System Design

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CRC Cards

User	
• Username • Password • Preferences • History	• ItineraryBuilder

Interface **ItineraryBuilder**	
• Returns itinerary	• Google places API • Google Directions API • User • Filters

Itinerary	
• Holds data for the itinerary	• ItineraryBuilder

Filters	
• Receives starting location, radius, date, start time, budget from users and sends it out to ItineraryBuilder.	• ItineraryBuilder

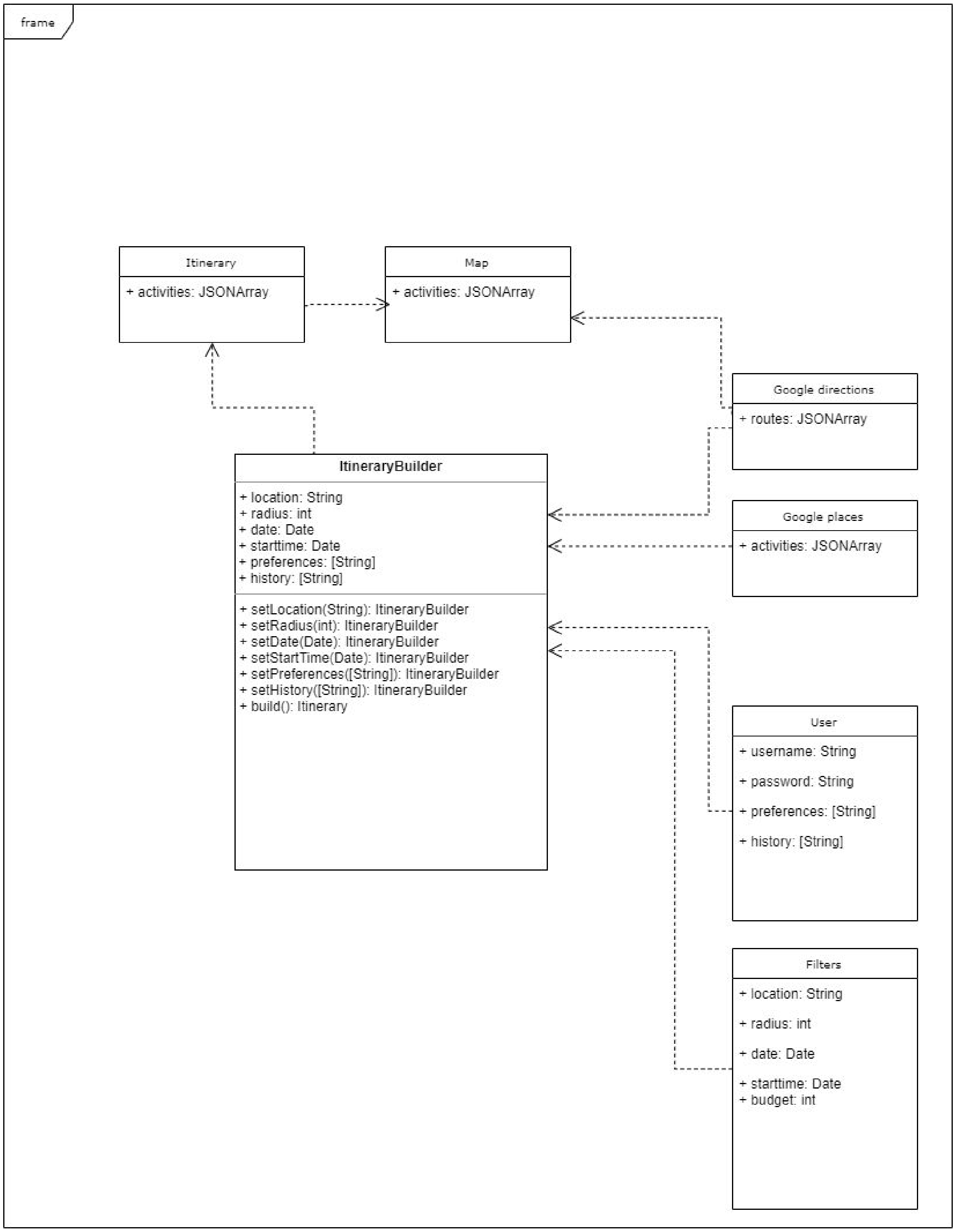
Map	
• Returns a map of the itinerary that includes routes	• Itinerary

Google Places API	
• start google maps service • return a set of places with attributes such as address and name	• ItineraryBuilder

Google Directions API	
• Get routes between the activities in the itinerary and the time they take	• ItineraryBuilder

ExceptionHandler	
• Handles exceptions from other classes	• All

Software Architecture Diagram



Dependencies

Database: MongoDB
Google Places API
Google Directions API

System Decomposition

User:
The user class holds the user preferences and user history which feeds into the ItineraryBuilder to generate an itinerary. User history consists of places that were recommended to the user but the user removed from itinerary.
User preferences includes types of places the user prefers.
Errors and exceptions:
Try to add a place to history that doesn't exist -> Internal server error, don't add to history

Itinerary:
The itinerary class holds the itinerary information such as locations, times, cost for each activity in the itinerary.
Errors and exceptions:
Itinerary is empty -> Go back to filter screen and display message to lessen filter restrictions

ItineraryBuilder:
Given user preferences, filter options, and the google maps API builds an itinerary
Errors and exceptions:
Disconnection from either Google Places or Google Directions API

Filters:
Lets the user select location, date,radius, time, start time, budget of their trip and sends it to the ItineraryBuilder
Errors and exceptions:
User tries to add location that doesn't exist -> 404 Not found
User gives an invalid date or start time-> 400 Bad Request
User gives invalid budget -> 400 Bad Request
User tries to create itinerary without location, date, time, start time -> 400 Bad Request

Google Places API:
Starts google maps service and sends out a request specifying location, price (which is from 0 to 4 stars), radius and the type of place(eg.Restaurant) the user has specified and returns the result as a set of places with attributes such as formatted address and name.
Use autocomplete functionality to get latitude and longitude of a given address.
Errors and exceptions:
Disconnect from API -> log error in console

Google Directions API:
Gives ItineraryBuilder the time it will take to reach the next activity. It also generates the route

Gives map routes
Errors and exceptions:
Disconnect from API -> log error in console

Map:
Displays a visual map of the itinerary and its routes
Errors and exceptions:
Disconnect from Google Directions API -> 500 Internal Server Error

ExceptionHandler:
Handles exceptions and their responses
Errors and exceptions:
Error when handling error -> log in console

Review

After reviewing the CRC cards and the software architecture we decided that changes were not necessary as the current system was in line with the goals of the project and did what it needed to do effectively.