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Homework 5
CS 408
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Table Definitions

- **Neighborhood:** Stores information about neighborhoods.
- **UserType:** Defines types of users.
- **UserAccount:** Stores user account information, including email, password, and user type.
- **City:** Stores information about cities.
- **State:** Stores information about states.
- **ZipCode:** Stores ZIP code information.
- **Country:** Stores information about countries.
- **Address:** Stores address information, including address lines, city, state, ZIP code, and country.
- **ActivityType:** Defines types of activities.
- **Activity:** Stores information about activities, including name, opening and closing hours, whether it's outdoor, and references to activity type, neighborhood, user account, and address.
- **Itinerary:** Stores information about itineraries, including creation date and user ID.
- **TimeOfDay:** Defines times of day, used to populate the itinerary in the format of 'Morning', 'Afternoon', 'Evening'.
- **ItineraryActivity:** Stores information about activities within itineraries, including activity order, time of day, activity ID, and itinerary ID.

Diagrams

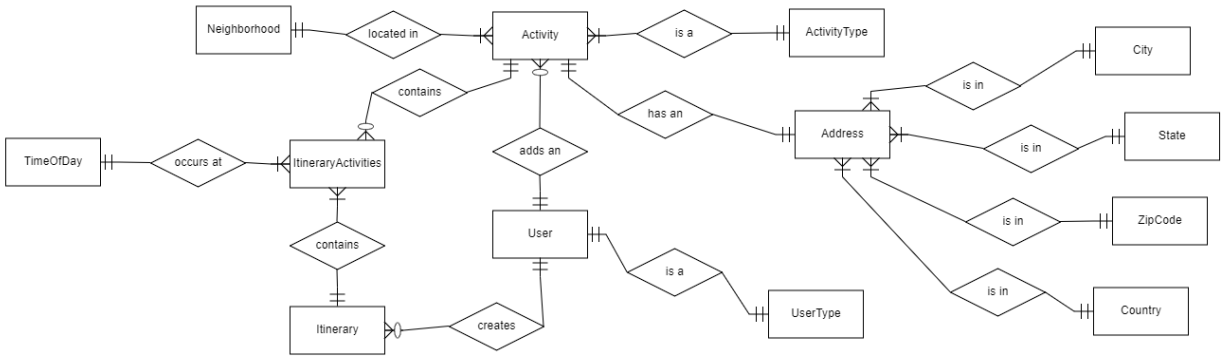

Figure 1: Boise Explorer ER Diagram

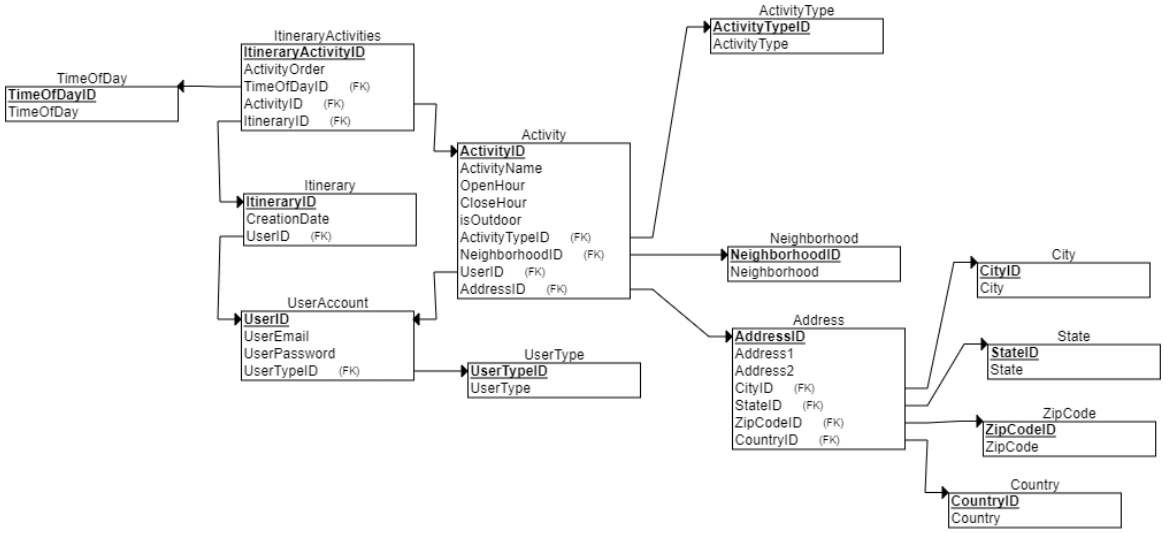

Figure 2: Boise Explorer Relational Schema

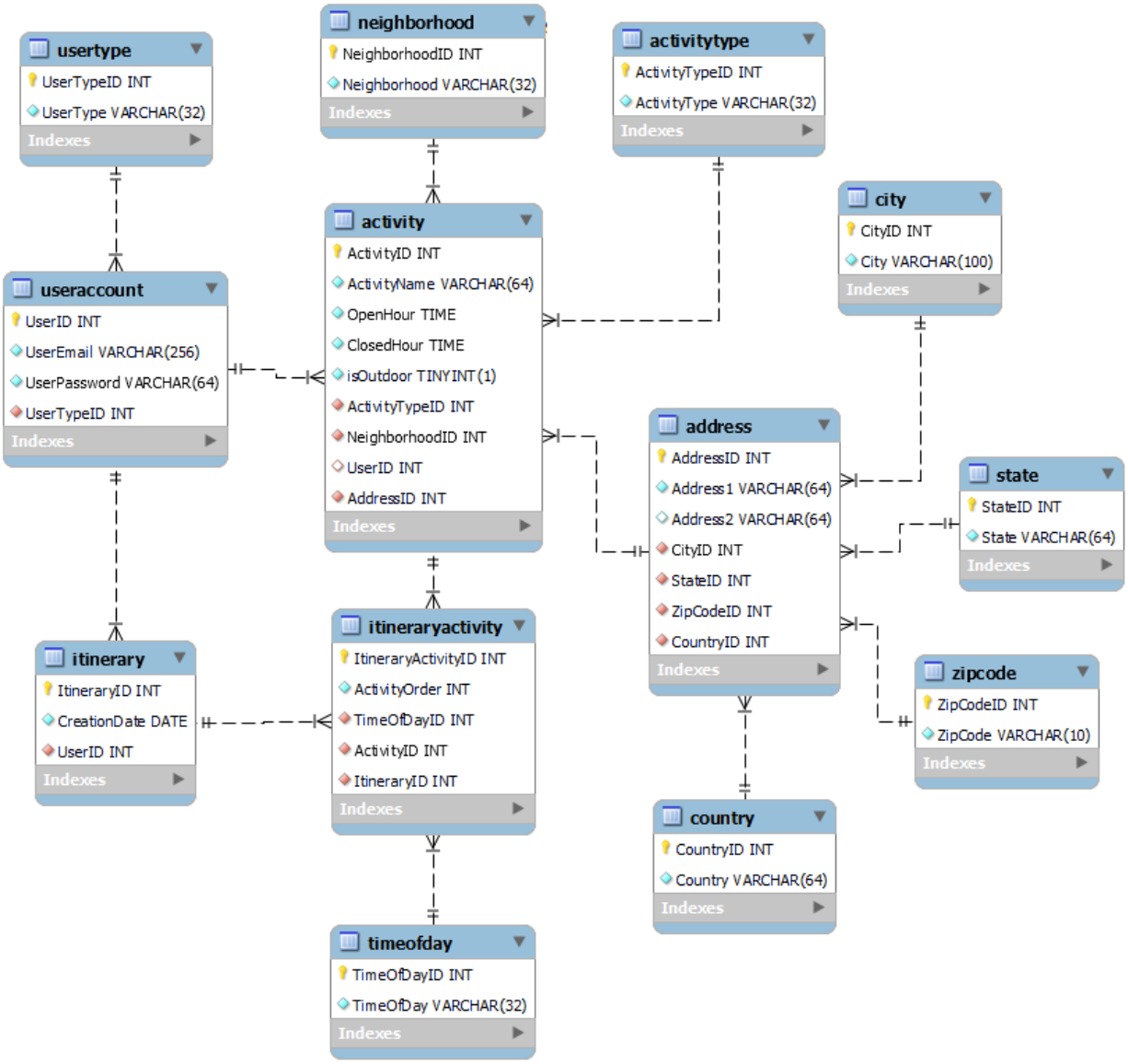

Figure 3: MySQL EER Diagram

SQL Script

```
/*Create Boise Explorer database*/
CREATE DATABASE BoiseExplorer;
USE BoiseExplorer;

/*Create tables*/
CREATE TABLE Neighborhood (
    NeighborhoodID INT AUTO_INCREMENT PRIMARY KEY,
    Neighborhood VARCHAR(32) NOT NULL
);

CREATE TABLE UserType (
    UserTypeID  INT AUTO_INCREMENT PRIMARY KEY,
    UserType VARCHAR(32) NOT NULL
);

CREATE TABLE UserAccount (
    UserID  INT AUTO_INCREMENT PRIMARY KEY,
    UserEmail VARCHAR(256) NOT NULL,
    UserPassword VARCHAR(64) NOT NULL,
    UserTypeID INT NOT NULL,
        CONSTRAINT fk_UserAccount_UserType FOREIGN KEY (UserTypeID)
            REFERENCES UserType(UserTypeID)
);

CREATE TABLE City (
    CityID  INT AUTO_INCREMENT PRIMARY KEY,
    City VARCHAR(100) NOT NULL
);

CREATE TABLE State (
    StateID  INT AUTO_INCREMENT PRIMARY KEY,
    State VARCHAR(64) NOT NULL
);

CREATE TABLE ZipCode (
    ZipCodeID  INT AUTO_INCREMENT PRIMARY KEY,
    ZipCode  VARCHAR(10) NOT NULL,
        CONSTRAINT chk_zip_code CHECK (
            ZipCode REGEXP '^[0-9]' AND ZipCode REGEXP '^[0-9-]+$'
        )
);

CREATE TABLE Country (
    CountryID INT AUTO_INCREMENT PRIMARY KEY,
    Country VARCHAR(64)        NOT NULL
);
```

```
CREATE TABLE Address (
    AddressID INT AUTO_INCREMENT PRIMARY KEY,
    Address1 VARCHAR(64) NOT NULL,
    Address2 VARCHAR(64),
    CityID INT NOT NULL,
    StateID INT NOT NULL,
    ZipCodeID INT NOT NULL,
    CountryID INT NOT NULL,
    CONSTRAINT fk_Address_City FOREIGN KEY (CityID) REFERENCES City(CityID),
    CONSTRAINT fk_Address_State FOREIGN KEY (StateID) REFERENCES State(StateID),
    CONSTRAINT fk_Address_ZipCode FOREIGN KEY (ZipCodeID) REFERENCES ZipCode(ZipCodeID),
    CONSTRAINT fk_Address_Country FOREIGN KEY (CountryID) REFERENCES Country(CountryID)
);

CREATE TABLE ActivityType (
    ActivityTypeID INT AUTO_INCREMENT PRIMARY KEY,
    ActivityType   VARCHAR(32) NOT NULL
);

CREATE TABLE Activity (
    ActivityID     INT AUTO_INCREMENT PRIMARY KEY,
    ActivityName   VARCHAR(64) NOT NULL,
    OpenHour TIME NOT NULL,
    ClosedHour TIME NOT NULL,
        CHECK (ClosedHour > OpenHour),
    isOutdoor BOOL NOT NULL,
    ActivityTypeID  INT NOT NULL,
    NeighborhoodID  INT NOT NULL,
    UserID INT,
    AddressID INT NOT NULL,
    CONSTRAINT fk_Activity_ActivityType FOREIGN KEY (ActivityTypeID)
        REFERENCES ActivityType(ActivityTypeID),
    CONSTRAINT fk_Activity_Neighborhood FOREIGN KEY (NeighborhoodID)
        REFERENCES Neighborhood(NeighborhoodID),
    CONSTRAINT fk_Activity_UserAccount FOREIGN KEY (UserID) REFERENCES UserAccount(UserID),
    CONSTRAINT fk_Activity_Address FOREIGN KEY (AddressID) REFERENCES Address(AddressID)
);

CREATE TABLE Itinerary (
    ItineraryID INT AUTO_INCREMENT PRIMARY KEY,
    CreationDate DATE NOT NULL,
    UserID INT NOT NULL,
    CONSTRAINT fk_Itinerary_UserAccount FOREIGN KEY (UserID) REFERENCES UserAccount(UserID)
);
CREATE TABLE TimeOfDay (
    TimeOfDayID INT AUTO_INCREMENT PRIMARY KEY,
    TimeOfDay VARCHAR(32) NOT NULL
);
```

```
CREATE TABLE ItineraryActivity (
ItineraryActivityID INT AUTO_INCREMENT PRIMARY KEY,
    ActivityOrder INT NOT NULL,
    TimeOfDayID INT NOT NULL,
    ActivityID INT NOT NULL,
    ItineraryID INT NOT NULL,
    CONSTRAINT fk_ItineraryActivity_Itinerary FOREIGN KEY (ItineraryID)
        REFERENCES Itinerary(ItineraryID),
    CONSTRAINT fk_ItineraryActivity_TimeOfDay FOREIGN KEY (TimeOfDayID)
        REFERENCES TimeOfDay(TimeOfDayID),
    CONSTRAINT fk_ItineraryActivity_Activity FOREIGN KEY (ActivityID)
        REFERENCES Activity(ActivityID)
);
```