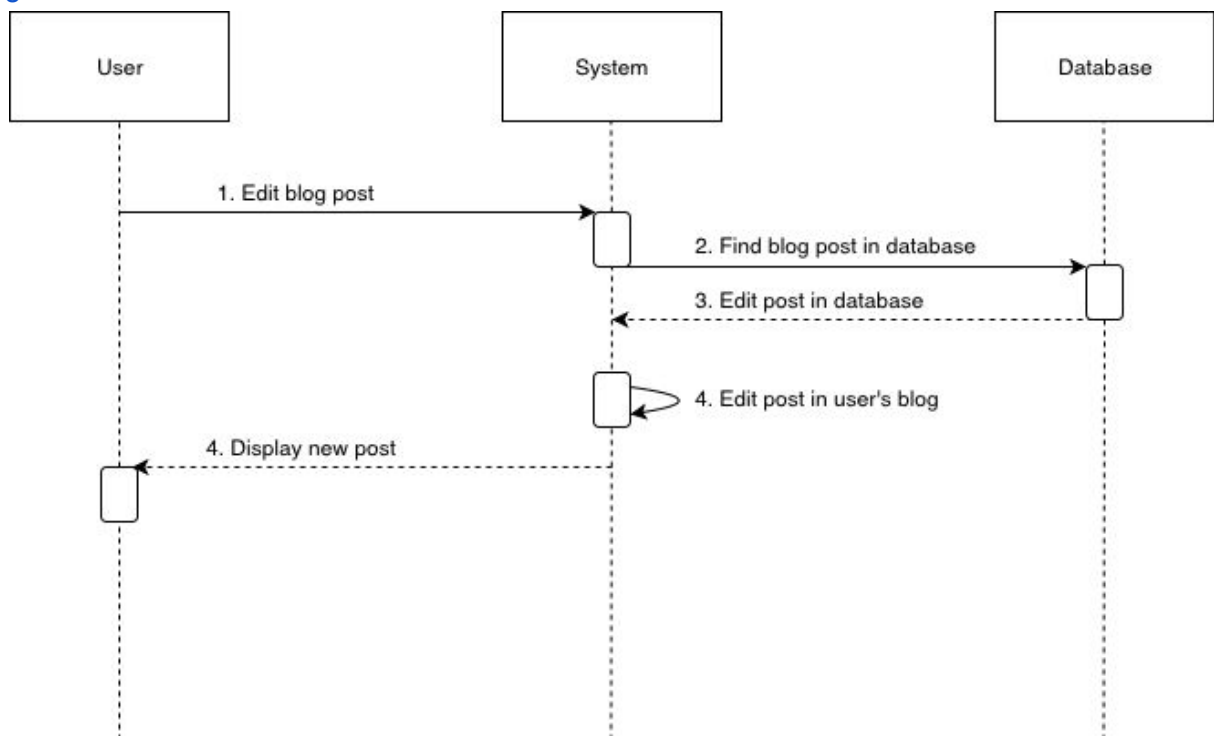
Delete blog sequence diagram:

[https://drive.google.com/file/d/1pJ\\_PY8IP4hJEulMWuLpKPnOeY270cFlo/view?usp=sharing](https://drive.google.com/file/d/1pJ_PY8IP4hJEulMWuLpKPnOeY270cFlo/view?usp=sharing)



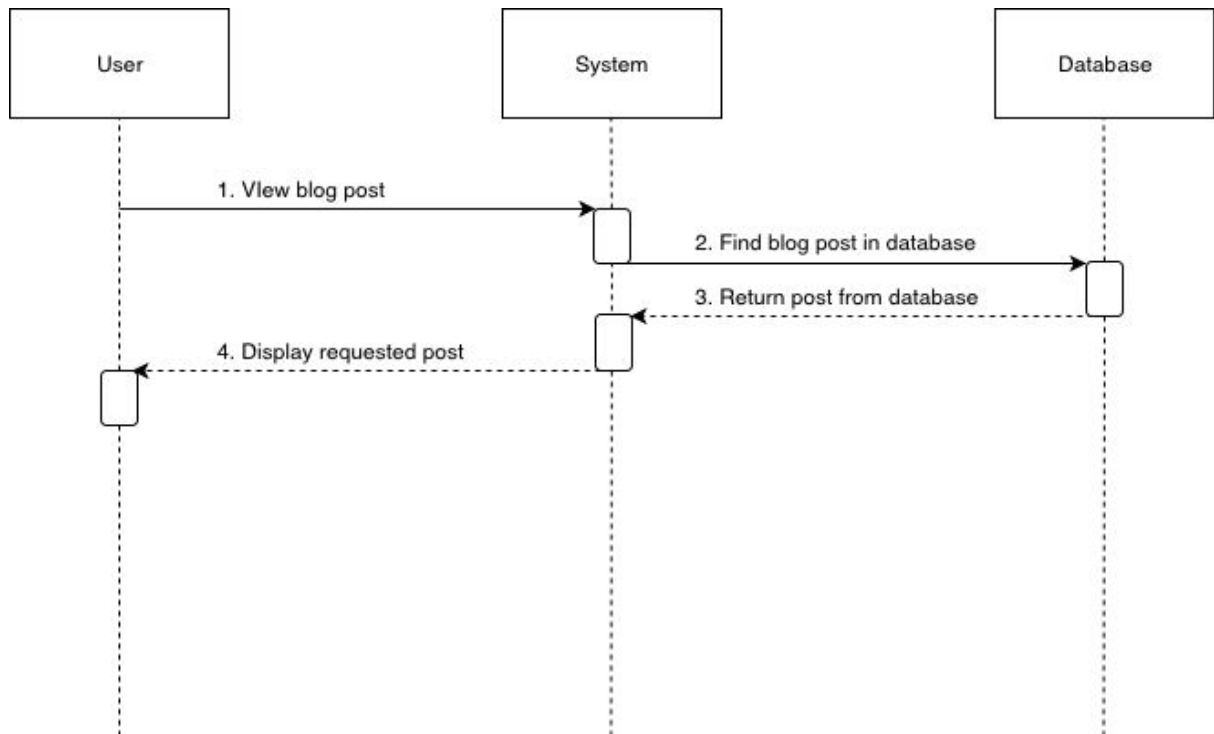
Edit blog sequence diagram:

[https://drive.google.com/file/d/1A9IHs9WeXGxWZNpBVKJkgagKF\\_wfj7g4/view?usp=sharing](https://drive.google.com/file/d/1A9IHs9WeXGxWZNpBVKJkgagKF_wfj7g4/view?usp=sharing)



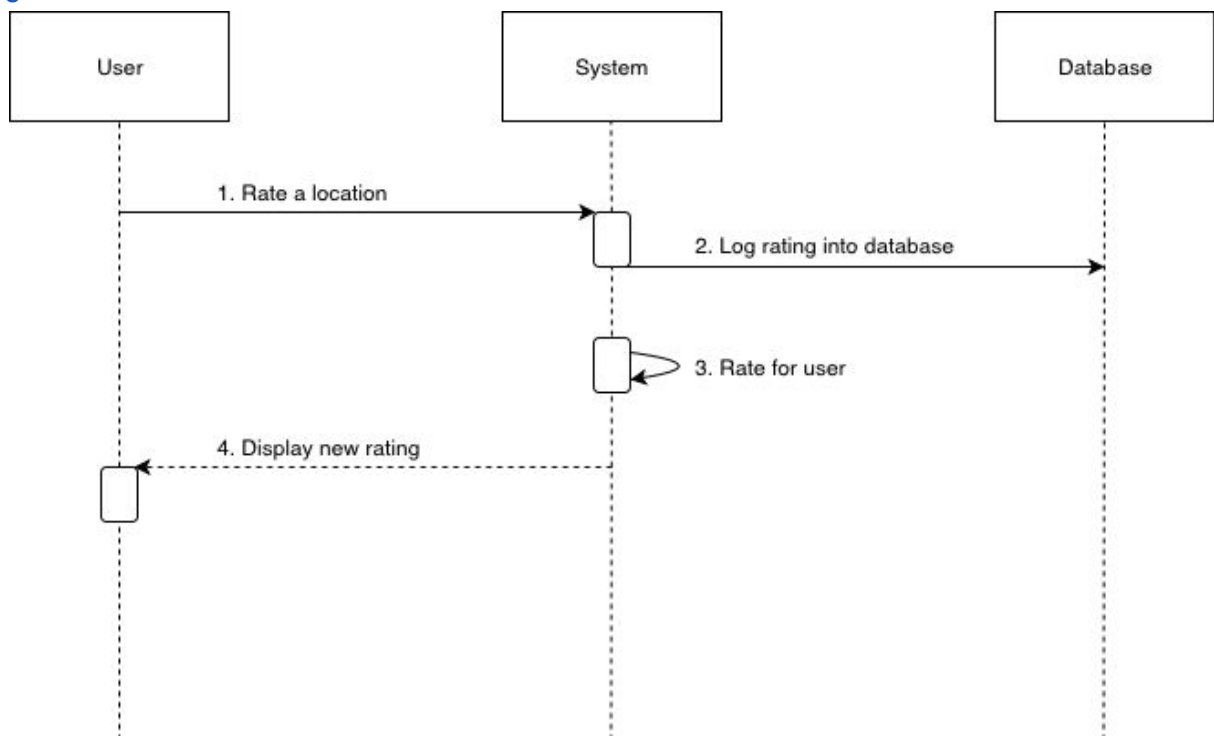
View blog sequence diagram:

[https://drive.google.com/file/d/1obN0ZC21SitdTLREDIFPJqJ\\_7RlpcydT/view?usp=sharing](https://drive.google.com/file/d/1obN0ZC21SitdTLREDIFPJqJ_7RlpcydT/view?usp=sharing)



Rate a location sequence diagram:

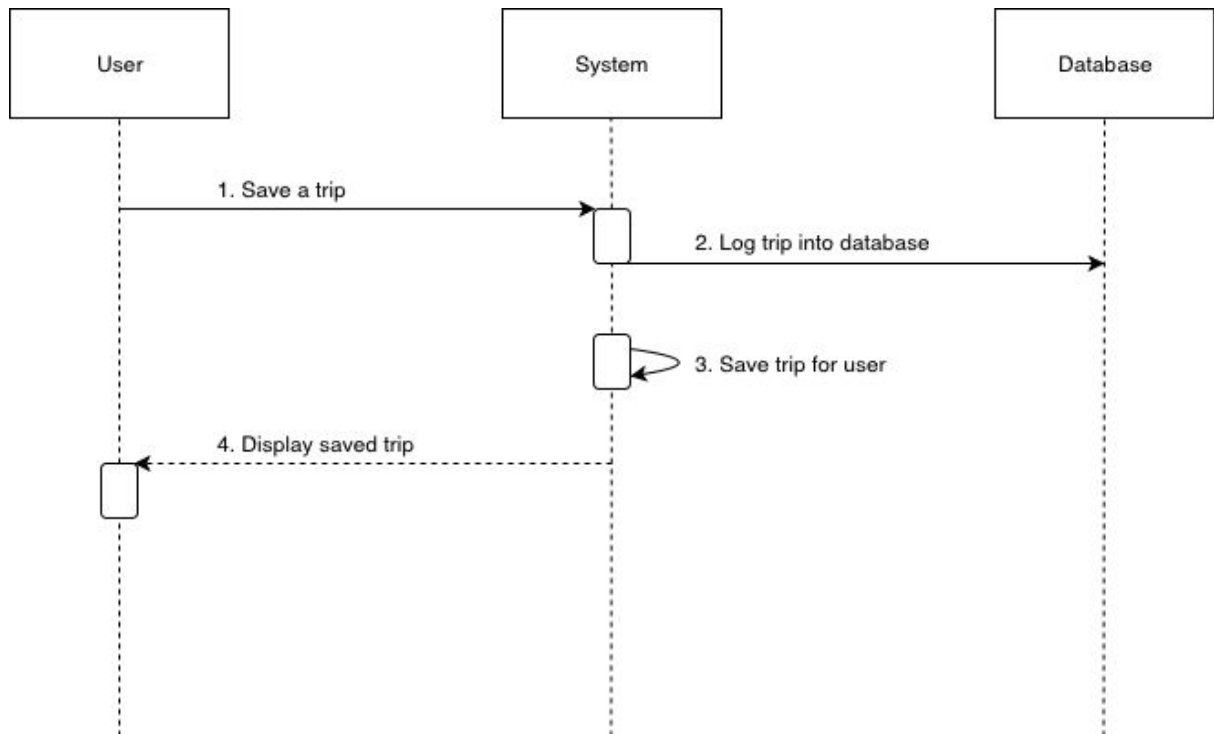
[https://drive.google.com/file/d/1g39oZ2OYRX-r1pcnnSTJDNQvKMgoY\\_H3/view?usp=sharing](https://drive.google.com/file/d/1g39oZ2OYRX-r1pcnnSTJDNQvKMgoY_H3/view?usp=sharing)



Save a trip sequence diagram:

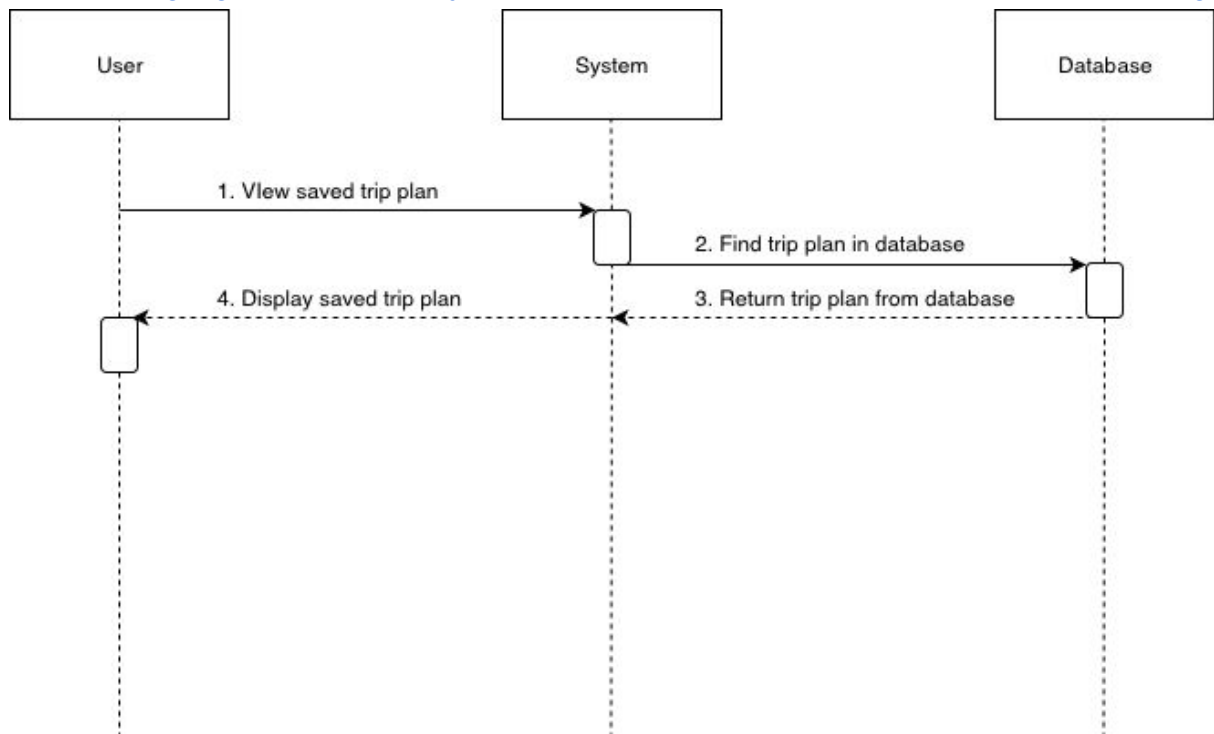
[https://drive.google.com/file/d/19lCibJtxXut7eGaxXuz3Th\\_wpzQsHqaL/view?usp=sharing](https://drive.google.com/file/d/19lCibJtxXut7eGaxXuz3Th_wpzQsHqaL/view?usp=sharing)





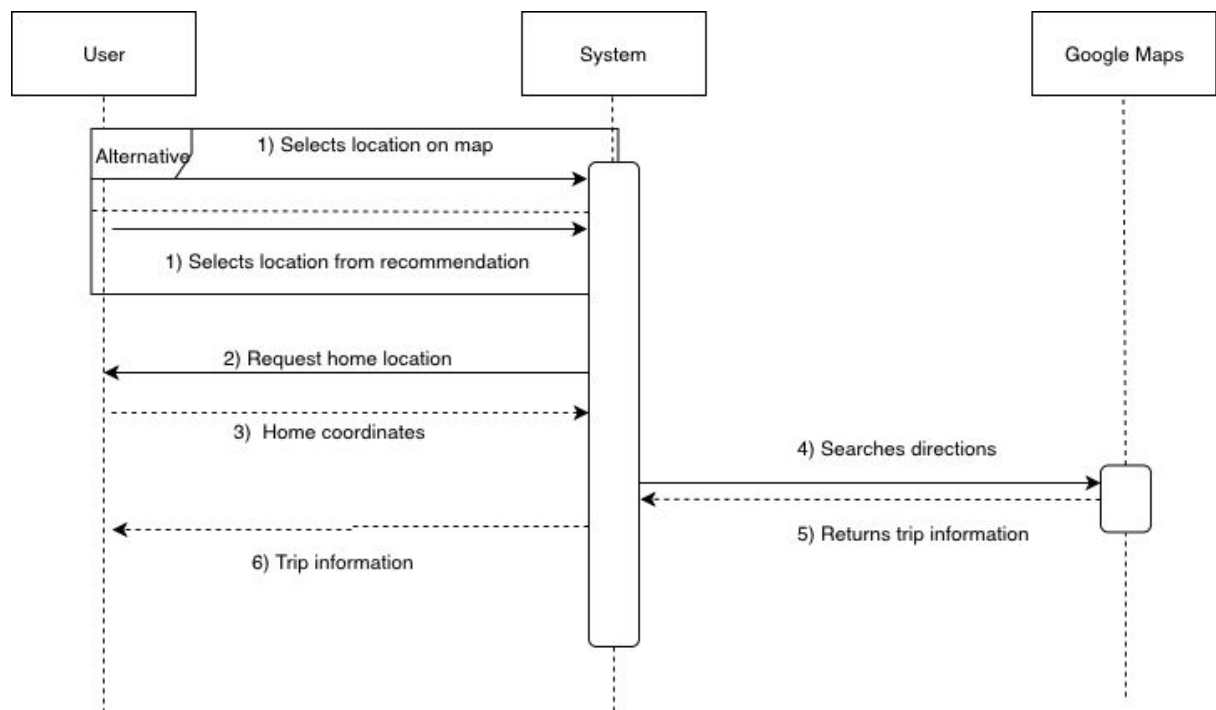
View saved trip plan sequence diagram:

<https://drive.google.com/file/d/1XDjQ71R9U7J1VZ31GPStNuMVMhuAi84I/view?usp=sharing>



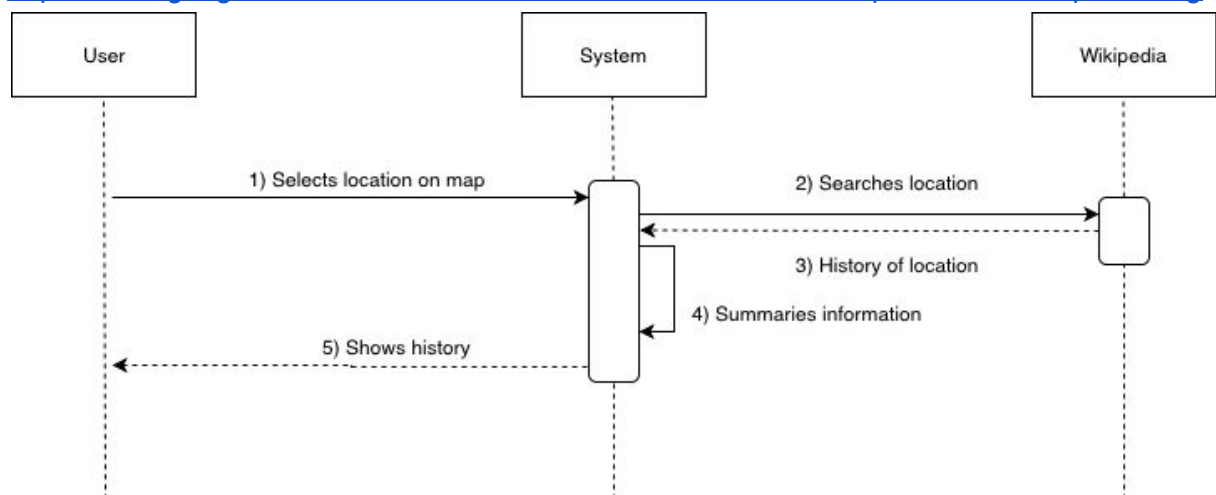
Plan a trip sequence diagram

[https://drive.google.com/file/d/1YxwOnCy8B46CRvu\\_o0MzMNSZuQ0PdN91/view?usp=sharing](https://drive.google.com/file/d/1YxwOnCy8B46CRvu_o0MzMNSZuQ0PdN91/view?usp=sharing)



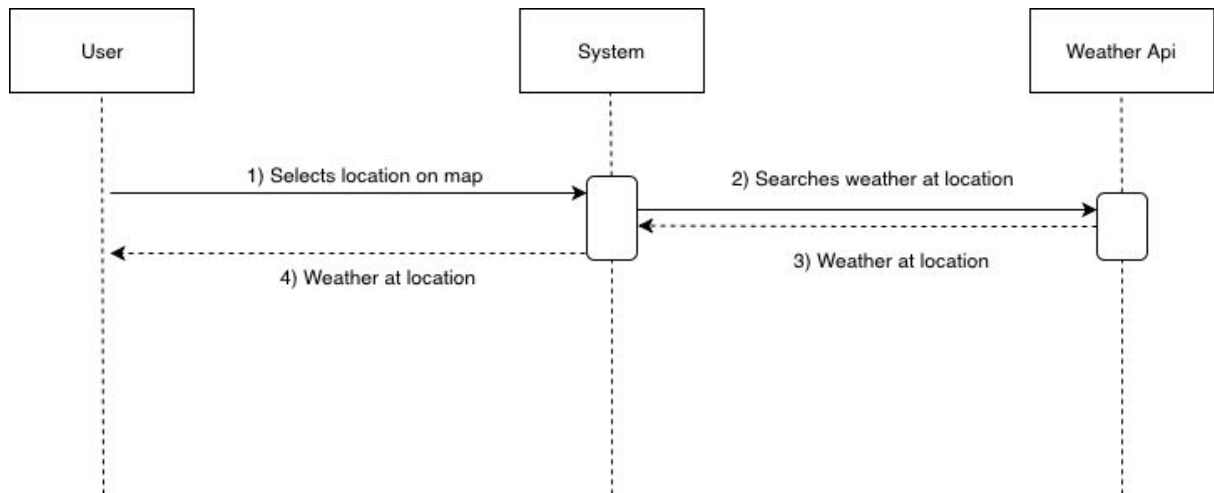
Show history sequence diagram

<https://drive.google.com/file/d/1IEzMX73HLbdGoL67u1oFSJcc7uVpmU9I/view?usp=sharing>



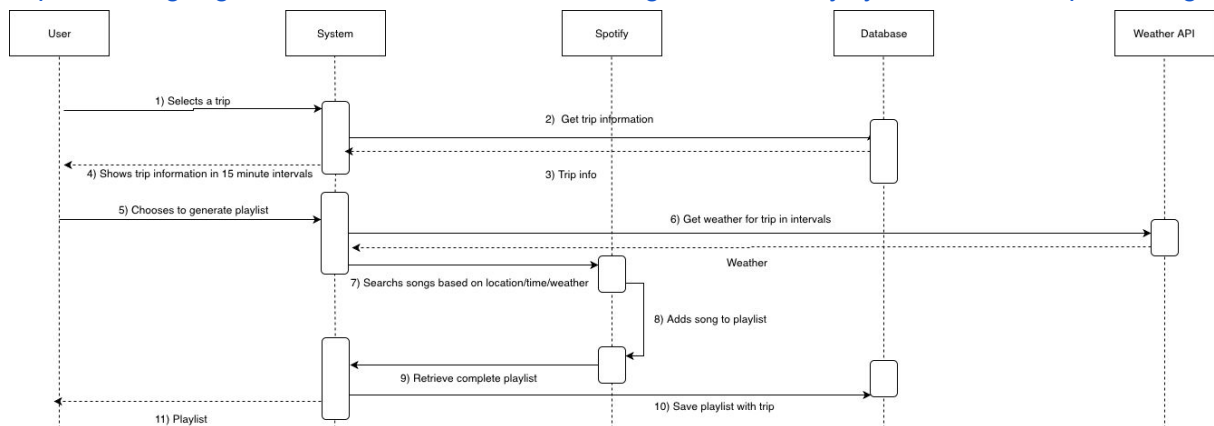
Show weather sequence diagram

[https://drive.google.com/file/d/15WdaQs4zd28\\_n6PLwbCAaHFU5nzDisIz/view?usp=sharing](https://drive.google.com/file/d/15WdaQs4zd28_n6PLwbCAaHFU5nzDisIz/view?usp=sharing)



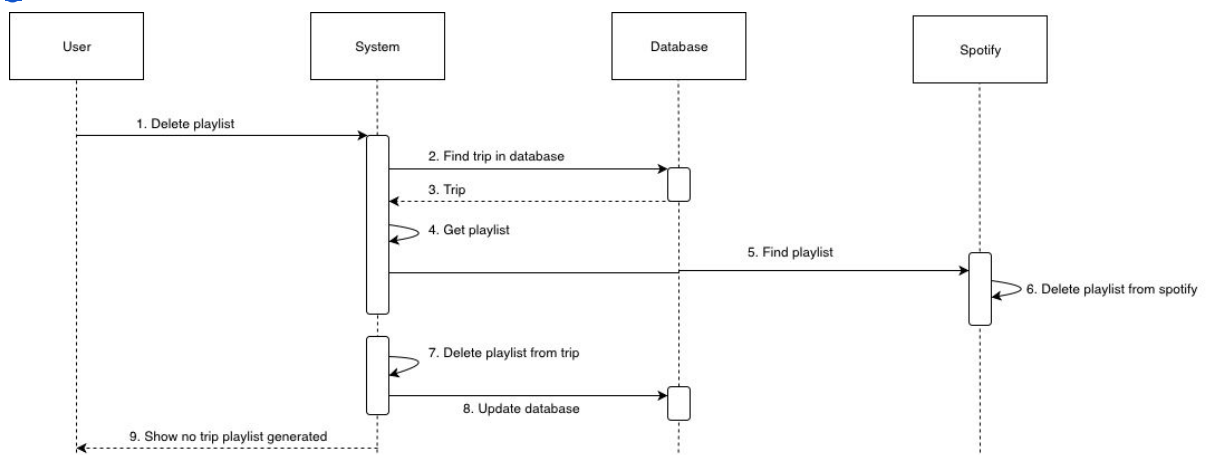
Make playlist sequence diagram

<https://drive.google.com/file/d/1DcaWJuAm9r2TTgXHirI2O7rSZyAy94wQ/view?usp=sharing>



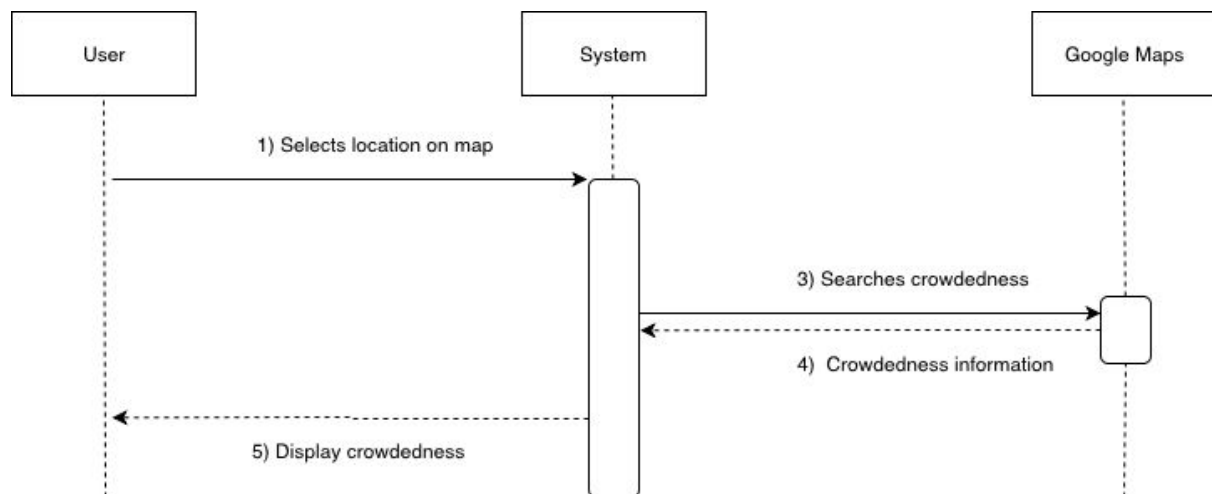
Delete playlist sequence diagram

<https://drive.google.com/file/d/1K3ZVwRKSJBChqCEQXbjKCaOsRnTvy-t/view?usp=sharing>



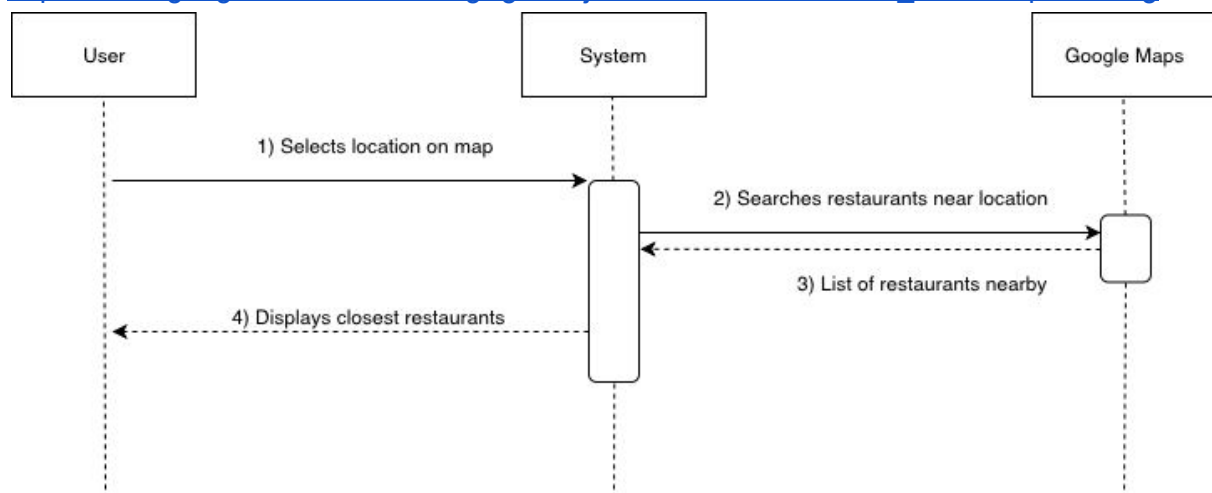
Show crowdedness sequence diagram

[https://drive.google.com/file/d/11dRG8Jq9q1QBpBt\\_RN6Gy2TjGFdIQs6h/view?usp=sharing](https://drive.google.com/file/d/11dRG8Jq9q1QBpBt_RN6Gy2TjGFdIQs6h/view?usp=sharing)



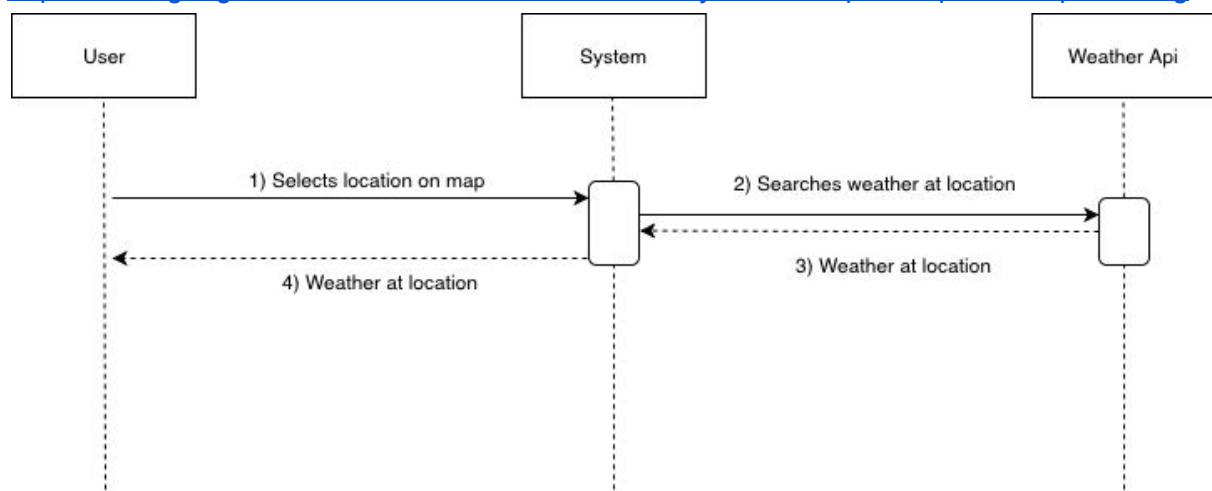
Closest restaurant sequence diagram

[https://drive.google.com/file/d/1Bui-gXgr6HAj3OD5AIDbBrrSKl3zz1n\\_/view?usp=sharing](https://drive.google.com/file/d/1Bui-gXgr6HAj3OD5AIDbBrrSKl3zz1n_/view?usp=sharing)



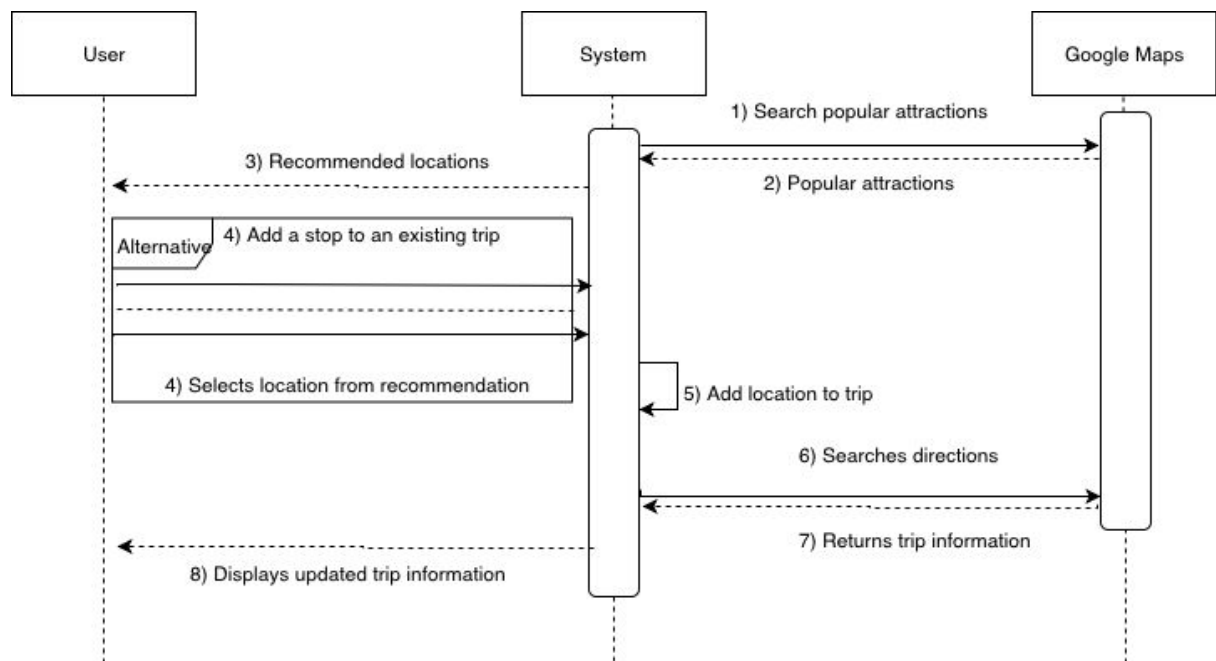
Closest campsite and hotel sequence diagram

<https://drive.google.com/file/d/151lrNzz5AZFWRIunMyxxPB9LcapJ27Bq/view?usp=sharing>



Recommended attractions sequence diagram

[https://drive.google.com/file/d/1m\\_tlmY7ZagVwM3ZsqOlgJX\\_9PEMFKCSB/view?usp=sharing](https://drive.google.com/file/d/1m_tlmY7ZagVwM3ZsqOlgJX_9PEMFKCSB/view?usp=sharing)



### Change personal details

<https://drive.google.com/file/d/1XbSlwy02n1K81FGv6zSc6F6p5zgN2vFg/view?usp=sharing>

