Majuli River Island Virtual Tour

Code Design Document

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Contents

1 Introduction

The purpose of this document is to outline the software design for the project and provide guidance for its development. It includes both written and graphical representations of the software architecture, such as data flow diagrams and entity-relationship diagrams. These diagrams illustrate the movement of data and logic within the system, helping to clarify the relationships between different components of the software. Overall, this document serves as a valuable resource for developers working on the project, providing clear and concise documentation for the software design.

1.1 Purpose

The goal of this document is to present a detailed outline of the Majuli River Island virtual tour system. It aims to provide a clear understanding of what the system should look like and how it should function, enabling software developers to build the software accordingly. The system is designed to feature a user-friendly interface that is easy to navigate, even for those with no prior knowledge of the technology. It is also designed to be compatible with Google Cardboard, a simple and accessible device that allows users to experience the virtual tour.

1.2 Scope of Project

The Majuli Island virtual tour system aims to create a captivating and interactive experience for users by offering them an opportunity to explore the island's rich cultural heritage and scenic beauty. The system leverages eye gaze technology and Google Cardboard to simulate a virtual visit to the island, offering an intuitive and captivating user interface. The

scope of the project is limited to the development of a virtual tour system that immerses users in the island's natural and cultural landscape.

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/106/103/1061 03237/

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
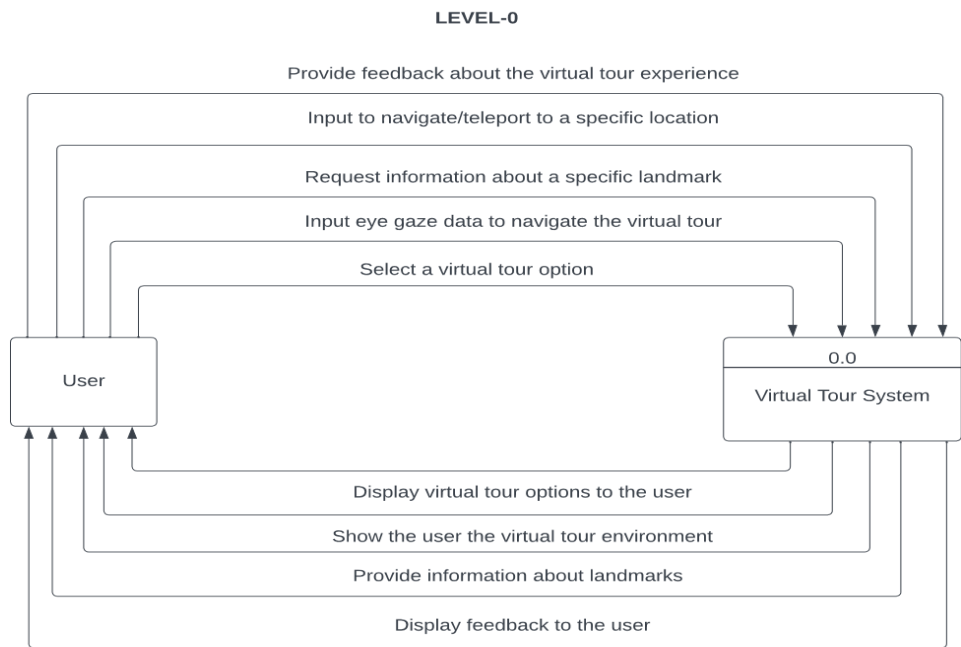
4. Entity Relationship Diagram

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 depicts a high-level overview of the interactive tour of Majuli Island. The diagram represents a single process and an external entity, showcasing the main purpose of the tour - to provide visitors with an immersive and engaging experience of the island's natural beauty and cultural heritage. To achieve this goal, the virtual tour system will offer a range of special features, including

interactive elements such as 360-degree views, audio guides, and videos that provide visitors with additional information and context for the island's attractions. The system's design aims to create a captivating and memorable virtual tour experience that will leave visitors with a lasting impression of the island.

LEVEL-0

Provide feedback about the virtual tour experience

Input to navigate/teleport to a specific location

Request information about a specific landmark

Input eye gaze data to navigate the virtual tour

Select a virtual tour option

User		0.0
		Virtual Tour System

Display virtual tour options to the user

Show the user the virtual tour environment

Provide information about landmarks

Display feedback to the user

3.2   Level-1: Overview Diagram

The overview diagram within a data flow diagram (DFD) offers a broad perspective of the system's architecture and its constituent parts. It displays the primary processes, data flows, and data stores, giving a comprehensive view of the system's structure. The overview diagram is intended to provide a straightforward comprehension of the system's fundamental framework, allowing developers to identify the key components of the system quickly. By presenting a high-level depiction of the system's design, the overview diagram enables stakeholders to grasp the system's big picture and helps to guide their decision-making processes.

3.2.1 Processes

The system's processes are depicted through incoming and outgoing arrows that signify the data flows into and out of the system. An incoming arrow indicates a user request for the tour, while outgoing arrows illustrate the system's responses, which may include audio, video, and other relevant information. This representation enables developers to identify the system's inputs and outputs, and to recognize any data transformations or processes that take place within the system. By analyzing these processes, developers can understand how the system functions and how data is handled within the system. This knowledge can be used to optimize the system's design and improve its performance.
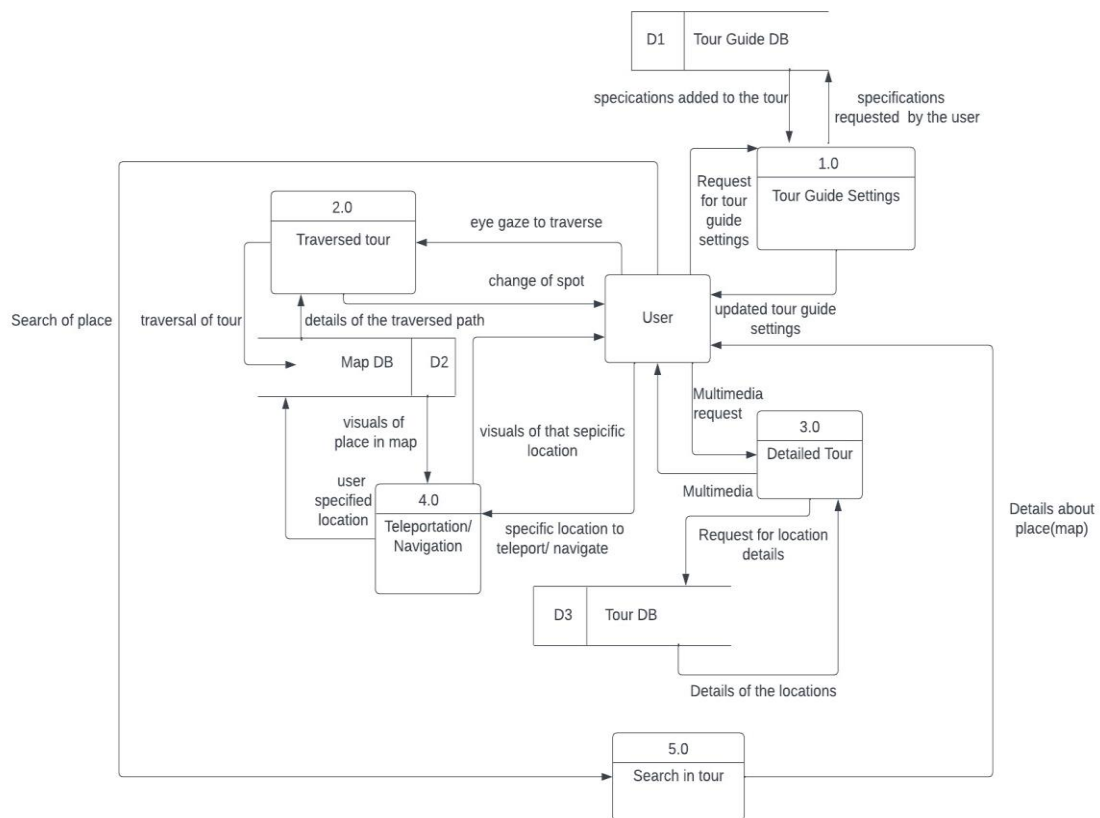
3.3 Level-2: Detailed Diagram

The detailed diagram for the virtual tour system provides an intricate representation of the system's data flows, processes, and data stores. It offers a more nuanced and granular view of the system's workings by dissecting it into smaller, more easily comprehensible components. The detailed diagram is an elaboration of the overview diagram and provides a comprehensive picture of the system's inner workings. This allows developers to better understand the system's functionality and optimize its performance by identifying areas for improvement. By breaking down the system into manageable parts, the detailed diagram enables developers to analyze the system in greater detail and make informed decisions about how to improve its overall design.

3.3.1 Process-1.0

Process-1.0 facilitates the virtual tour experience for users by allowing them to navigate the tour using tab options and eye gaze technology. This process involves the transfer of data and storage of information between the system's components and the external entity (i.e., the user). By providing users with easy-to-use controls for the virtual tour, Process-1.0 enhances the user experience and promotes greater engagement with the system. The data flows and data stores involved in this process are critical to the overall functionality of the virtual tour system and lay the groundwork for subsequent processes.
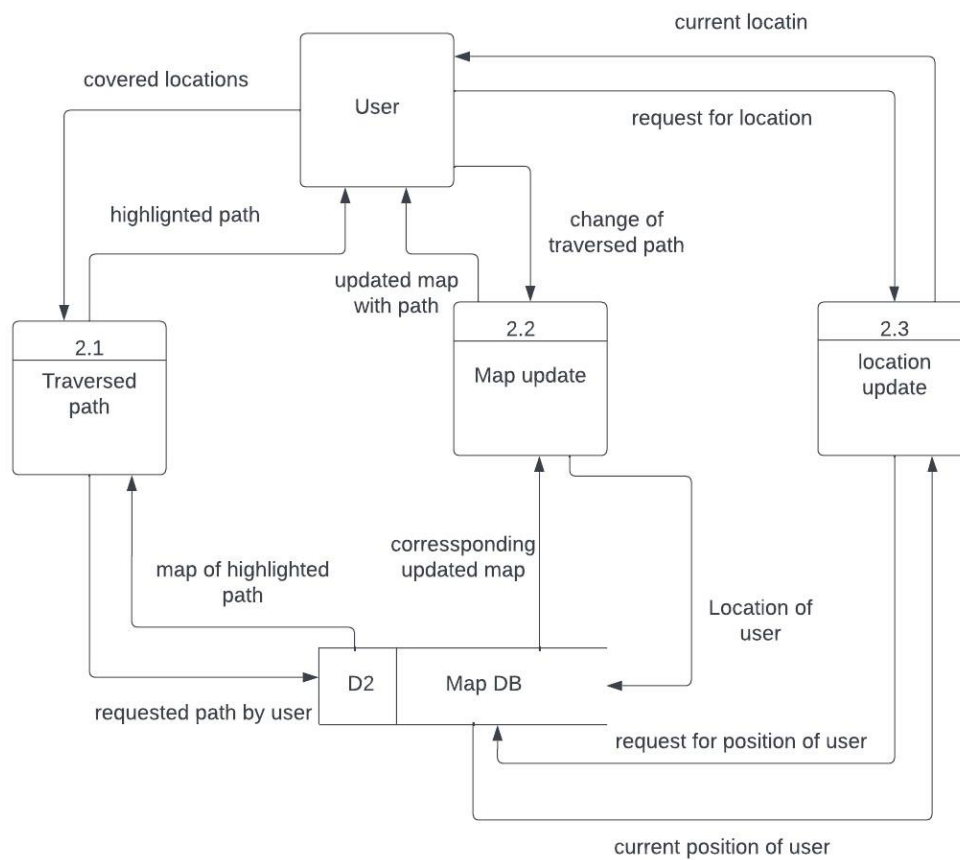
Level-2: Module-1
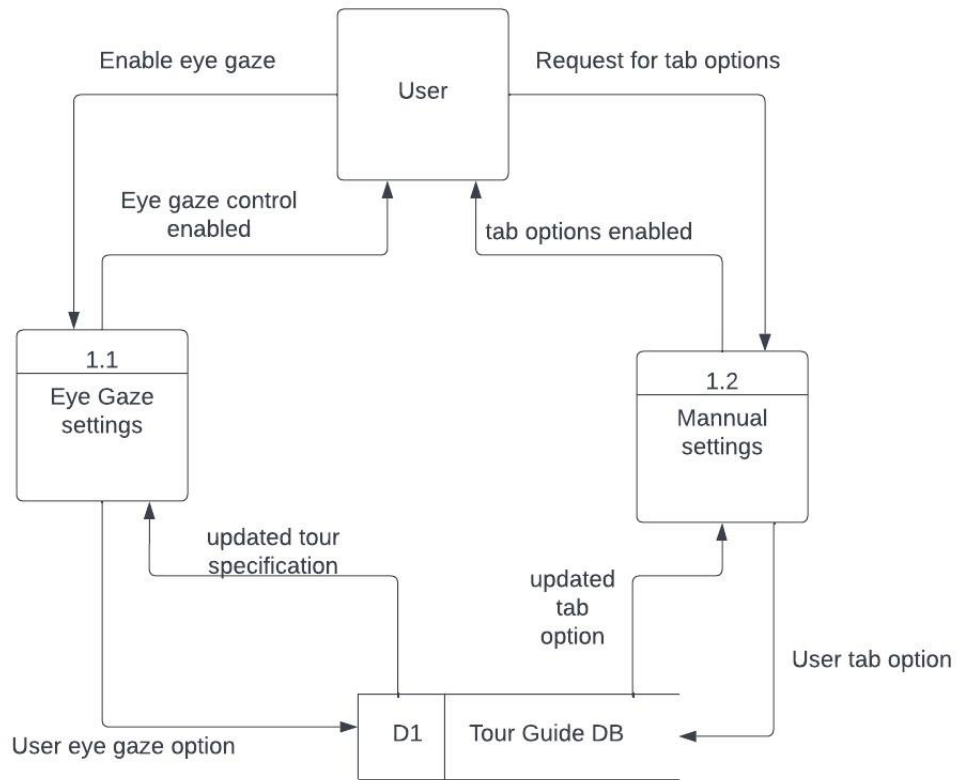
3.3.2 Process-2.0

These proceeses 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).
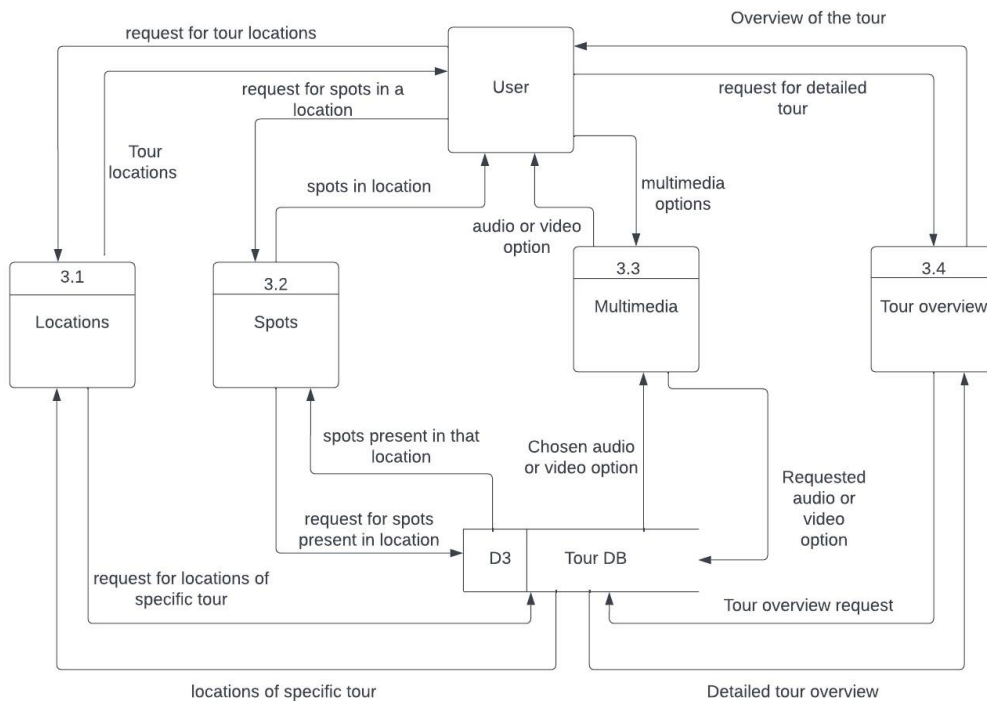
Level-2: Module-2

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 get the locations in the tour,spots present in that location,detailed tour overview and he could get multimedia as well through these processes.
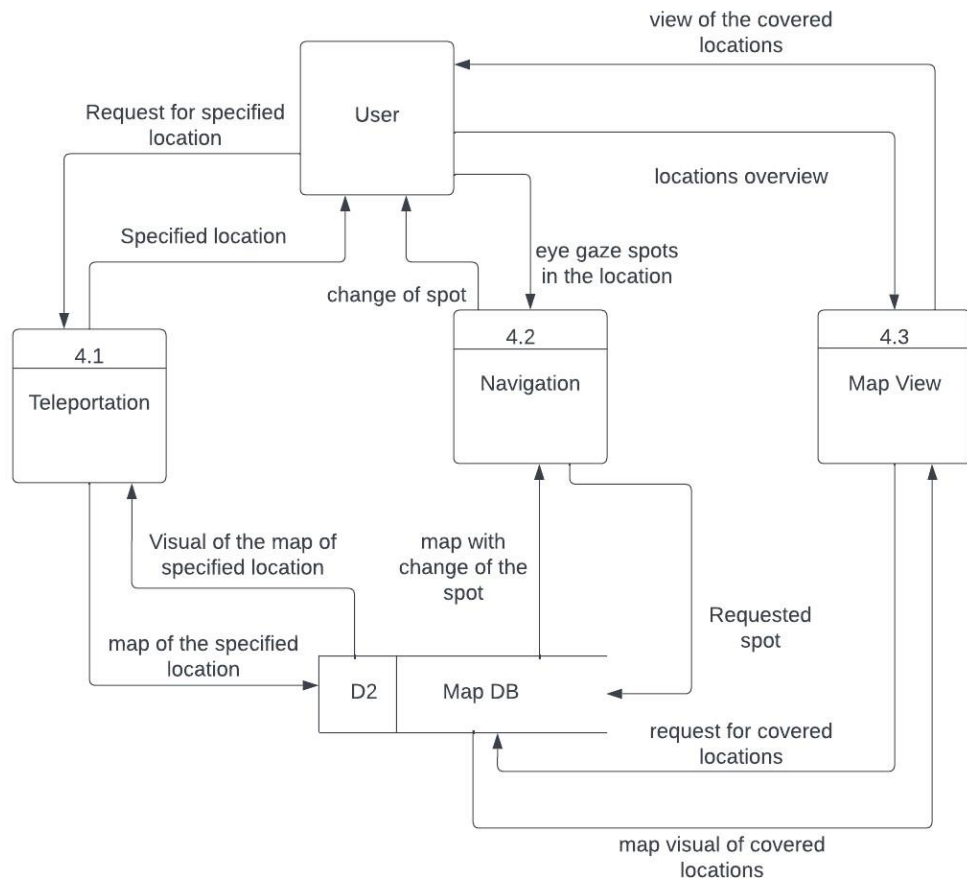
3.3.4 Process-4.0

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.
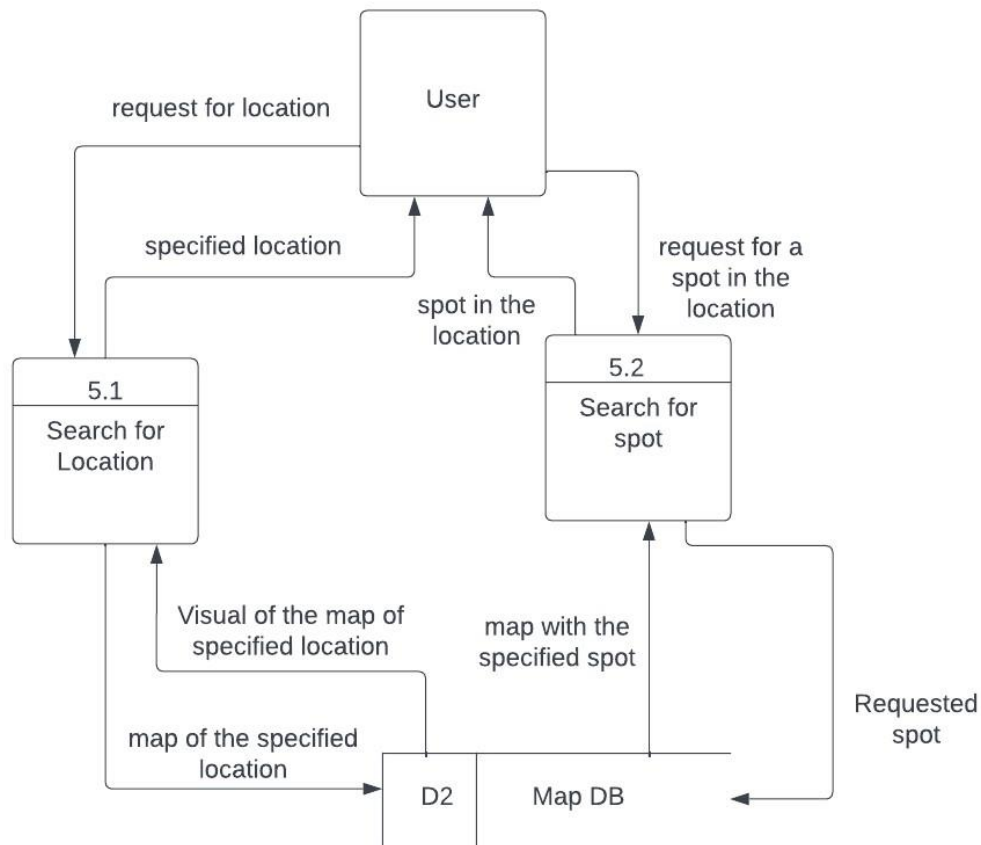
Level-2: Module-4

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.

**D1: TOUR GUIDE DATABASE**
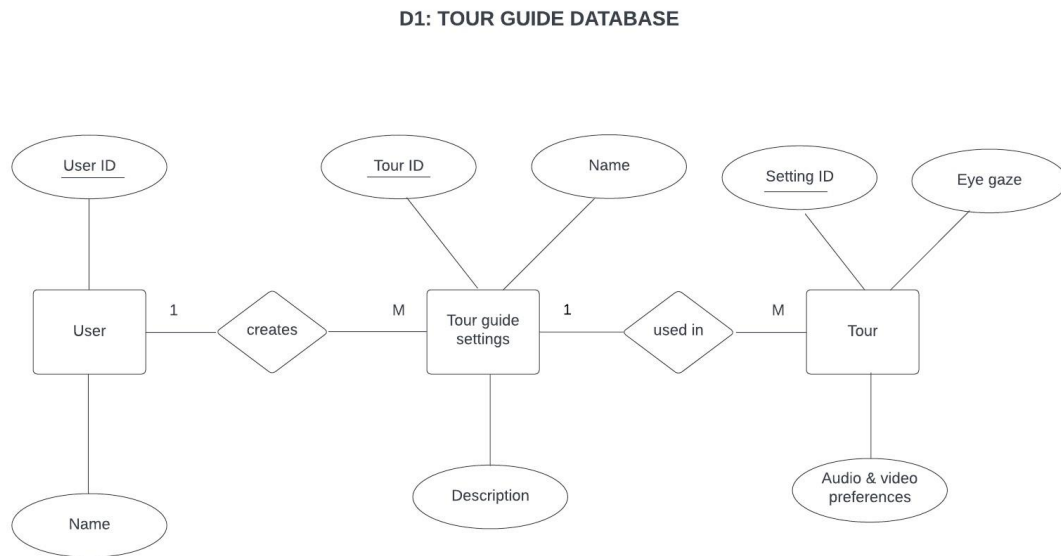
4.2 Database store-2

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.
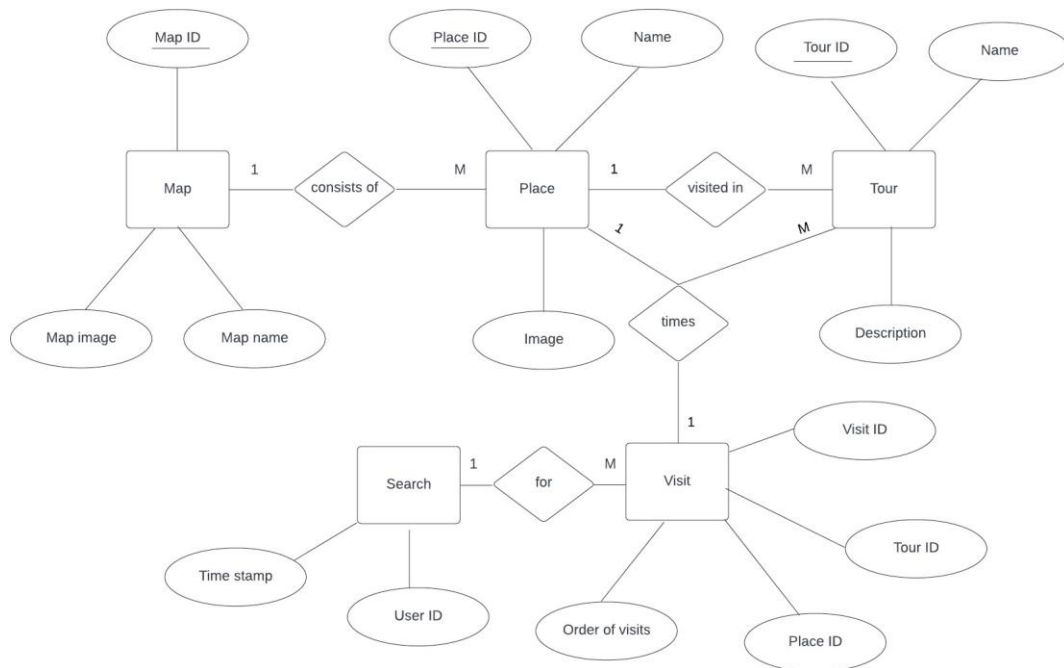
4.3 Database store-3

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,

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and location description. Each location can be included in multiple tours.

D3: TOUR DATABASE