Local Eats Database Design Document

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1. Purpose

The purpose of the 'Street Food and Local Eats' database is to create a comprehensive database management system that catalogs street food vendors and local eateries in the Boston area. It aims to facilitate the discovery of diverse culinary experiences, promote small food businesses, and provide valuable insights for food enthusiasts and tourists. The database serves as a bridge connecting customers with a wide range of dining options, enriching the local food culture and economy.

2. Business Problem

The database addresses the challenge of locating diverse street food options and local eateries in Boston. It aims to support small food businesses by increasing their visibility and accessibility, helping them to attract a larger customer base. Furthermore, the database seeks to enhance the culinary experience for users by providing detailed information on various dining options, including menus, reviews, and health inspection records.

3. Business Rules

- Multiple Users can prefer Multiple Cuisines
- A cuisine type is preferred by users and is offered by multiple vendors
- Each vendor is associated with one cuisine type but one cuisine type can be offered by multiple vendors
- A vendor offers one menu containing one or more dishes.
- A vendor operates in one or more location
- Health inspections are conducted on vendors and recorded with a score and comments
- User provides zero or more reviews to a vendor
- A user can write multiple reviews but each review is associated with only one user
- Each review is about a single vendor and a vendor can have multiple reviews
- A user can register for one or more events and each event will have multiple users
- A user registers for an event and an event registration record is created for each user-event pair
- A user can make multiple payments for different event registration, but each payment is linked to only one registration
- A payment has a status such as pending, confirmed or cancelled.An event organizer can have multiple vendors associated but vendor may be associated with one event organizer

4. Changes Made from Conceptual Data Model to ERD:

- Created an Associative entity for "User" and "Cuisine" entities.
- Corrected all the relationships and FK's
- Converted "Event Registration" entity as associative entity
- Normalized the ERD to Third Normal Form by removing Many-to-Many relationships and adding Associative entities.

5. Database Design

Entity Name	Definition	Keys	Relationships
User	Represents a strong entity that holds User Information	• Primary Key – User ID	• User - Cuisine: Mandatory Many - Mandatory Many. • User - Reviews: Mandatory One - Optional Many. • User - Events: Optional Many - Mandatory Many
Vendor	Represents a strong entity that contains Vendor Information such as opening/closing hours, Contact and Vendor ID	• Primary Key– Vendor ID • Foreign Key – CuisineID,Organizer ID	• Vendor - Review: Mandatory One -Optional Many.
Dish	Represents a strong entity that contains Attributes such as Dish ID, Main Ingredients, Allergen and Description	• Primary Key – Dish ID • Foreign Key – Menu Id	• Dish - Menu: Mandatory Many - Mandatory One
Menu	Represents a strong entity that contains Pricing Information	• Primary Key – Menu ID	• Vendor - Menu: Mandatory One - Mandatory One
Cuisine	Represents a strong entity containing Cuisine Type	• Primary Key- Cuisine ID	• Vendor - Cuisine: Mandatory Many -Mandatory One.
Location	Represents a strong entity containing Location Details	• Primary Key – Location ID • Foreign Key – Vendor ID	• Location - Vendors: Mandatory Many – Mandatory One
Health Inspection	A Strong Entity that represents the health inspections conducted on vendors.	• Primary Key – Inspection ID • Foreign Key – Vendor ID	• Health Inspection - Vendor: Mandatory Many - Mandatory One
Review	A Strong Entity that represents reviews written by users about dishes.	• Primary Key – Review ID • Foreign – User ID, Vendor ID	• User - Reviews: Mandatory One - Optional Many.
Event	A Strong Entity that represents events organized by vendors.	• Primary Key – Event ID • Foreign Key – Organizer ID	• Event – Event Organizer: Optional Many - Mandatory One
Event Registration	Represents an Associative Entity between user and events	• Primary Key - Registration ID	• User – Events: Event Registration as Associative Entity

		Foreign Key – User ID, Event ID	
Prefers	Represents Associative between Cuisine an Entity User and	• Composite Primary Key – Cuisine ID , User ID	
Payment	Represents an entity with Payment details of Event Registration	• Primary Key – Payment ID • Foreign Key – Registration ID	• Payment – Event Registration: Mandatory Many to Mandatory One

5. Entity Relationship Diagram (ERD)