NEWGIZA UNIVERSITY
SCHOOL of
INFORMATION TECHNOLOGY

# RESTAURANT SYSTEM

This project built to fulfill the requirements of CSAI 310

Database Systems


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# Chapter One : Introduction

## 1.1 Background

Our system is to keep track of the restaurant's database.

## 1.2 Problem Statement

The mess that happens in receiving the orders and preparing them until they're served.

## 1.3 Objective

Our system will solve the problem of organizing and managing the restaurant including what the customer orders, the chef's preparation, and the waiter's way of serving it.

## 1.4 System Definition

The system will manage the restaurant by organizing all the data about the customers and employees in a database for each branch which includes their menu items and orders.

## 1.5 System goals

- Save information about the restaurant.
- Save information about the manager who manages the branch.
- Save information about waiter and chef who work in the restaurant.
- Save information about the menu items.
- Save information about the customer's order.

# Chapter Two : Requirements Extraction and Analysis

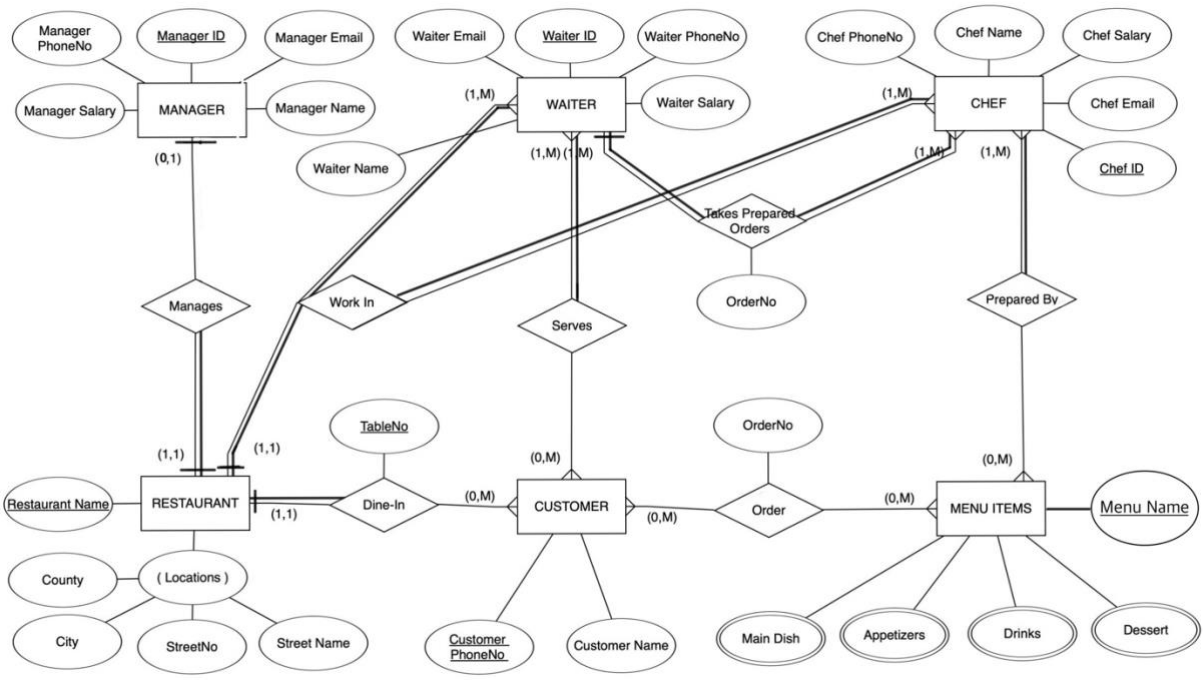
## 2.1 User Requirements

- Manager manages one Restaurant.
- At least one Waiter and Chef work in one Restaurant.
- Many Customers may dine in one Restaurant.
- Many Customers may order many Menu Items.
- At least one Waiter serves many Customers.
- At least one Waiter takes prepared orders from at least one Chef.
- Many Menu Items should be prepared by at least one Chef.

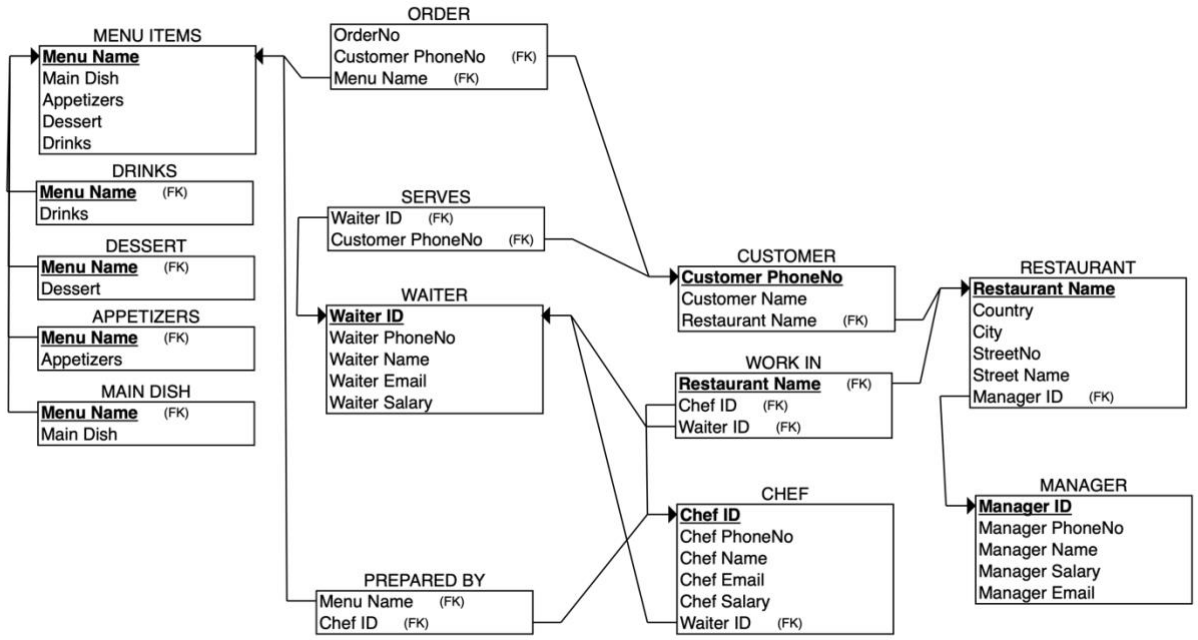
# Chapter Three : System Design

## 3.1 ER Diagram & Conversions

### 3.1.1 ERD



## 3.1.2 Relational Schema




## 3.1.3 Data Definition & Manipulation Language (DDL & DML)

```
CREATE TABLE MANAGER (
   ManagerID INT PRIMARY KEY,
   ManagerPhoneNo VARCHAR(50),
   ManagerName VARCHAR(50),
   ManagerSalary INT,
   ManagerEmail VARCHAR(50)
);

CREATE TABLE CHEF (
   ChefID INT PRIMARY KEY,
   ChefPhoneNo VARCHAR(50),
   ChefName VARCHAR(50),
   ChefEmail VARCHAR(50),
   ChefSalary INT,
   WaiterID INT,
   FOREIGN KEY (WaiterID) REFERENCES WAITER(WaiterID)
);

CREATE TABLE RESTAURANT (
   RestaurantName VARCHAR(50) PRIMARY KEY,
```

```
    Country VARCHAR(50),
    City VARCHAR(50),
    StreetNo VARCHAR(50),
    StreetName VARCHAR(50),
    ManagerID INT,
    FOREIGN KEY (ManagerID) REFERENCES MANAGER(ManagerID)
);

CREATE TABLE CUSTOMER (
    CustomerPhoneNo VARCHAR(50) PRIMARY KEY,
    CustomerName VARCHAR(50),
    RestaurantName VARCHAR(50),
    FOREIGN KEY (RestaurantName) REFERENCES RESTAURANT(RestaurantName)
);

CREATE TABLE WAITER (
    WaiterID INT PRIMARY KEY,
    WaiterPhoneNo VARCHAR(50),
    WaiterName VARCHAR(50),
    WaiterEmail VARCHAR(50),
    WaiterSalary INT
);

CREATE TABLE MENU_ITEMS (
    MenuName VARCHAR(50) PRIMARY KEY,
    MainDish VARCHAR(50),
    Appetizers VARCHAR(50),
    Dessert VARCHAR(50),
    Drinks VARCHAR(50)
);

CREATE TABLE DRINKS (
    MenuName VARCHAR(50) PRIMARY KEY,
    Drink VARCHAR(50),
    FOREIGN KEY (MenuName) REFERENCES MENU_ITEMS(MenuName)
);

CREATE TABLE DESSERT (
    MenuName VARCHAR(50) PRIMARY KEY,
    Dessert VARCHAR(50),
    FOREIGN KEY (MenuName) REFERENCES MENU_ITEMS(MenuName)
);

CREATE TABLE APPETIZERS (
    MenuName VARCHAR(50) PRIMARY KEY,
    Appetizer VARCHAR(50),
```

```
    FOREIGN KEY (MenuName) REFERENCES MENU_ITEMS(MenuName)
);

CREATE TABLE MAIN_DISH (
    MenuName VARCHAR(50) PRIMARY KEY,
    MainDish VARCHAR(50),
    FOREIGN KEY (MenuName) REFERENCES MENU_ITEMS(MenuName)
);

CREATE TABLE PREPARED_BY (
    MenuName VARCHAR(50),
    ChefID INT,
    FOREIGN KEY (MenuName) REFERENCES MENU_ITEMS(MenuName),
    FOREIGN KEY (ChefID) REFERENCES CHEF(ChefID)
);

CREATE TABLE ORDER_ (
    OrderNo INT PRIMARY KEY,
    CustomerPhoneNo VARCHAR(50),
    MenuName VARCHAR(50),
    FOREIGN KEY (CustomerPhoneNo) REFERENCES CUSTOMER(CustomerPhoneNo),
    FOREIGN KEY (MenuName) REFERENCES MENU_ITEMS(MenuName)
);

CREATE TABLE SERVES (
    WaiterID INT,
    CustomerPhoneNo VARCHAR(50),
    FOREIGN KEY (WaiterID) REFERENCES WAITER(WaiterID),
    FOREIGN KEY (CustomerPhoneNo) REFERENCES CUSTOMER(CustomerPhoneNo)
);

CREATE TABLE WORK_IN (
    RestaurantName VARCHAR(50) PRIMARY KEY,
        ChefID INT,
    WaiterID INT,
        FOREIGN KEY (RestaurantName) REFERENCES
RESTAURANT(RestaurantName),
        FOREIGN KEY (ChefID) REFERENCES CHEF(ChefID),
    FOREIGN KEY (WaiterID) REFERENCES WAITER(WaiterID)
 );

 INSERT INTO MENU_ITEMS (MenuName, MainDish, Appetizers, Dessert, Drinks)
VALUES
('EgyptianBreakfast', 'Foul', 'Falafel, Taameya', 'Basbousa', 'Chai'),
('MansafDelight', 'Mansaf', 'Hummus, Mutabbal', 'Knafeh', 'Ayran'),
('SpicyEgypt', 'Molokhia', 'Sambousek, Kebbeh', 'Umm Ali', 'Hibiscus Tea'),
```

('PharaohsBanquet', 'Mandi', 'Baba Ganoush, Kibbeh Nayyeh', 'Roz Bel Laban', 'Qamar al-Din');

INSERT INTO WAITER (WaiterID, WaiterPhoneNo, WaiterName, WaiterEmail, WaiterSalary)
VALUES
(301, '+201234567893', 'Sara Mahmoud', 'sara.mahmoud@yahoo.com', 32000),
(302, '+201112233448', 'Ahmed Abdelkader', 'ahmed.abdelkader@yahoo.com', 34000),
(303, '+201987654324', 'Youssef Samir', 'youssef.samir@yahoo.com', 36000),
(304, '+201876543213', 'Hala Mohamed', 'hala.mohamed@yahoo.com', 33000);

INSERT INTO DRINKS (MenuName, Drink)
VALUES
('EgyptianBreakfast', 'Chai'),
('MansafDelight', 'Ayran'),
('SpicyEgypt', 'Hibiscus Tea'),
('PharaohsBanquet', 'Qamar al-Din');

INSERT INTO DESSERT (MenuName, Dessert)
VALUES
('EgyptianBreakfast', 'Basbousa'),
('MansafDelight', 'Knafeh'),
('SpicyEgypt', 'Umm Ali'),
('PharaohsBanquet', 'Roz Bel Laban');

INSERT INTO CHEF (ChefID, ChefPhoneNo, ChefName, ChefEmail, ChefSalary, WaiterID)
VALUES
(201, '+201234567891', 'Mariam Mahmoud', 'mariam.mahmoud@yahoo.com', 42000, 301),
(202, '+201112233446', 'Hassan Ibrahim', 'hassan.ibrahim@yahoo.com', 46000, 302),
(203, '+201987654322', 'Yasmine Ahmed', 'yasmine.ahmed@yahoo.com', 49000, 303),
(204, '+201876543211', 'Omar Ali', 'omar.ali@yahoo.com', 48000, 304);

INSERT INTO MANAGER (ManagerID, ManagerPhoneNo, ManagerName, ManagerSalary, ManagerEmail)
VALUES
(101, '+201234567890', 'Ahmed Mohamed', 55000, 'ahmed.mohamed@yahoo.com'),
(102, '+201112233445', 'Fatima Ali', 48000, 'fatima.ali@yahoo.com'),
(103, '+201987654321', 'Khaled Hassan', 52000, 'khaled.hassan@yahoo.com'),
(104, '+201876543210', 'Nour Ahmed', 50000, 'nour.ahmed@yahoo.com');

INSERT INTO APPETIZERS (MenuName, Appetizer)
VALUES
('EgyptianBreakfast', 'Falafel, Taameya'),
('MansafDelight', 'Hummus, Mutabbal'),
('SpicyEgypt', 'Sambousek, Kebbeh'),

('PharaohsBanquet', 'Baba Ganoush, Kibbeh Nayyeh');

```
INSERT INTO MAIN_DISH (MenuName, MainDish)
VALUES
('EgyptianBreakfast', 'Foul'),
('MansafDelight', 'Mansaf'),
('SpicyEgypt', 'Molokhia'),
('PharaohsBanquet', 'Mandi');

INSERT INTO PREPARED_BY (MenuName, ChefID)
VALUES
('EgyptianBreakfast', 201),
('MansafDelight', 202),
('SpicyEgypt', 203),
('PharaohsBanquet', 204);

INSERT INTO RESTAURANT (RestaurantName, Country, City, StreetNo, StreetName,
ManagerID)
VALUES
('NileCuisine', 'Egypt', 'Giza', '456', 'Pyramids Street', 101),
('SphinxEats', 'Egypt', 'Cairo', '789', 'Sphinx Avenue', 102),
('PharaohsDine', 'Egypt', 'Luxor', '1011', 'Karnak Road', 103),
('CleopatrasFeast', 'Egypt', 'Alexandria', '1213', 'Pharos Boulevard', 104);

INSERT INTO CUSTOMER (CustomerPhoneNo, CustomerName, RestaurantName)
VALUES
('+201234567892', 'Mohamed Ibrahim', 'NileCuisine'),
('+201112233447', 'Amina Ahmed', 'SphinxEats'),
('+201987654323', 'Karim Ali', 'PharaohsDine'),
('+201876543212', 'Laila Hassan', 'CleopatrasFeast');

INSERT INTO ORDER_ (OrderNo, CustomerPhoneNo, MenuName)
VALUES
(1, '+201234567892', 'EgyptianBreakfast'),
(2, '+201112233447', 'MansafDelight'),
(3, '+201987654323', 'SpicyEgypt'),
(4, '+201876543212', 'PharaohsBanquet');

INSERT INTO SERVES (WaiterID, CustomerPhoneNo)
VALUES
(301, '+201234567892'),
(302, '+201112233447'),
(303, '+201987654323'),
(304, '+201876543212');

INSERT INTO WORK_IN (RestaurantName, ChefID, WaiterID)
```

```
VALUES
('NileCuisine', 201, 301),
('SphinxEats', 202, 302),
('PharaohsDine', 203, 303),
('CleopatrasFeast', 204, 304);

SELECT *FROM APPETIZERS;
SELECT *FROM MAIN_DISH;
SELECT *FROM DESSERT;
SELECT *FROM DRINKS;
SELECT MAX(ManagerSalary) AS MaxManagerSalary FROM Manager;
SELECT MIN(ChefSalary) AS MinChefSalary FROM CHEF;
UPDATE MANAGER SET ManagerName = 'Maha Hatem' WHERE ManagerName =
'Fatima Ali';
SELECT *FROM MANAGER;
SELECT COUNT (*) AS CustomerCount FROM CUSTOMER;
SELECT ManagerName FROM MANAGER M,RESTAURANT R WHERE M.ManagerId =
R.ManagerID;
SELECT CustomerName FROM CUSTOMER WHERE CustomerName LIKE 'M%';
SELECT *FROM CHEF WHERE ChefName LIKE '%i';
SELECT WaiterID FROM WAITER ORDER BY WaiterID;
SELECT WaiterName FROM WAITER ORDER BY WaiterName DESC;
SELECT AVG(ManagerSalary) AS AverageManagerSalary FROM MANAGER;
SELECT WaiterName FROM WAITER W, CHEF C WHERE W.WaiterID = C.WaiterID
AND w.WAITERID >302;
SELECT RestaurantName FROM RESTAURANT WHERE City = 'Giza' OR City = 'Luxor';
SELECT ChefName FROM CHEF WHERE ChefEmail LIKE '%@yahoo.com';
```

## 3.2 Normalization

Our Relational Schema is already in the 3rd normal form, because there are no non-primary key pointing to another non-primary key.