

Homework 2

CPP MAPS

(OOA and OOD)

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Github Link: https://github.com/Sravani026/CS5800_HW2

Part 1 – Use Case (OOA)

You will create an application similar to **Google Maps** called **CPP Maps**. As this is a large application you will first create Use Cases to help create a more modular application. You have selected the following 5:

- 1) **Navigation** – Get directions from a starting location to a destination location.
- 2) **Search** – Search for a place by name such as Nordstrom, Disneyland...etc.
- 3) **Explore** – Search for a place by category such as Restaurant, Gym, University...etc.
- 4) **Share Location** – Send location to a friend or family using messaging app on phone.
- 5) **Share Rideshare** – Send location to rideshare app such as Uber or Lyft.

Answer:

Use Case:

1. **Navigation:**

Title: Get Directions

Primary Actor: User

Success Scenario:

- User opens Navigation window.
- User inputs starting and destination locations.
- User chooses directions for route options.
- CPP Maps displays optimal route with alternatives.
- User selects route and mode of transport.
- CPP Maps provides step-by-step instructions to destination.

2. **Search:**

Title: Place Search

Primary Actor: User

Success Scenario:

- User opens Search window.
- Users enters the name of the desired place.
- CPP Maps successfully locates and displays the specified place on the map.

3. **Explore:**

Title: Category Search

Primary Actor: User

Success Scenario:

- User opens Explore window.
- User chooses a specific category.
- CPP Maps displays a list of relevant places in the selected category, along with their locations on the map.

4. **Share Location:**

Title: Share location

Primary Actor: User

Success Scenario:

- User selects a location.
- Then chooses Share Location option.
- User chooses an application and a person contact from it to share location.
- CPP Maps sends the location details to the chosen recipient, allowing for easy navigation.

5. **Share Rideshare:**

Title: Share location with Rideshare

Primary Actor: User

Success Scenario:

- User selects a location.
- Then chooses Rideshare option.
- Links CPP Maps with a rideshare app.
- User sends location details to the selected rideshare app receives.

Part 2 – (OOA)

a) Highlight all the nouns to determine possible potential classes.

Answer:

1. **Navigation:**

- User
- CPP Maps
- Location
- Map
- Directions
- Database
- Mode of transportation

2. Search:

- User
- CPP Maps
- Places
- Database
- Location Details
- Map

3. Explore:

- User
- CPP Maps
- Category
- Database
- Location Details
- Map

4. Share Location:

- User
- CPP Maps
- Different apps
- Other people Contact
- Location

5. Share Rideshare:

- User
- CPP Maps
- Rideshare App
- Location

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

Answer:

1. Navigation:

- Opens
- Inputs
- Chooses
- Displays
- Selects

2. **Search:**

- Opens
- Enters
- Locates
- Displays

3. **Explore:**

- Opens
- Chooses
- Displays

4. **Share Location:**

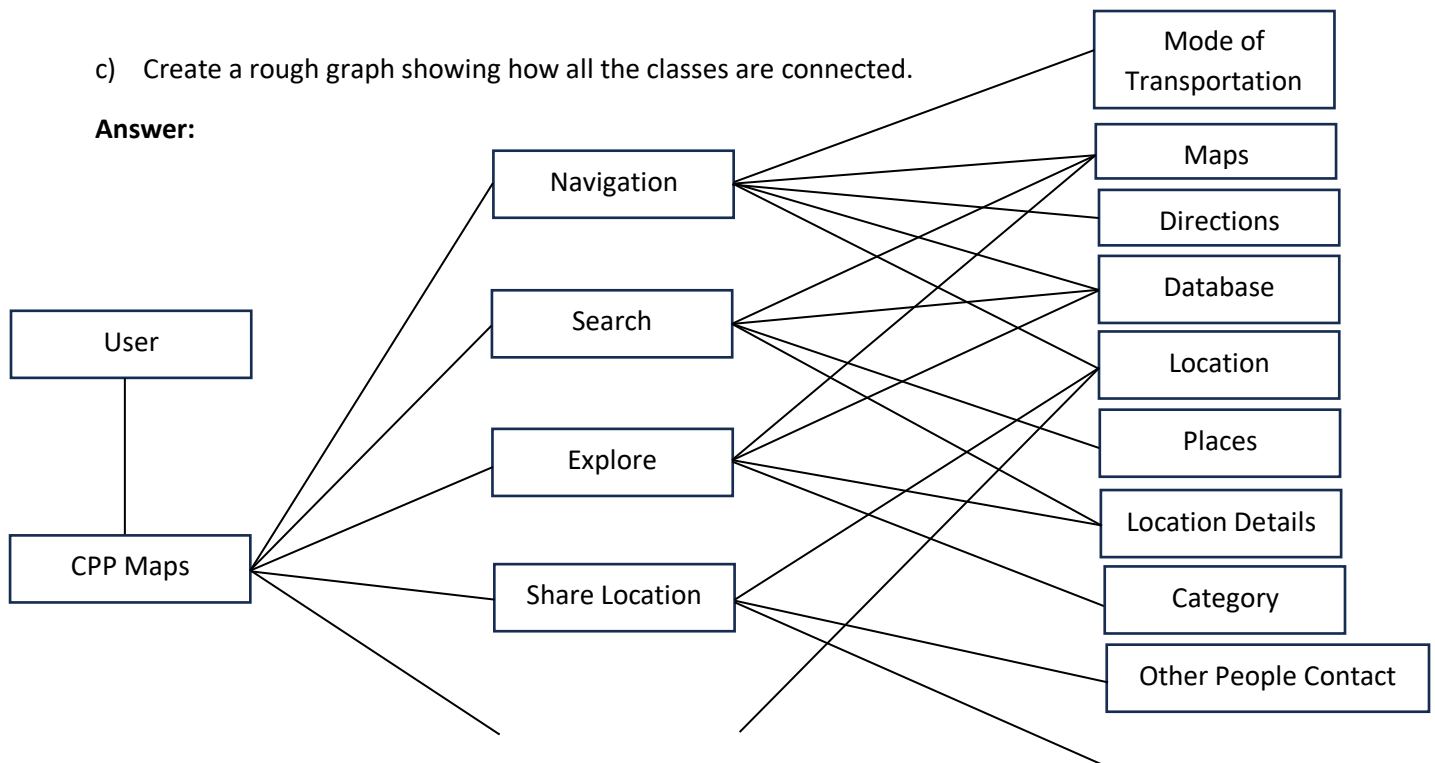
- Selects
- Chooses
- Sends

5. **Share Rideshare:**

- Selects
- Chooses
- Links
- Sends

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

Answer:



Part 3 – (OOD) NOTE: Use word editor such as MS word/Apple Pages

- a) Create CRC cards of the classes you have selected from the potential list above.

Use the following template for your CRC

Class Name	
Responsibilities	Collaborators

Answer:

User	
Enter locations Location selection Search queries Category selection Location sharing Rideshare location sharing	CPP Maps ModeOfTransportation Directions Maps LocationDetails Location Places Category

CPP Maps	
Route calculation Navigation Navigation Instructions map data retrieval searching and retrieving place information retrieving and displaying relevant places handling location sharing functionalities handling rideshare sharing functionalities	User

Location	
Show its geographical coordinates	User DifferentApps RideshareApp

Map	
Display the route displaying search results visual representation of relevant places	User

Directions	
Provide step-by-step instructions	User

Database	
Storage and retrieval of map and route data storing and retrieving place data storing and retrieving category-based information	LocationDetails Category Places

ModeOfTransportation	
Provides different modes of transportation to select	User

Places	
Represent all the places on the map	User Database

LocationDetails	
Provide details about a specific location	User Database

Category	
Gives different categories of places	User Database

DifferentApps	
Share location to others using these apps	Location OtherPeopleContact

OtherPeopleContact	
Receives location	DifferentApps

RideshareApp	
Share location with rideshare	Location

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

