Phase 1 Acknowledged of what it need to be done

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Designing a database for a food oasis application with a simple GPS-based interface to find fresh food sources is an interesting project. Here's a high-level overview of the database structure and resources you might need to implement this:

Database Schema:

Users Table:
- UserID (Primary Key)
- Username
- AcceptedPolicies (Boolean, indicating whether they have accepted the policies)
- Email
- Registration Date
- GPSAccess (Boolean, indicating whether they have granted GPS access)

Relationships:
  - One-to-Many relationship with Session (a user can have multiple sessions)
  - Many-to-Many relationship with Food Source through User_Favorite (users can have multiple favorite food sources)

Food Sources Table:
- SourceID (Primary Key)
- SupplierID (Foreign Key)
- Food Source Name
- GPS Location (coordinates of the food source)

Relationships:
  - Many-to-One relationship with Supplier (a food source is supplied by one supplier)
  - Many-to-Many relationship with User through User_Favorite (multiple users can have the same favorite food source)

Food Item Table:
- UPC (UPC is Unique Product Code that is consistent for every retailer) (Primary Key)
- Food Name
- Food Description

Source Inventory Table:
- (SourceID, SourceID) -> Composite Key
- SourceID (Foreign Key)
- UPC (Foreign Key)
- Availability Schedule (days and hours)

Suppliers Table:
- SupplierID (Primary Key)
- Supplier Name
- Location (GPS coordinates)
- Contact Information (phone, email, etc.)
- Registration Date

Relationships:

    - One-to-Many relationship with Food Source (a supplier can have multiple food sources)
    -

User Favorites Table (Optional for registered users):
- UserID (Foreign Key)
- SourceID (Foreign Key)

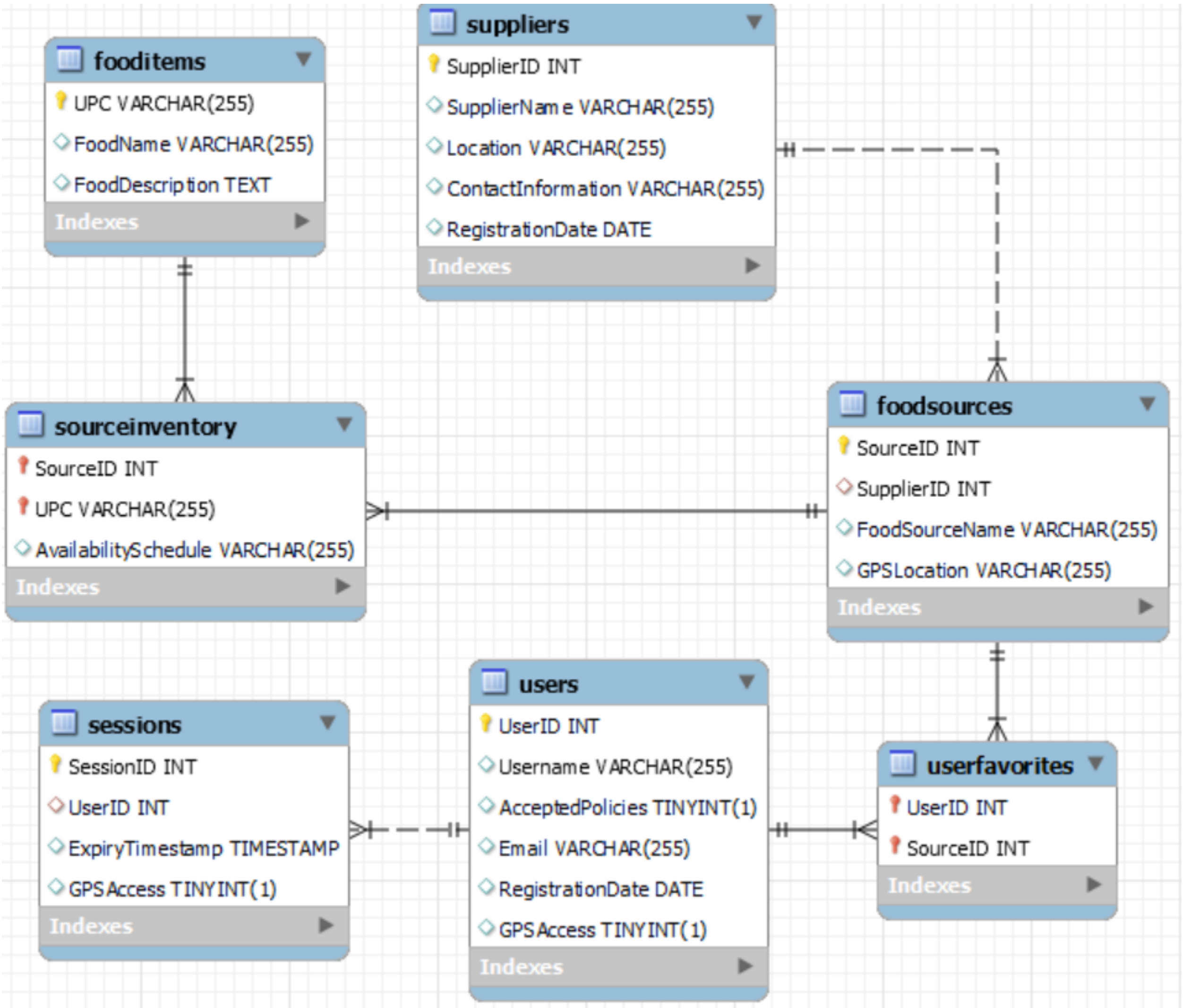
Relationships:
    - Many-to-One relationship with User (maps users to their favorite food sources)
    - Many-to-One relationship with Food Source (maps food sources to users who favorited them)

Sessions Table (For managing active sessions and GPS access):
- SessionID (Primary Key)
- UserID (Foreign Key)
- Expiry Timestamp
- GPS Access (boolean flag)

Relationships:
    - Many-to-One relationship with User (a session belongs to one user)

```
CREATE TABLE if not exists Users (
  UserID INT PRIMARY KEY,
  Username VARCHAR(255),
  AcceptedPolicies BOOLEAN,
  Email VARCHAR(255),
  RegistrationDate DATE,
  GPSAccess BOOLEAN
);


CREATE TABLE if not exists FoodItems (
  UPC VARCHAR(255) PRIMARY KEY,
  FoodName VARCHAR(255),
  FoodDescription TEXT
);



CREATE TABLE if not exists Suppliers (
  SupplierID INT PRIMARY KEY,
  SupplierName VARCHAR(255),
  Location VARCHAR(255),
  ContactInformation VARCHAR(255),
  RegistrationDate DATE
);

CREATE TABLE if not exists FoodSources (
  SourceID INT PRIMARY KEY,
  SupplierID INT,
  FoodSourceName VARCHAR(255),
  GPSLocation VARCHAR(255),
  FOREIGN KEY (SupplierID) REFERENCES Suppliers(SupplierID)
);
```

```
CREATE TABLE if not exists UserFavorites (
   UserID INT,
   SourceID INT,
   PRIMARY KEY (UserID, SourceID),
   FOREIGN KEY (UserID) REFERENCES Users(UserID),
   FOREIGN KEY (SourceID) REFERENCES FoodSources(SourceID)
);
CREATE TABLE if not exists SourceInventory (
   SourceID INT,
   UPC VARCHAR(255),
   AvailabilitySchedule VARCHAR(255),
   PRIMARY KEY (SourceID, UPC),
   FOREIGN KEY (SourceID) REFERENCES FoodSources(SourceID),
   FOREIGN KEY (UPC) REFERENCES FoodItems(UPC)
);
CREATE TABLE Sessions (
   SessionID INT PRIMARY KEY,
   UserID INT,
   ExpiryTimestamp TIMESTAMP,
   GPSAccess BOOLEAN,
   FOREIGN KEY (UserID) REFERENCES Users(UserID)
);
```



Resources Needed:

Database Management System (DBMS):
- Choose a suitable DBMS like MySQL, PostgreSQL, or MongoDB based on your project requirements.

Backend Framework:
- Use a backend framework like Flask (Python), Express (Node.js), or Ruby on Rails (Ruby) to create API endpoints for your application.

Geolocation Services:
- Integrate with a mapping and geolocation service like Google Maps API to handle GPS coordinates and map integration.

Authentication and Security:
- Implement user authentication and security measures to protect user data, including password hashing and salting.

Web Hosting:

- Deploy your application on a web server or cloud platform like AWS, Heroku, or DigitalOcean.

Frontend Development:

- Develop a user-friendly frontend using HTML, CSS, and JavaScript or a frontend framework like React, Angular, or Vue.js.

User Interface Design:

- Design a simple and intuitive user interface for both users and suppliers to interact with the application.

Documentation and Tutorials:

- Create documentation and tutorials for users and suppliers on how to register and use the platform effectively.

Testing and Quality Assurance:

- Perform thorough testing to ensure the reliability and functionality of the GPS-based features.

Legal Considerations:

- Ensure compliance with data protection laws and regulations, especially regarding user data and GPS information.

Marketing and Outreach:

- Consider strategies for promoting your food oasis platform to attract users and suppliers.

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Note: this is a old version
Phase 2 Creation of the Entities Relational Diagrams (ERD) & Entities Relational Model (ERM)

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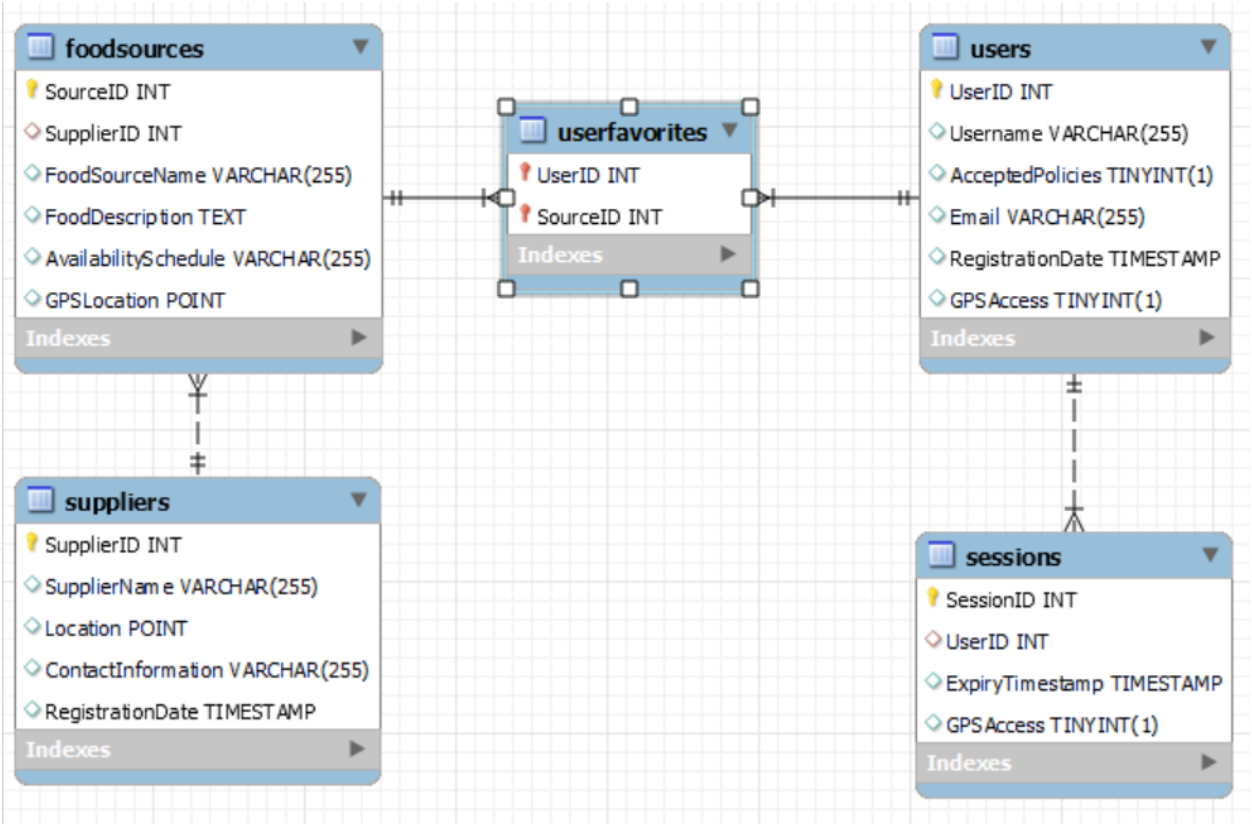
Entities Relational Model (ERM)



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- Food Source Name
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- Availability Schedule (days and hours)
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Relationships:

  - Many-to-One relationship with Supplier (a food source is supplied by one supplier)
  - Many-to-Many relationship with User through User_Favorite (multiple users can have the same favorite food source)

Suppliers Table:
- SupplierID (Primary Key)
- Supplier Name
- Location (GPS coordinates)
- Contact Information (phone, email, etc.)
- Registration Date

Relationships:
    - One-to-Many relationship with Food Source (a supplier can have multiple food sources)
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User Favorites Table (Optional for registered users):
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- Expiry Timestamp
- GPS Access (boolean flag)

Relationships:
    - Many-to-One relationship with User (a session belongs to one user)

Code to create the schema with the tables and relationship

```
 -- Create Users Table
CREATE TABLE Users (
   UserID INT AUTO_INCREMENT PRIMARY KEY,
   Username VARCHAR(255),
   AcceptedPolicies BOOLEAN,
   Email VARCHAR(255),
   RegistrationDate TIMESTAMP,
   GPSAccess BOOLEAN
);

-- Create Food Sources Table
CREATE TABLE FoodSources (
   SourceID INT AUTO_INCREMENT PRIMARY KEY,
   SupplierID INT,
   FoodSourceName VARCHAR(255),
   FoodDescription TEXT,
   AvailabilitySchedule VARCHAR(255),
   GPSLocation POINT,
   FOREIGN KEY (SupplierID) REFERENCES Suppliers(SupplierID)
);
```

```
-- Create Suppliers Table
CREATE TABLE Suppliers (
    SupplierID INT AUTO_INCREMENT PRIMARY KEY,
    SupplierName VARCHAR(255),
    Location POINT,
    ContactInformation VARCHAR(255),
    RegistrationDate TIMESTAMP
);

-- Create User Favorites Table
CREATE TABLE UserFavorites (
    UserID INT,
    SourceID INT,
    FOREIGN KEY (UserID) REFERENCES Users(UserID),
    FOREIGN KEY (SourceID) REFERENCES FoodSources(SourceID),
    PRIMARY KEY (UserID, SourceID)
);

-- Create Sessions Table
CREATE TABLE Sessions (
    SessionID INT AUTO_INCREMENT PRIMARY KEY,
    UserID INT,
    ExpiryTimestamp TIMESTAMP,
    GPSAccess BOOLEAN,
    FOREIGN KEY (UserID) REFERENCES Users(UserID)
);
```

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Phase 3 Backend Framework: Go to file Project Structure.doc

- Use a backend framework like Flask (Python), Express (Node.js), or Ruby on Rails (Ruby) to create API endpoints for your application.
- ● Javascript (NodeJS)
- ○ NodeJS is an open source server
- environment that will allow the use of
- Javascript code outside the browser
- ● Package Manager
- ○ npm (node package manager)
- ■ Used to install and manage
- packages
- ■ This is bundled with Node.js (comes with Node.js when installing
- Node.js)

- ● MySQL (relational database)
