Elza Contiero
Assignment 4 – Database Design Assessment
C212 Software Development Using Java (March 2022)

# Online Food Ordering System
# Database Design

## Objective

This document describes the design of a database for a small food delivery shop. The purpose of the system is to automate the day-to-day activities of responding to incoming orders placed by customers.

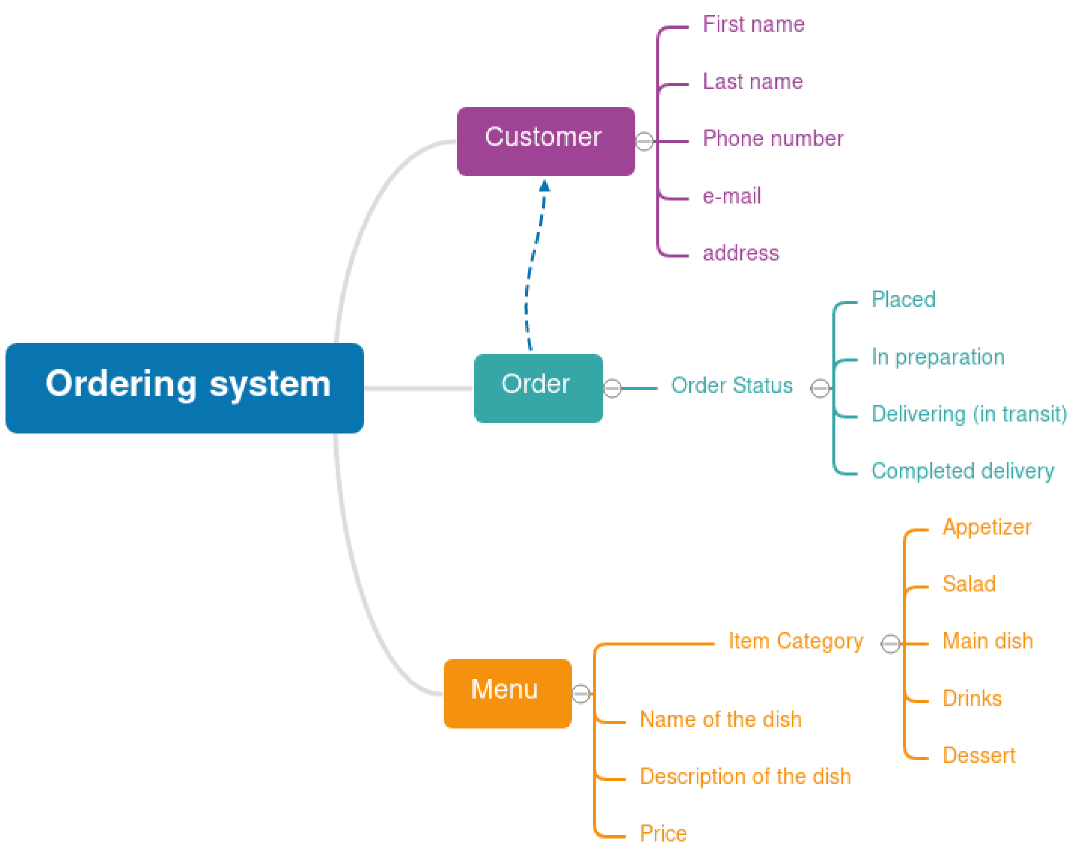
End users of this system are small shops that work with incoming requests where orders are placed on the internet website. The shop needs to prioritise work in serving orders in a first come first served basis. For example, when customer Mary accesses *The Chinese Shop* website, she fills in a form with her basic contacts and then proceeds to place the following order: 2 spring rolls, 2 cokes, one yakisoba. This operation should create the appropriate entities in the database backend which will then be accessed from the shop and proceed to preparation.

## How it will be used

The main access to the database should be via website. A customer should be able to enter his details and browse through the menu looking at the various food and drink items available in the system, alongside with the price for each item. Upon selection of an item to purchase, a new order is created, and a new item added to that order. The process continues with the user adding more items to the order list. When completed, the user submits the order for processing, which makes the state of the order to transit to *placed.*

A worker of the shop should be able to see the list of orders in priority: orders placed first should be served first. When the worker starts preparing an order, the state changes to *in preparation* and continues until changing to *in transit*, when the order is shipped to the customer and the next pending order can then be served by the shop. Finally, when the customer receives the order, its state change to *completed*.

## Mind map



The **Customer** entity should have only a minimum set of fields. This table should conform to 2NF, but not necessarily to 3NF to keep the system straightforward.

**Order** entity identifies the date and time the order was placed alongside with the status, which controls the workflow for the shop: *order placed -> in preparation -> in transit -> completed.*

The **Menu** entity contains items available for customers to select and add to an order. A bridge table connects Menu items to Orders, where multiple selected items belong to one order. This table should conform to 3NF.

## List of Entities

| **Customer** | | |
|---|---|---|
| CustomerID | Integer | PK |
| FirstName | Varchar(50) | |
| LastName | Varchar(50) | |
| Email | Varchar(50) | |
| Phone | Varchar(20) | |
| Address | Varchar(120) | |
| City | Varchar(50) | |
| Postcode | Varchar(8) | |

| **OrderState** | | |
|---|---|---|
| OrderStateID | Integer | PK |
| Name | Varchar(50) | |

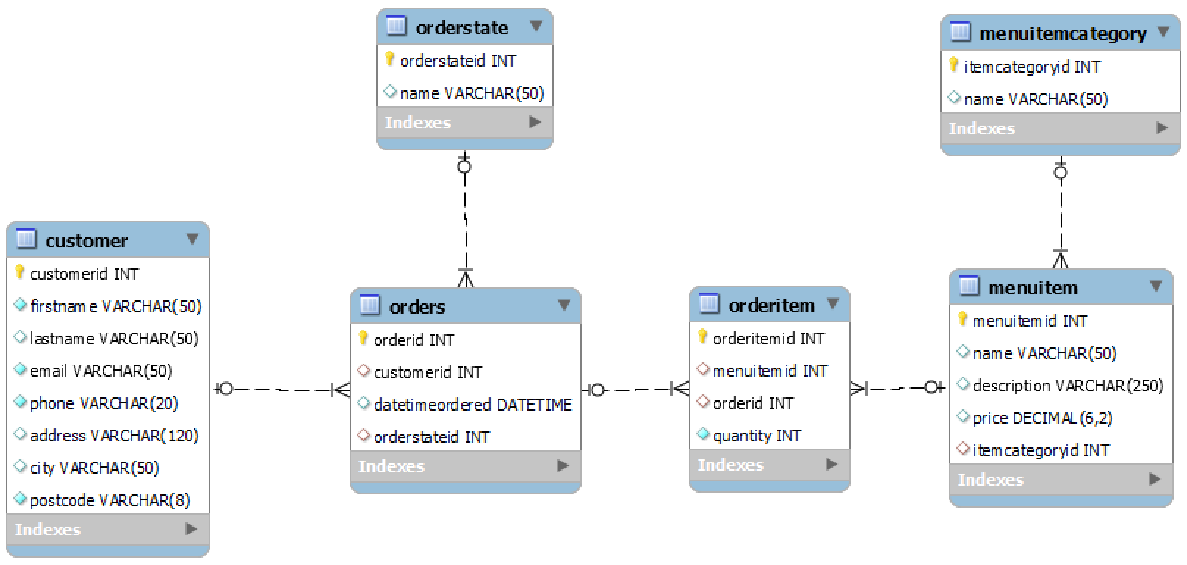
| **Orders** | | |
|---|---|---|
| OrderID | Integer | PK |
| CustomerID | Integer | FK |
| DateTimeOrdered | Datetime | |
| OrderStateID | Integer | FK |

| **MenuItemCategory** | | |
|---|---|---|
| ItemCategoryID | Integer | PK |
| Name | Varchar(50) | |

| **MenuItem** | | |
|---|---|---|
| MenuItemID | Integer | PK |
| Name | Varchar(50) | |
| Description | Varchar(250) | |
| Price | Decimal(6,2) | |
| ItemCategoryID | Integer | FK |

| **OrderItem** | | |
|---|---|---|
| OrderItemID | Integer | PK |
| MenuItemID | Integer | FK |
| OrderID | Integer | FK |
| Quantity | Integer | |

## Entity Relationship Diagram (ERD)


orderstate
orderstateid INT
name VARCHAR(50)
Indexes
menuitemcategory
itemcategoryid INT
name VARCHAR(50)
Indexes
customer
customerid INT
firstname VARCHAR(50)
lastname VARCHAR(50)
email VARCHAR(50)
phone VARCHAR(20)
address VARCHAR(120)
city VARCHAR(50)
postcode VARCHAR(8)
Indexes
orders
orderid INT
customerid INT
datetimeordered DATETIME
orderstateid INT
Indexes
orderitem
orderitemid INT
menuitemid INT
orderid INT
quantity INT
Indexes
menuitem
menuitemid INT
name VARCHAR(50)
description VARCHAR(250)
price DECIMAL(6,2)
itemcategoryid INT
Indexes