

Majuli River Island Virtual Tour

Software Design Document

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1 Introduction

This software design document is a document to provide documentation which will be used to aid in software development by providing the details for how the software should be built. Within in this software design document are narrative and graphical documentation of the software design for the project including data flow diagrams of each level with corresponding ER diagram that visually represent the flow of data and logic within the software system, aiding in the understanding of how the software components interact with each other.

1.1 Purpose

The purpose of this software design document is to provide a comprehensive overview of the Majuli River Island virtual tour system. This provides a description of the design of a system enough to allow for software development to proceed with an understanding of what is to be built and how it is expected to built. An intuitive and user-friendly interface that enables users to navigate the tour easily and without prior knowledge of the technology. Compatibility with Google Cardboard, which allows users to experience the virtual tour using a simple and accessible device.

1.2 Scope of Project

The scope of the Majuli Island virtual tour system is to provide an immersive and interactive experience for users, allowing them to explore the island's natural beauty and cultural heritage. The system utilizes Google Cardboard and eye gaze technology to simulate a visit to the island, providing an intuitive and engaging user interface.

1.3 References

- Tools for Data Flow diagrams and ER diagrams
 - <https://www.canva.com/>
- Other sources for reference
 - NPTEL MOOCs course on design and implementation of human computer interfaces
<https://archive.nptel.ac.in/courses/106/103/106103237/>

1.4 Overview

The software design document is divided into sections with various subsections. The sections of the software design document are

1. Introduction
2. Glossary
3. Data Flow Diagram
4. Entity Relationship Diagram

2 Glossary

1. Majuli Island:

The location of the virtual tour, a river island in Assam, India known for its unique culture and natural beauty.

2. Virtual Tour System:

The software application that enables users to explore Majuli Island in a virtual environment using a Google Cardboard device and eye gaze technology.

3. Google Cardboard:

The software application that enables users to explore Majuli Island in a virtual environment using a Google Cardboard device and eye gaze technology.

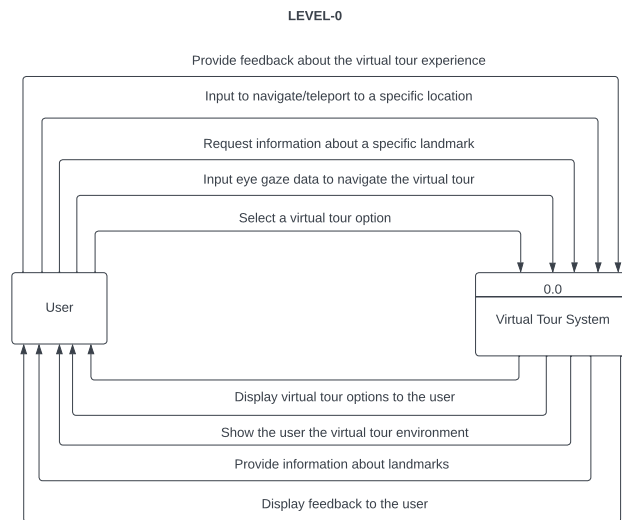
4. Eye Gaze Technology:

A type of assistive technology that uses a camera to track the user's eye movements, enabling them to interact with the virtual tour system without using their hands.

3 Data Flow Diagram

3.1 Level-0: Context Diagram

The context diagram of the virtual tour system provides a view of the interactive tour the island. Here, only a single process and an external entity are represented. The purpose of the tour is to provide visitors with an immersive experience of the island, highlighting its unique features and giving them a taste of what it would be like to visit in person. Special features of the tour will include interactive elements such as 360-degree views, audio guides, and videos that provide additional information and context for the island's attractions.

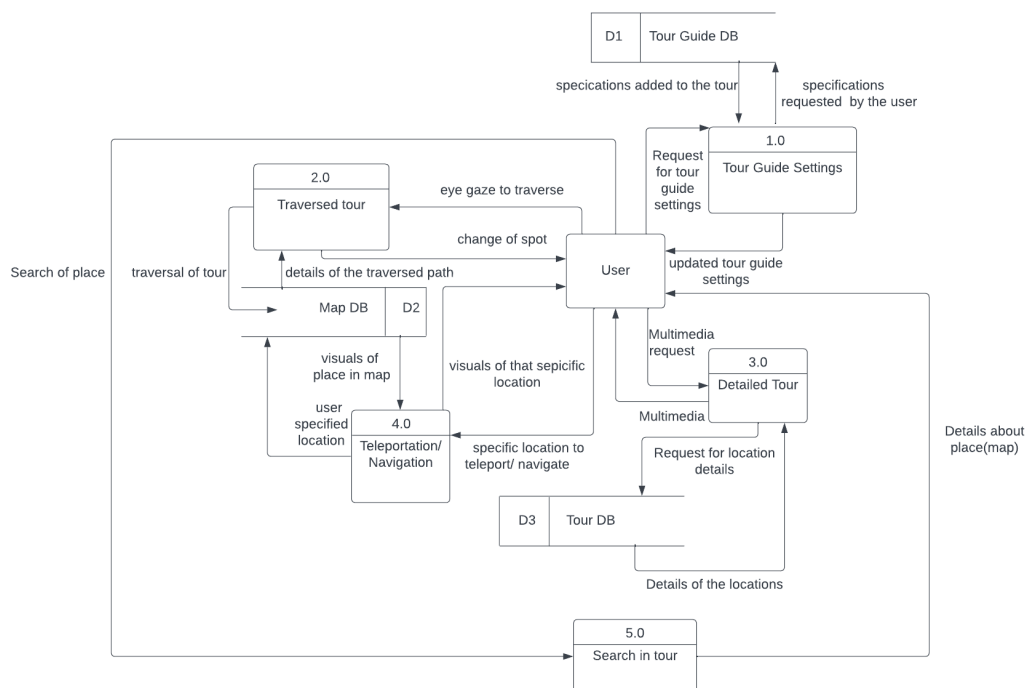


3.2 Level-1: Overview Diagram

An overview diagram in a data flow diagram (DFD) provides a high-level view of the system and its components, showing the major processes, data flows, and data stores. The purpose of the overview diagram is to give a clear understanding of the system's overall structure and to help them identify the main components of the system.

3.2.1 Processes

The incoming and outgoing arrows would represent the data flows into and out of the system. Here an incoming arrow represents user requests for the tour, and outgoing arrows represent audio, video, and other information provided by the system in response to those requests. This helps to identify the inputs and outputs of the system, and to identify any data transformations or processes that occur within the system.

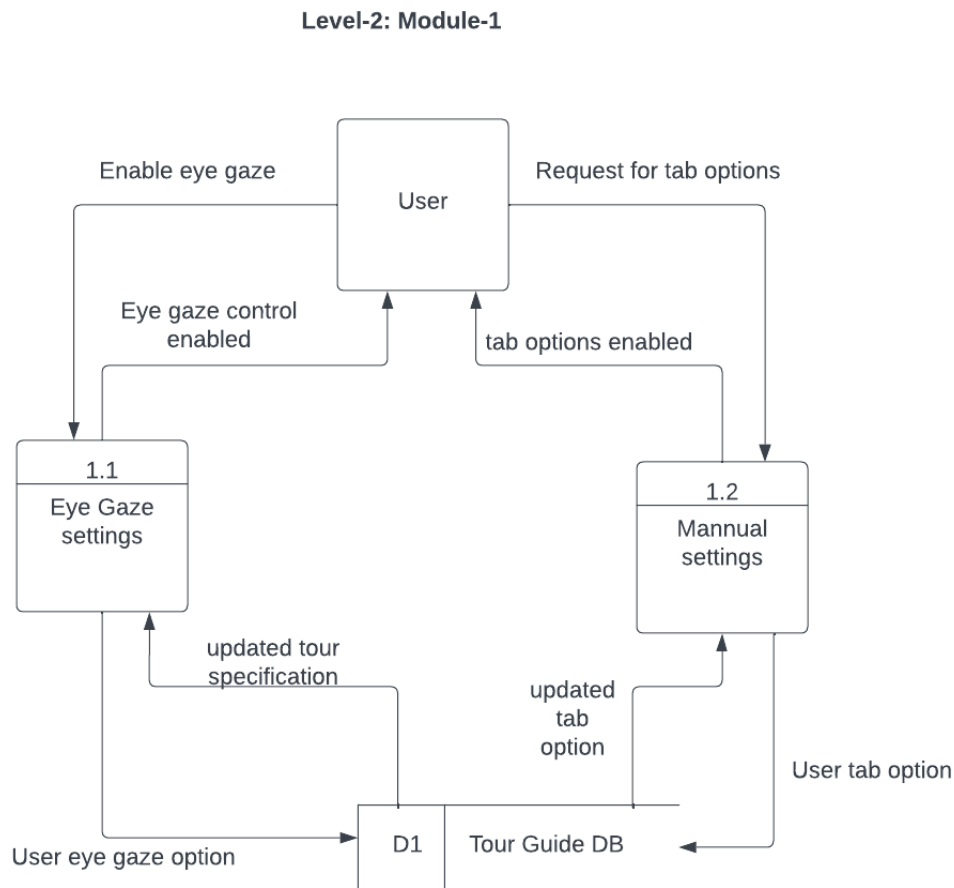


3.3 Level-2: Detailed Diagram

The detailed data flow diagram of a virtual tour provides a more detailed view of the data flows, processes and data stores involved in the system. It builds upon the overview diagram by breaking down the system into smaller, more manageable components.

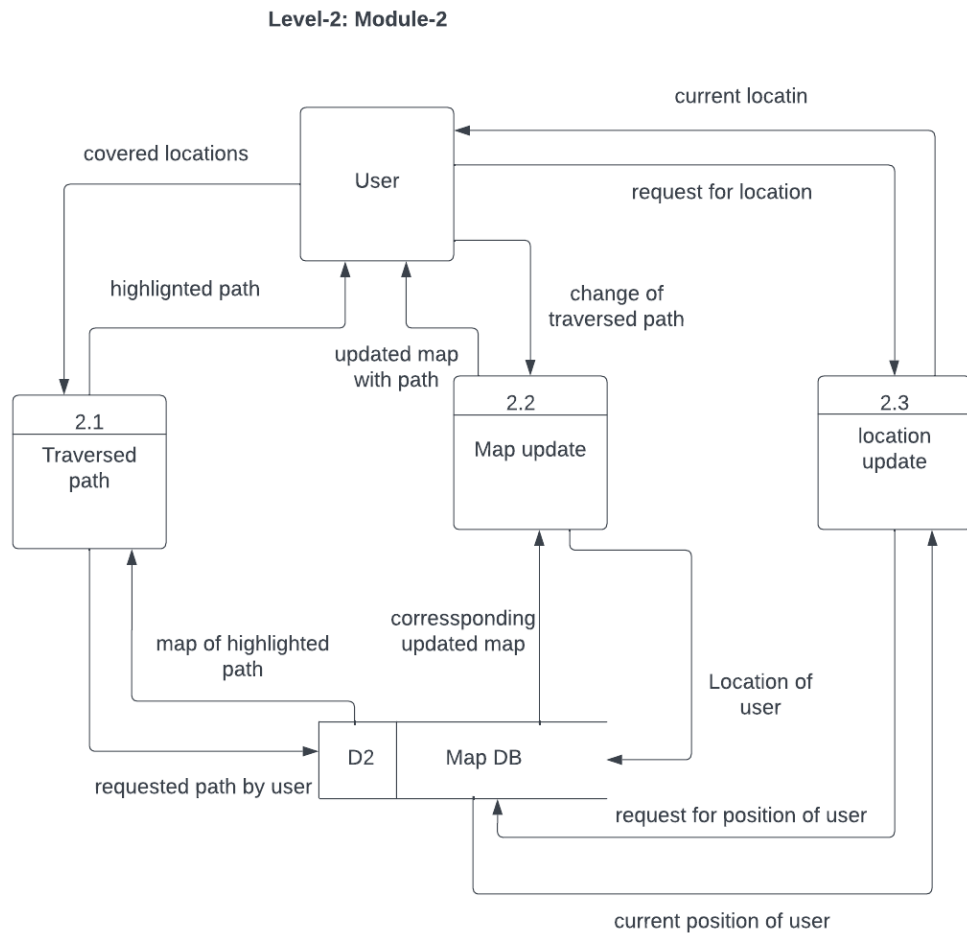
3.3.1 Process-1.0

User can choose the tab option and can use the eye gaze to do the virtual tour. This represents the dataflow, data stores between the processes and the external entity (user).



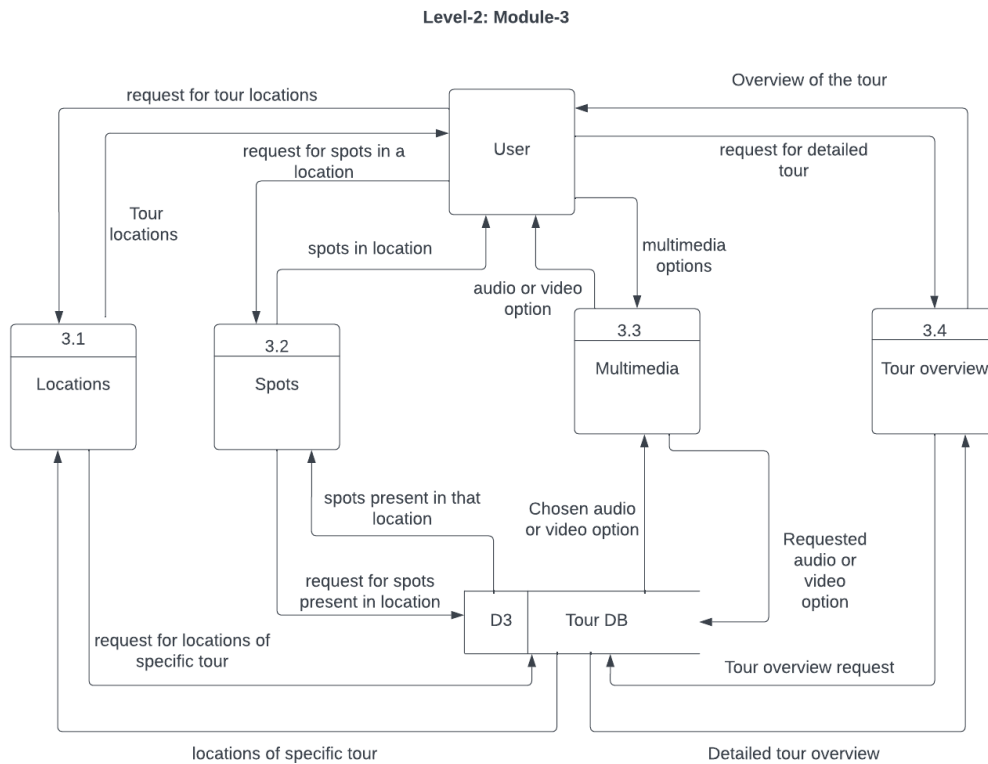
3.3.2 Process-2.0

These processes represents the traversed path of the user, map update ,location update accordingly and also the dataflows and datastores between the processes and the external entity(user).



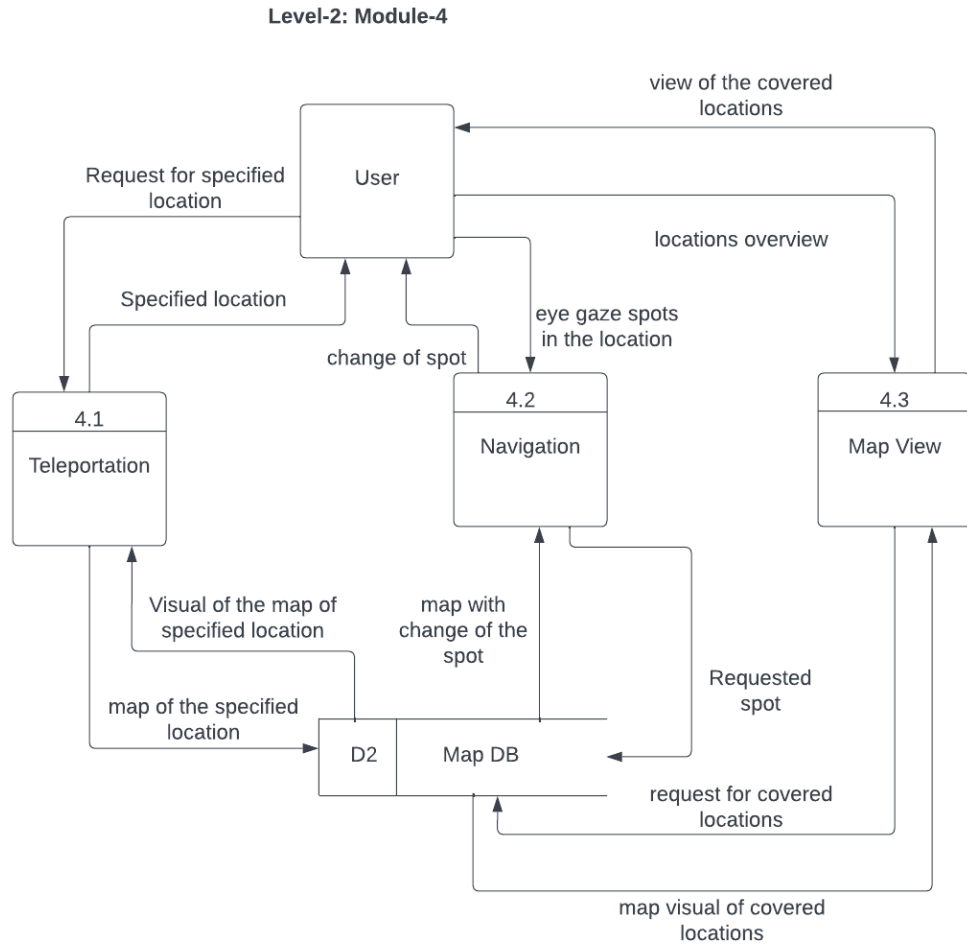
3.3.3 Process-3.0

These processes represents the detailed tour overview and also dataflow, data stores between the processes and the user. User can get the locations in the tour, spots present in that location, detailed tour overview and he could get multimedia as well through these processes.



3.3.4 Process-4.0

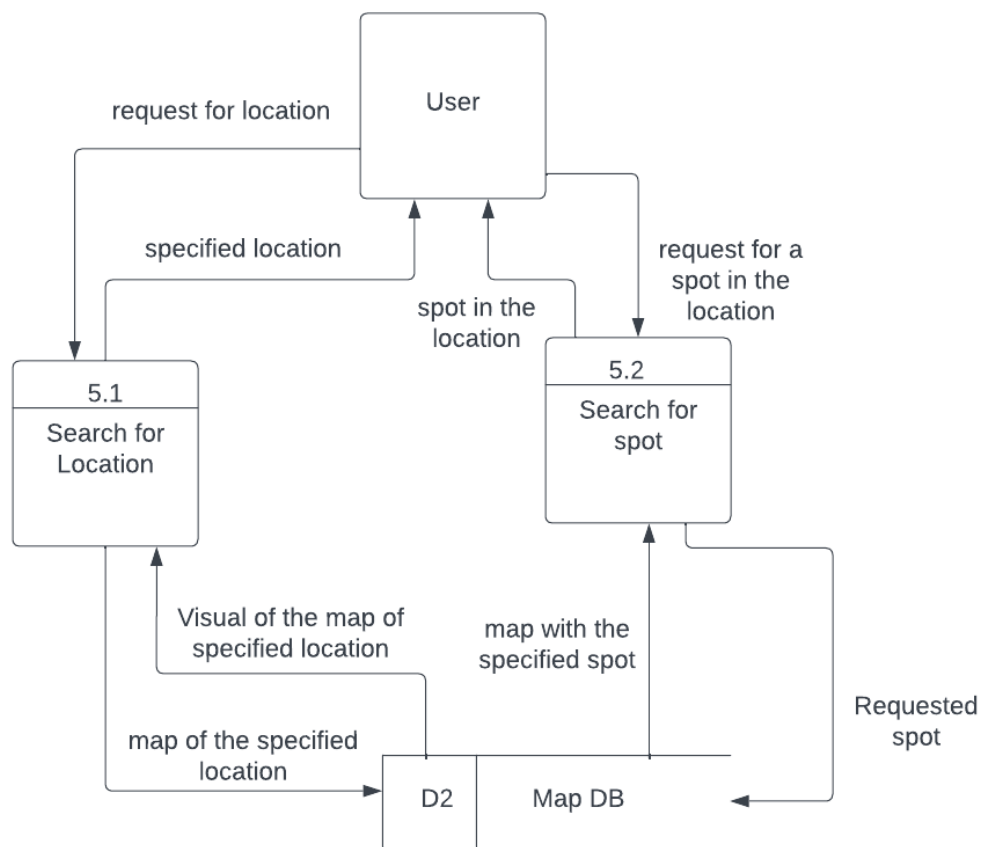
These processes represents the teleportation,navigation,map view options for the user.These processes represents how user can teleport to specific locations,navigate through the spots of a specific location and can view the map of the covered locations.



3.3.5 Process-5.0

These processes represent the search for location and search for a spot in the location in the tour. User gets the visual of the searched location or searched spot in the location in the map. This happens through the dataflow, datastores between the processes and the user.

Level-2: Module-5

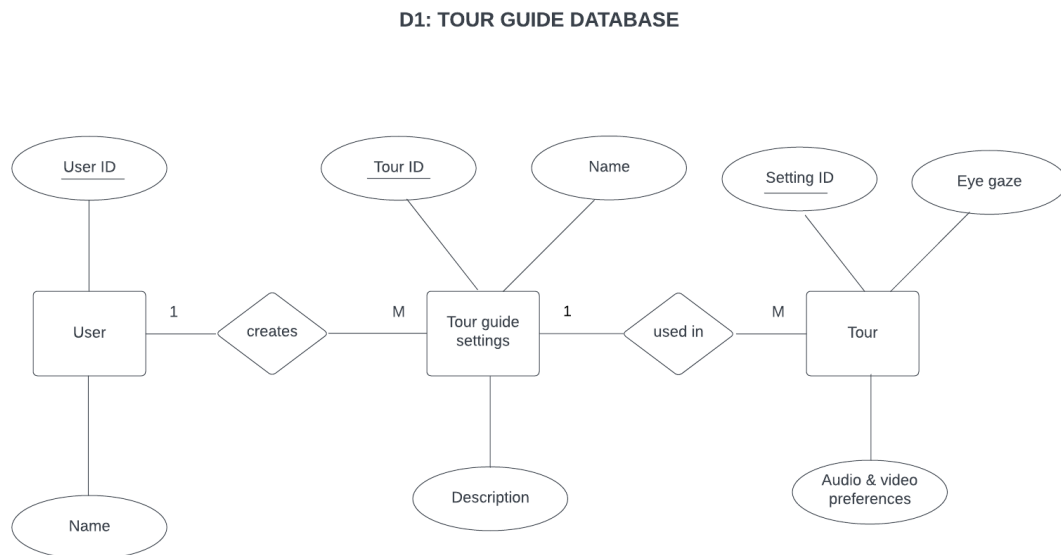


4 Entity Relationship Diagram

4.1 Database store-1

The ER diagram for a tour guide database includes four entities: User, Tour and TourGuideSetting.

The User entity represents the user of the system, and each user can create and participate in multiple tours. The Tour entity represents a tour and contains information such as the tour ID, tour name, and tour description. Each tour is created by a single user, and multiple tours can be associated with a single user. The TourGuideSetting entity contains information such as the setting ID and description. Each tour guide setting can be associated with multiple tours.

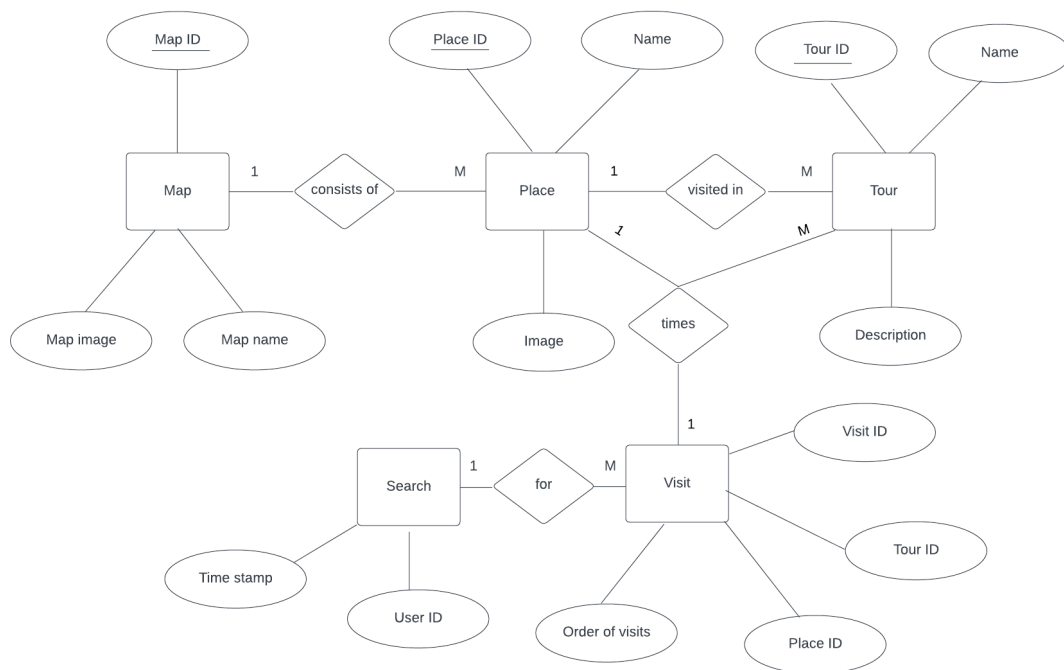


4.2 Database store-2

The ER diagram for a map database includes five entities: Map, Place, Visit, Tour, and Search.

The Map entity contains information such as the map ID, map name, and map image. Each map can be associated with multiple places. The Place entity contains information such as the place ID, place name and description. Each place can be associated with multiple maps. The Visit entity contains information such as the visit ID, the tour ID, the place ID, and the date and time of the visit. Each visit is associated with a single tour and a single place. The Tour entity represents a tour, and contains information such as the tour ID, tour name, and tour description. Each tour can have multiple visits. The Search entity contains information such as the search ID, the search query, and the date and time of the search.

D2: MAP DATABASE



4.3 Database store-3

The ER diagram for a tour database includes four entities: User, Tour, and Location.

The User entity represents the user of the system, and each user can create and participate in multiple tours. The Tour entity represents a tour and contains information such as the tour ID, tour name, and tour description. Each tour is created by a single user, and multiple tours can be associated with a single user.

The Location entity represents a location that can be included in a tour, and contains information such as the location ID, location name, and location description. Each location can be included in multiple tours.

