



McDo App Database Design Document (DDD)

Version 1.0

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Revision History

Date	Version	Description	Author

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1 Introduction

The section introduces the Database Design Document (DDD) for McDo App to its readers.

1.1 Document Objectives

This DDD for the McDo App software has the following objectives:

- Describe the design of a My SQL database, that is, a collection of related data stored in one or more computerized files in a manner that can be accessed by users or computer programs via a database management system (DBMS). It can also describe the software units used to access or manipulate the data.
- To serve as the basis for implementing the database. It provides the acquirer visibility into the design and provides information needed for software support.

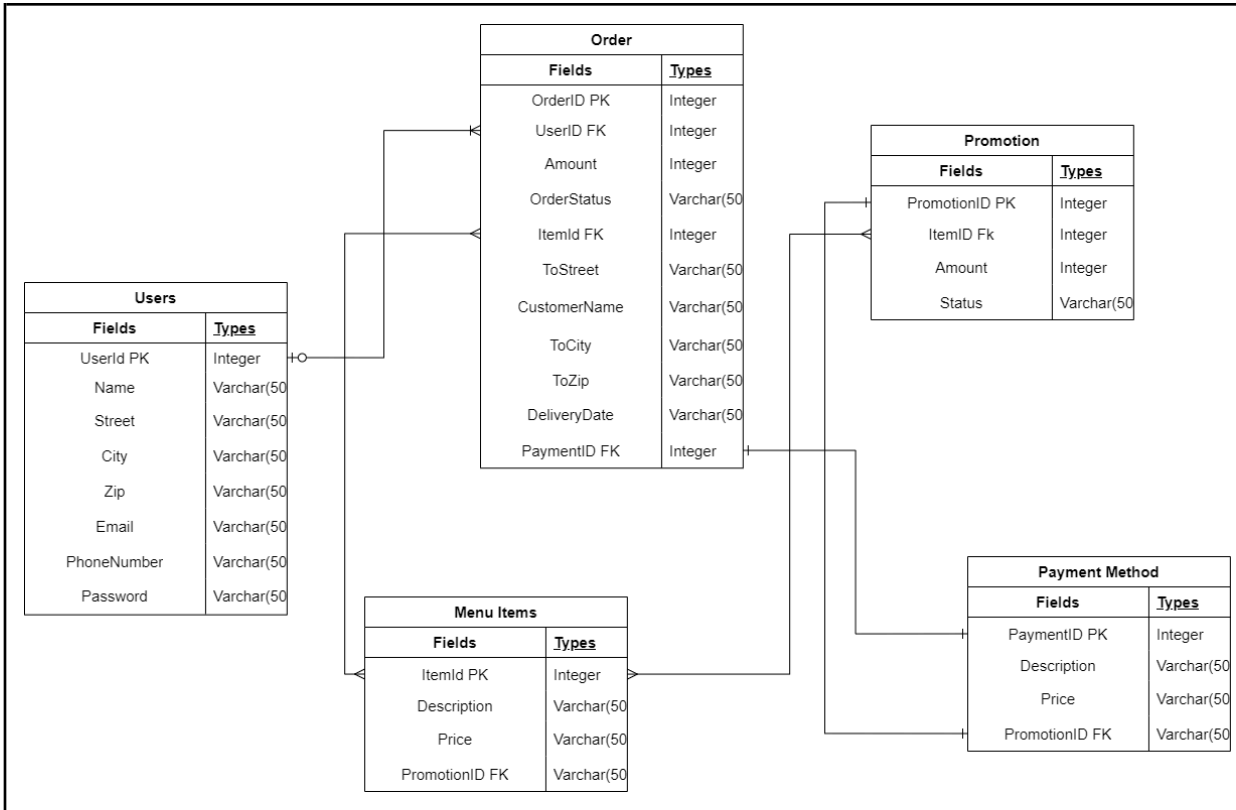
1.2 Intended Audiences

This DDD is intended for the following audiences:

- Technical reviewers, Supervisor and UOW staff who must evaluate the quality of this document.
- McDo App developers including:
 - Designers, whose design must meet the requirements specified in this document.
 - Programmers, whose software must implement the requirements specified in this document.
 - Testers, whose test cases must validate the requirements specified in this document.

2 Detailed Database Design

2.0 Entity Relationship Diagram



2.0.1 Description

This diagram displays the Physical model of the relational database for the system. The database will store information related to users, menu items, orders, payments, and promotions. It is designed to manage customer orders efficiently while ensuring data integrity and security. The database will be created upon initialization and will be populated with user and menu data as transactions occur.

Each user in the system represents a registered customer, uniquely identified by a UserID. The user's personal details, such as name, contact information, and address, will be stored securely. The user will also have an associated password for authentication. Additionally, an admin feature may be available, allowing users to manage their accounts, such as updating their personal details or resetting their passwords.

Users can place orders, each of which is uniquely identified by an OrderID. An order is linked to a user and contains details such as the ordered items, total amount, order status, and delivery address. An order

must have at least one menu item, and each menu item can be part of multiple orders. The system ensures that menu items maintain their availability and are properly linked to orders.

Each order is associated with a payment method, uniquely identified by a PaymentID. This table records the type of payment used, such as credit card, digital wallet, or cash-on-delivery, as well as the current status of the transaction. Since every order requires a payment, there is a one-to-one relationship between the Order and Payment Method tables.

The Menu Items table stores information about all available food items, including their descriptions, prices, and any associated promotions. A menu item may have an active promotion, which is managed in the Promotion table. Each promotion is linked to a specific menu item and has details such as the discount amount, number of uses, and promotion status. The system ensures that promotions remain valid and do not exceed their usage limits.

To enhance security, sensitive information within the database, such as user passwords and payment details, will be encrypted. The system will decrypt this information only when necessary, ensuring data protection. The local database will primarily store structured information such as user details, menu items, and orders, while additional business logic will be implemented at the application level.

This relational database structure ensures efficient management of user orders, secure transactions, and flexible promotional offers while maintaining scalability and data integrity.

2.1 Data dictionary

2.1.1 Data dictionary for Element: User

Name	Data Type	Constrain	Description
UserID (Primary Key)	Int	Min :1, Max:1	Unique number to identity user
Name	String		Name of the user
Street	String	Min :1, Max:1	Address of user
City	String		Address of user
Zip	String		Address of user

Email	String	Min:1, Max:1	Email of user
Phone Number	String		Phone number of user
Password	String		Password of user

2.1.2 Data dictionary for Element: Menu Items

Name	Data Type	Constrain	Description
Item Id (Primary Key)	Integer	Min :1, Max:1	Unique number to identify menu item
Description	String		Description of the item
Price	Integer		Price of the item
PromotionID (Foreign Key)	Integer		Foreign key pointing to promotion id in promotions table

2.1.3 Data dictionary for Element: Order

Name	Data Type	Constrain	Description
Order ID (Primary Key)	Integer	Min:1, Max: 1	Unique number to identify orders
User ID (Foreign Key)	Integer		Reference to user that ordered the order
Amount	Integer		Number of orders
Order Status	String		Status of order (Queued, Preparing, Ready)
Item Id (Foreign Key)	Integer		Reference to item that is being ordered
ToStreet	String		Address to deliver

CustomerName	String		Name of the customer
ToCity	String		Address to deliver
ToZip	String		Address to deliver
DeliveryDate	String		Date when the item was delivered
PaymentID	Integer		Reference to payment method used by user

2.1.4 Data dictionary for Element: Payment Method

Name	Data Type	Constrain	Description
PaymentID (Primary Key)	Integer	Min :1, Max:1	Unique number to identify payment method
OrderID (Foreign Key)	Integer	Min: 1, Max: 1	Reference to the order
PaymentMethod	String		Payment Method used by the user
PaymentStatus	String		Status of the payment

2.1.4 Data dictionary for Element: Promotion

Name	Data Type	Constrain	Description
PromotionID (Primary Key)	Integer	Min :1, Max:1	Unique number to identify promotions

ItemID (Foreign Key)	Integer	Min: 1, Max: 1	Reference to the item this promotion applied to
Amount	Integer		Number of times this promotion can apply before it becomes invalid
Status	String		Status of the promotion

2.2 Purpose of Tables

2.2.1 Purpose of Users Table

This table stores the information regarding users registered in the system. It includes personal details such as name, address, email, and phone number. The user will have a password for authentication. Each user is uniquely identified by a UserID.

2.2.2 Purpose of Menu Items Table

This table stores all the information regarding the menu items available for purchase. Each item has a unique identifier, a description, and a price. The table also includes a reference to promotions that may be applied to specific items.

2.2.3 Purpose of Order Table

This table stores information about customer orders. Each order is linked to a user who placed it and contains details such as the order amount, status, and delivery address. The table also includes references to the items ordered and the payment method used.

2.2.4 Purpose of Payment MethodTable

This table stores information regarding the payment methods used by customers. It includes the type of payment, its status, and a reference to the corresponding order. Each payment is uniquely identified by a PaymentID.

2.2.5 Purpose of Promotion Table

This table stores details about promotional offers available for menu items. Each promotion is linked to a specific item and has a limited number of times it can be applied before becoming invalid. The table also tracks the promotion's status.

2.3 Relations

From Table	To Table	Relation
Menu Items	Order	An order contains one menu item.
Users	Order	An order contains one user
PaymentMethod	Order	A Payment method is used for one order
Promotion	Menu Item	A menu item may have a promotion