Andrew Min

CS 3773.001

Assignment #2

1. Non-functional system quality attributes

Reliability

The software features should behave as intended so users are able to use it with ease. For example, it would be unreliable if all members of a trip were given leadership permissions or the map suddenly stopped working.

Responsiveness

When the user accesses the service, other members' positions, for example, they should be able to do it without needing to wait for a long time. It needs to update the map when users utilize it at any time.

Usability

Users should be able to initiate trips quickly and without error. It also needs to cater to the user's needs when they use the software.
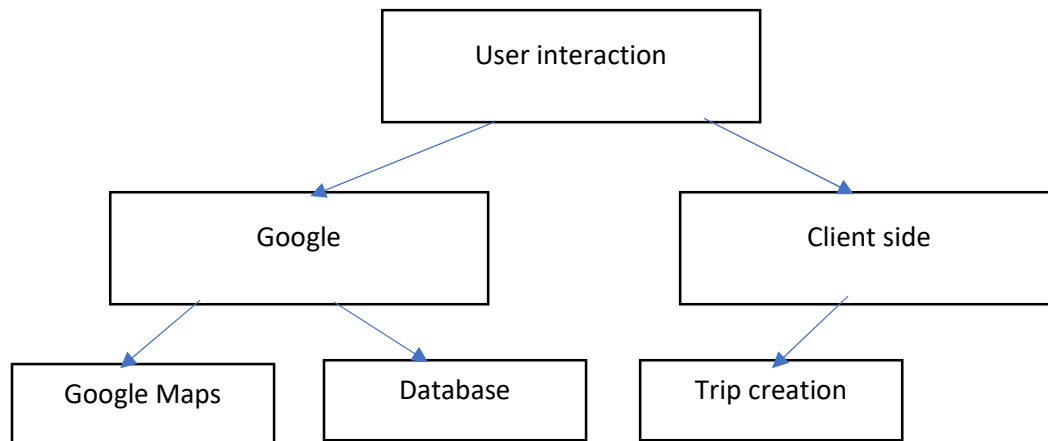
2. Layer Diagram

Mobile interface
Application
Infrastructure
Operating system
Hardware

3. Overall architecture

The Caravan software should follow a service-oriented approach. Each service implemented in the software, i.e. the map, positions of members, and others, should be partially integrated. The usability of the software can be less likely to fail with this approach. Whenever a service no longer works as intended, the reliability of the software can be maintained by replacing the defective service.

4. Box and line diagram

```
                          ┌─────────────────────┐
                          │   User interaction   │
                          └─────────────────────┘
                           ╱                    ╲
              ┌──────────────────┐      ┌──────────────────┐
              │     Google       │      │   Client side     │
              └──────────────────┘      └──────────────────┘
               ╱            ╲                      │
   ┌──────────────┐   ┌──────────────┐    ┌──────────────┐
   │ Google Maps  │   │  Database    │    │ Trip creation │
   └──────────────┘   └──────────────┘    └──────────────┘
```

5. How to implement

The language used will be Java. The server will be run on Google because it is likely that Google Maps will be used in the software. The database will be a relational SQL database because it is simpler, and complex data structures won't be needed for data analysis. The primary platforms are going to be on iOS and Android, as a mobile application.