**Group Members:**

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**Project Proposal:**

Project Name: Online Restaurant Management System

**Case Study:**

A restaurant management system needs a robust database to streamline its operations. The system involves various entities: ingredients, food items, chefs, sellers, delivery personnel, customers, and billing. Each food item is made using multiple ingredients and is crafted by skilled chefs. Food items are sent to sellers, who collaborate with delivery personnel to supply orders to customers. Delivery personnel are responsible for ensuring orders reach customers efficiently. The customers reside at specific addresses and place orders that generate bills. The database will maintain relationships such as many-to-many (e.g., ingredients to food items and delivery personnel to customers) and one-to-many (e.g., food items made by chefs). This system ensures proper tracking of resources, transactions, and interactions within the restaurant's workflow.

A diagram of a company

Description automatically generated

**Food**

Attributes:

* F\_id (Primary Key)
* F\_Name
* F\_Price
* F\_Rating

**Seller**

Attributes:

* S\_id (Primary Key)
* S\_Name
* S\_Phone
* S\_StartingDate

**Chef**

Attributes:

* C\_id (Primary Key)
* C\_Name
* C\_Email

**Delivery Man**

Attributes:

* Dm\_id (Primary Key)
* Dm\_Name
* Transport\_num

**Customer**

Attributes:

* C\_ID (Primary Key)
* C\_Name
* C\_Address (Composite: Area, Street, House\_No)

**NORMALIZATION**

**Table: (Food – Seller)**

**UNF**: F\_ID,F\_name,F\_rating,F\_price,S\_ID,S\_name, S\_Phone,S\_startingdate

S\_Phone = multivalued attribute

**1NF**: F\_ID,F\_name,F\_rating,F\_price,S\_ID,S\_name,S\_startingdate

**2NF:** F\_ID,F\_name,F\_rating,F\_price

S\_ID,S\_Phone

S\_ID,S\_name,S\_startingdate

**3NF**: F\_ID,F\_name,F\_rating,F\_price

S\_ID,S\_Phone

S\_ID,S\_name,S\_startingdate

S\_ID,F\_ID

Foreign key: S\_ID, primary key : F\_ID

**Table: (Seller – Deliveryman)**

**UNF**: S\_ID,S\_name,S\_phone,S\_startingdate,DM\_ID,DM\_name,Transportnum

S\_Phone = Multivalued Attribute

**1NF**: S\_ID,S\_name,S\_statringdate

DM\_ID,DM\_name,Transportnum

**2NF**: S\_ID,S\_phone

S\_ID,S\_name,S\_startingdate

DM\_ID,DM\_name,Transportnum

**3NF**: S\_ID,S\_phone

S\_ID,S\_name,S\_startingdate

DM\_ID,DM\_name,Transportnum

Foreign key: S\_ID Primary Key: D\_ID

**Table: (Deliveryman – Customer)**

**UNF**: DM\_ID,DM\_name,Transportnum,C\_ID,C\_name,C\_address

**1NF**: DM\_ID,DM\_name,Transportnum,C\_ID,C\_name

**2NF**: C\_ID,C\_name,Area,Street,House

DM\_ID,DM\_name,Transportnum

DM\_ID,C\_ID

**3NF**: C\_ID,C\_name,Area,Street,House

DM\_ID,DM\_name,Transportnum

DM\_ID,C\_ID

Foreign key: C\_ID Primary Key: DM\_ID

**Table: (Food-Chef)**

**UNF**: F\_ID,F\_name,F\_rating,F\_price,CH\_ID,CH\_name,CH\_email

CH\_email = Multivalued Attribute

**1NF**: F\_ID,F\_name,F\_rating,F\_price,CH\_ID,CH\_name

**2NF**: F\_ID,F\_name,F\_rating,F\_price,CH\_ID,CH\_name

CH\_ID,CH\_email

**3NF**: F\_ID,F\_name,F\_rating,F\_price

CH\_ID,CH\_name,CH\_email

F\_ID,CH\_ID

Foreign key: F\_ID Primary Key : CH\_ID

**Table: (Customer-Bill)**

**UNF**: C\_ID,C\_name,C\_Address,B\_ID,Amount

**1NF**: C\_ID,C\_name,Area,street,house,B\_ID,Amount

**2NF**: C\_ID,C\_name

C\_ID,Area,street,House

B\_ID,C\_ID,Amount

**3NF**: C\_ID,C\_name

C\_ID,Area,street,House

B\_ID,C\_ID,Amount

Foreign key: B\_ID Primary Key: C\_ID

Table: (Food-Ingredient)

UNF: F\_ID,F\_name,F\_rating,F\_price,I\_ID,I\_name

1NF: F\_ID,F\_name,F\_rating,F\_price,I\_ID,I\_name

2NF: F\_ID,F\_name,F\_rating,F\_price

F\_ID,I\_ID,I\_name

Foreign key: F\_ID Primary Key: I\_ID

**FINALIZATION**

**Red: Primary Key**

**Green: Foreign key**

F\_ID,F\_name,F\_rating,F\_price

S\_ID,S\_Phone

S\_ID,S\_name,S\_startingdate

S\_ID,F\_ID

DM\_ID,DM\_name,Transportnum

C\_ID,C\_name,Area,Street,House

DM\_ID,C\_ID

CH\_ID,CH\_name,CH\_email

F\_ID,CH\_ID

I\_ID,I\_name

F\_ID,I\_ID

B\_ID,C\_ID,Amount

**Table: Food**

CREATE TABLE Food (

F\_ID NUMBER PRIMARY KEY,

F\_name VARCHAR2(50) NOT NULL,

F\_rating NUMBER(3, 2) NOT NULL,

F\_price NUMBER(10, 2) NOT NULL

);

INSERT INTO Food (F\_ID, F\_name, F\_rating, F\_price) VALUES (1, 'Special Breakfast', 4.2, 250.00);

INSERT INTO Food (F\_ID, F\_name, F\_rating, F\_price) VALUES (2, 'Eggy Breakfast', 4.1, 200.00);

INSERT INTO Food (F\_ID, F\_name, F\_rating, F\_price) VALUES (3, 'Bready Breakfast', 4.1, 220.00);

INSERT INTO Food (F\_ID, F\_name, F\_rating, F\_price) VALUES (4, 'Boiled Egg', 4.0, 50.00);

INSERT INTO Food (F\_ID, F\_name, F\_rating, F\_price) VALUES (5, 'Salad With Egg', 4.1, 180.00);

INSERT INTO Food (F\_ID, F\_name, F\_rating, F\_price) VALUES (6, 'Lemonade', 4.0, 120.00);

INSERT INTO Food (F\_ID, F\_name, F\_rating, F\_price) VALUES (7, 'Milk Shake', 4.5, 180.00);

INSERT INTO Food (F\_ID, F\_name, F\_rating, F\_price) VALUES (8, 'Orange Juice', 4.4, 150.00);

INSERT INTO Food (F\_ID, F\_name, F\_rating, F\_price) VALUES (9, 'Mango Juice', 4.5, 170.00);

INSERT INTO Food (F\_ID, F\_name, F\_rating, F\_price) VALUES (10, 'Watermelon Juice', 4.6, 160.00);

INSERT INTO Food (F\_ID, F\_name, F\_rating, F\_price) VALUES (11, 'North Indian Platter', 4.3, 300.00);

INSERT INTO Food (F\_ID, F\_name, F\_rating, F\_price) VALUES (12, 'Chicken With Plain Rice', 4.1, 250.00);

INSERT INTO Food (F\_ID, F\_name, F\_rating, F\_price) VALUES (13, 'Non Veg Special Plate', 4.4, 350.00);

INSERT INTO Food (F\_ID, F\_name, F\_rating, F\_price) VALUES (14, 'Kacchi Biriyani', 4.5, 400.00);

INSERT INTO Food (F\_ID, F\_name, F\_rating, F\_price) VALUES (15, 'Chicken Tehari', 4.5, 380.00);

A table with a list of food

Description automatically generated

**Table: Seller**

CREATE TABLE Seller (

S\_ID NUMBER(10) PRIMARY KEY,

S\_name VARCHAR2(100) NOT NULL,

S\_startingdate DATE NOT NULL

);

INSERT INTO Seller (S\_ID, S\_name, S\_startingdate) VALUES (1, 'Sadman', TO\_DATE('2020-01-15', 'YYYY-MM-DD'));

INSERT INTO Seller (S\_ID, S\_name, S\_startingdate) VALUES (2, 'Ankon', TO\_DATE('2018-07-10', 'YYYY-MM-DD'));

INSERT INTO Seller (S\_ID, S\_name, S\_startingdate) VALUES (3, 'Niloy', TO\_DATE('2021-03-20', 'YYYY-MM-DD'));

INSERT INTO Seller (S\_ID, S\_name, S\_startingdate) VALUES (4, 'Rajob', TO\_DATE('2019-11-05', 'YYYY-MM-DD'));

INSERT INTO Seller (S\_ID, S\_name, S\_startingdate) VALUES (5, 'Sakib', TO\_DATE('2022-05-25', 'YYYY-MM-DD'));

**A screenshot of a computer

Description automatically generated**

**Table: Seller\_Contact**

CREATE TABLE Seller\_Contact (

S\_ID INT PRIMARY KEY,

S\_Phone VARCHAR(15) NOT NULL

);

INSERT ALL

INTO Seller\_Contact (S\_ID, S\_Phone) VALUES (1, '1234567890')

INTO Seller\_Contact (S\_ID, S\_Phone) VALUES (2, '9876543210')

INTO Seller\_Contact (S\_ID, S\_Phone) VALUES (3, '5678901234')

INTO Seller\_Contact (S\_ID, S\_Phone) VALUES (4, '4561237890')

INTO Seller\_Contact (S\_ID, S\_Phone) VALUES (5, '7890123456')

SELECT \* FROM DUAL;

A screenshot of a phone number

Description automatically generated

**Table: Seller\_Food**

CREATE TABLE Seller\_Food (

S\_ID NUMBER,

F\_ID NUMBER,

FOREIGN KEY (F\_ID) REFERENCES Food(F\_ID)

);

INSERT INTO Seller\_Food1 (S\_ID, F\_ID) VALUES (1, 1);

INSERT INTO Seller\_Food1 (S\_ID, F\_ID) VALUES (1, 2);

INSERT INTO Seller\_Food1 (S\_ID, F\_ID) VALUES (1, 3);

INSERT INTO Seller\_Food1 (S\_ID, F\_ID) VALUES (2, 4);

INSERT INTO Seller\_Food1 (S\_ID, F\_ID) VALUES (2, 5);

INSERT INTO Seller\_Food1 (S\_ID, F\_ID) VALUES (3, 11);

INSERT INTO Seller\_Food1 (S\_ID, F\_ID) VALUES (3, 12);

INSERT INTO Seller\_Food1 (S\_ID, F\_ID) VALUES (4, 13);

INSERT INTO Seller\_Food1 (S\_ID, F\_ID) VALUES (5, 14);

INSERT INTO Seller\_Food1 (S\_ID, F\_ID) VALUES (5, 15);



**Table: Delivery\_Man**

CREATE TABLE Delivery\_Man (

DM\_ID NUMBER PRIMARY KEY,

DM\_name VARCHAR2(50),

Transportnum VARCHAR2(20)

);

INSERT INTO Delivery\_Man (DM\_ID, DM\_name, Transportnum) VALUES (1, 'Rajob', 'TN001');

INSERT INTO Delivery\_Man (DM\_ID, DM\_name, Transportnum) VALUES (2, 'Shaj', 'TN002');

INSERT INTO Delivery\_Man (DM\_ID, DM\_name, Transportnum) VALUES (3, 'Avi', 'TN003');

INSERT INTO Delivery\_Man (DM\_ID, DM\_name, Transportnum) VALUES (4, 'Sokal', 'TN004');

INSERT INTO Delivery\_Man (DM\_ID, DM\_name, Transportnum) VALUES (5, 'Reyan', 'TN005');

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Description automatically generated

**Table: Customer**

CREATE TABLE Customer (

C\_ID NUMBER PRIMARY KEY,

C\_name VARCHAR2(50),

Area VARCHAR2(50),

Street VARCHAR2(50),

House VARCHAR2(50)

);

INSERT INTO Customer1 (C\_ID, C\_name, Area, Street, House)

VALUES (1, 'Dhrubo', 'Banani', 'Road 12', 'House 34');

INSERT INTO Customer1 (C\_ID, C\_name, Area, Street, House)

VALUES (2, 'Bishal', 'Gulshan', 'Street 5', 'House 78');

INSERT INTO Customer1 (C\_ID, C\_name, Area, Street, House)

VALUES (3, 'Utsha', 'Dhanmondi', 'Avenue 4', 'Flat 16');

INSERT INTO Customer1 (C\_ID, C\_name, Area, Street, House)

VALUES (4, 'Rittik', 'Uttara', 'Sector 7', 'House 23');

INSERT INTO Customer1 (C\_ID, C\_name, Area, Street, House)

VALUES (5, 'Labib', 'Mirpur', 'Block C', 'House 45');

A table with text on it

Description automatically generated

**Table: Delivery\_Customer**

CREATE TABLE Delivery\_Customer (

DM\_ID NUMBER PRIMARY KEY,

C\_ID NUMBER,

CONSTRAINT fk\_c FOREIGN KEY (C\_ID) REFERENCES Customer1(C\_ID)

);

INSERT INTO Delivery\_Customer (DM\_ID, C\_ID) VALUES (1, 1);

INSERT INTO Delivery\_Customer (DM\_ID, C\_ID) VALUES (2, 2);

INSERT INTO Delivery\_Customer (DM\_ID, C\_ID) VALUES (3, 3);

INSERT INTO Delivery\_Customer (DM\_ID, C\_ID) VALUES (4, 4);

INSERT INTO Delivery\_Customer (DM\_ID, C\_ID) VALUES (5, 5);

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**Table: Chef**

CREATE TABLE Chef (

CH\_ID NUMBER PRIMARY KEY,

CH\_name VARCHAR2(50),

CH\_email VARCHAR2(100)

);

INSERT INTO Chef (CH\_ID,CH\_name,CH\_email)

VALUES (1,'Siam','siam@gmail.com');

INSERT INTO Chef (CH\_ID,CH\_name,CH\_email)

VALUES (2,'Shishir','shishir@gmail.com');

INSERT INTO Chef (CH\_ID,CH\_name,CH\_email)

VALUES (3,'Shaj','shaj@gmail.com');

INSERT INTO Chef (CH\_ID,CH\_name,CH\_email)

VALUES (4,'Mahir','mahir@gmail.com');

INSERT INTO Chef (CH\_ID,CH\_name,CH\_email)

VALUES (5,'Rehab','rehab@gmail.com');

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Description automatically generated

**Table Chef\_Food:**

CREATE TABLE Chef\_Food (

F\_ID NUMBER PRIMARY KEY,

CH\_ID NUMBER,

CONSTRAINT fk\_ch\_id FOREIGN KEY (CH\_ID) REFERENCES Chef(CH\_ID)

);

INSERT INTO Chef\_Food (F\_ID, CH\_ID) VALUES (1, 1);

INSERT INTO Chef\_Food (F\_ID, CH\_ID) VALUES (2, 1);

INSERT INTO Chef\_Food (F\_ID, CH\_ID) VALUES (3, 1);

INSERT INTO Chef\_Food (F\_ID, CH\_ID) VALUES (4, 2);

INSERT INTO Chef\_Food (F\_ID, CH\_ID) VALUES (5, 2);

INSERT INTO Chef\_Food (F\_ID, CH\_ID) VALUES (6, 2);

INSERT INTO Chef\_Food (F\_ID, CH\_ID) VALUES (7, 3);

INSERT INTO Chef\_Food (F\_ID, CH\_ID) VALUES (8, 3);

INSERT INTO Chef\_Food (F\_ID, CH\_ID) VALUES (9, 3);

INSERT INTO Chef\_Food (F\_ID, CH\_ID) VALUES (10, 4);

INSERT INTO Chef\_Food (F\_ID, CH\_ID) VALUES (11, 4);

INSERT INTO Chef\_Food (F\_ID, CH\_ID) VALUES (12, 4);

INSERT INTO Chef\_Food (F\_ID, CH\_ID) VALUES (13, 5);

INSERT INTO Chef\_Food (F\_ID, CH\_ID) VALUES (14, 5);

INSERT INTO Chef\_Food (F\_ID, CH\_ID) VALUES (15, 5);

A screenshot of a number

Description automatically generated

**Table: Ingredient**

CREATE TABLE Ingredient (

I\_ID NUMBER PRIMARY KEY,

I\_name VARCHAR2(50)

);

INSERT INTO Ingredient (I\_ID, I\_name) VALUES (1, 'Basil');

INSERT INTO Ingredient (I\_ID, I\_name) VALUES (2, 'Olive Oil');

INSERT INTO Ingredient (I\_ID, I\_name) VALUES (3, 'Parmesan Cheese');

INSERT INTO Ingredient (I\_ID, I\_name) VALUES (4, 'Chili Powder');

INSERT INTO Ingredient (I\_ID, I\_name) VALUES (5, 'Cumin');

INSERT INTO Ingredient (I\_ID, I\_name) VALUES (6, 'Honey');

INSERT INTO Ingredient (I\_ID, I\_name) VALUES (7, 'Ginger');

INSERT INTO Ingredient (I\_ID, I\_name) VALUES (8, 'Coriander');

INSERT INTO Ingredient (I\_ID, I\_name) VALUES (9, 'Yeast');

INSERT INTO Ingredient (I\_ID, I\_name) VALUES (10, 'Vanilla Extract');

A screenshot of a menu

Description automatically generated

**Table: Bill**

CREATE TABLE Bill (

B\_ID NUMBER PRIMARY KEY,

C\_ID NUMBER,

Amount NUMBER(10, 2),

CONSTRAINT fk\_c\_id FOREIGN KEY (C\_ID) REFERENCES Customer1(C\_ID)

);

INSERT INTO Bill (B\_ID, C\_ID, Amount) VALUES (1, 1, 320.00);

INSERT INTO Bill (B\_ID, C\_ID, Amount) VALUES (2, 2, 280.00);

INSERT INTO Bill (B\_ID, C\_ID, Amount) VALUES (3, 3, 300.00);

INSERT INTO Bill (B\_ID, C\_ID, Amount) VALUES (4, 4, 250.00);

INSERT INTO Bill (B\_ID, C\_ID, Amount) VALUES (5, 5, 290.00);

A screenshot of a table

Description automatically generated