**Homework 2**

**APP**

(OOA and OOD)

**Part 1 – Use Case(OOA)**

1. **Use Case Title:** Navigation - Get Directions

**Primary Actor:** User

**Success Story:**

1. User enters their starting location (address, landmark, etc.).
2. User enters their destination location (address, landmark, etc.).
3. User chooses the vehicle type ( bike, car, walk)
4. App calculates the efficient routes between the two locations.
5. User selects one of the route to start.
6. App displays the route on a map with turn-by-turn instructions.
7. App provides real-time traffic updates and alternative routes as needed.

**Preconditions:**

* Starting and destination locations are valid within the covered area.
* User has internet access and GPS enabled.

**Extensions:**

* No internet connection available.
* GPS signal is weak or unavailable.
* If User doesn’t follow the directions.
* Road closures or other unexpected events block the planned route.

**2. Use Case Title:** Search by Place Name

**Primary Actor:** User

**Success Story:**

1. User enters the name of a place they are looking for (e.g., "Nordstrom," "Disneyland").
2. App displays a list of matching places with relevant information (address, contact details, photos, etc.).
3. User can select a specific place from the list for further details and directions.

**Preconditions:**

* User has internet access.
* User enters a valid and recognizable place name.

**Extensions:**

* Multiple places share the same name, leading to ambiguity.
* No exact match found for the entered place name.
* Spelling error in the entered place name.

**3. Use Case Title:** Search by Place Category

**Primary Actor:** User

**Success Story:**

1. User selects a category of interest (e.g., "Restaurant," "Gym," "University").
2. App displays a list of available places within the chosen category, showcasing their location, distance, and potential rating.

**Preconditions:**

* User GPS and Internet access.

**Extensions:**

* Limited or no places available within the chosen category in the current location.
* Search filters result in no matching places.

**4. Use Case Title:** Share Location

**Primary Actor:** User

**Success Story:**

1. User selects a location on the map (current location, address etc.).
2. User chooses of the messaging apps ( whatsapp up , messages) or can copy the link.
3. App opens the selected messaging app with the chosen location as a link.
4. User can selects contacts and send the location to those contacts.

**Preconditions:**

* User has an internet connection.
* User has the chosen messaging app installed.
* The chosen contact is reachable through the selected messaging app.

**Extensions:**

* Contact information is outdated or incorrect.

**5. Use Case Title:** Share Rideshare

**Primary Actor:** User

**Success Story:**

1. User enters their desired pickup point and drop location on the map.
2. App displays the estimated cost for all rideshare options
3. User chooses their preferred rideshare service (Uber, Lyft, etc.).
4. App opens the chosen rideshare app with the pickup location and drop location pre-filled.

**Preconditions:**

* User has an internet connection and location services enabled.
* User has the chosen rideshare app installed and configured on their device.

**Extensions:**

* Rideshare app is not available in the current location.
* High demand or limited availability of rideshare vehicles.

**Part 2 – (OOA)**

1. Highlight all the nouns to determine possible potential classes.

**Navigation**: Location (Starting, Destination), Route (Directions, Distance), Map, Traffic

**Search**: Location, Search Result, Place Details (Images, contact, Location)

**Explore**: Category, Location (Current), Place Details, Search results

**Share Location**: Messaging App, Location (in Link)

**Rideshare**: Rideshare Service, Location (Pickup, Destination)

So the list of nouns/ possible potential classes are

Navigation

Search

Explore

Share Location

Rideshare

Location

Traffic

Route

Search Result

Place Details

Category

User

Messaging App

Rideshare Service

Route

Map

1. Highlight all the verbs and verb phrases to determine possible methods and relationships.

**Navigation**: CalculateRoute(start, destination), GetDirections(),DisplayRoute(), TrafficUpdate(), GiveDirections()

**Search**: FindPlaceByName(name), GetPlaceDetails(place\_id), FilterResults(criteria) , DisplayResults()

**Explore**: FindPlacesByCategory(kind ), Displayresults(), GetPlaceDetails(place\_id)

**Share** **Location**: OpenMessagingApp(App, location)

**Share** **Rideshare**: EstimateCost(service, pickup, destination), OpenRideshareApp(service, pickup, destination) , DisplayRideShare()

1. Create a rough graph showing how all the classes are connected.

A diagram of a diagram

Description automatically generated

**Part 3** **– (OOD)**

1. Create CRC cards of the classes you have selected from the potential list above.

|  |  |
| --- | --- |
| User | |
| Selects starting and ending locations for navigation.  Searches for places by name.  Explores nearby places of certain category.  Selects contacts and messaging apps for sharing location.  Selects rideshare services and pickup locations. | Navigation  Search  Explore  ShareLocation  RideShare |

|  |  |
| --- | --- |
| Navigation | |
| Calculates routes between start and destination points.  Retrieves directions for routes.  Displays routes on a map.  Provides traffic updates for routes.  Gives turn-by-turn instructions. | Routes  Routes  Map  Traffic  Routes |

|  |  |
| --- | --- |
| Search | |
| Finds places by name based on user query.  Retrieves details of specific places.  Filters search results based on user criteria.  Displays search results to the user. | Map  Place  Place  Place |

|  |  |
| --- | --- |
| Place | |
| Stores information about a place (name, address, category, etc.).  Provides details of a specific place when requested. | Map  Search, Explore, ShareLocation, RideShare |

|  |  |
| --- | --- |
| Explore | |
| Finds user selected category places near the user's location.  Filters places by category.  Displays places to the user.  Retrieves details of specific places. | Map  Place  Place  Place |

|  |  |
| --- | --- |
| ShareLocation | |
| Shares the user's location with a chosen contact.  Opens the chosen messaging app with the location embedded. | User  MessagingApp |

|  |  |
| --- | --- |
| MessagingApp | |
| Displays and facilitates messaging between users.  Embeds shared locations and opens messaging App. | ShareLocation  MessagingApp |

|  |  |
| --- | --- |
| RideShare | |
| Estimates the cost of a rideshare trip.  Opens the chosen rideshare app with pickup and destination locations pre-filled.  Displays information about the rideshare options | User  RideShare  RideShare |

|  |  |
| --- | --- |
| Map | |
| Stores information about multiple places  Displays a visual representation of the geographical area.  Finds user selected category places near the user's location.  Finds places by name based on user query.  Shows user location. | Places  Navigation  Explore  Search  User |

1. Create a final graph connecting all the Class names with their Collaborators.

A diagram of a navigation system

Description automatically generated