**AMERICAN INTERNATIONAL UNIVERSITY BANGLADESH (AIUB)**

**FACULTY OF SCIENCE & TECHNOLOGY**

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Course Title

**INTRODUCTION TO DATABASE (CSC2108)**

**Semester:   
Section: [ ]**

**TITLE**

**Name of your Project system**

**Supervised By**

Name of the Faculty

**Submitted By: Group no: xx**

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| **Name** | **ID** |
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# **Introduction**

This database management project based on oracle SQL is about the Restaurant management system where user can order food and all the operations from order to delivery can be tracked. We have used the structured query language to perform all the operations. Our contribution to tech sector by this project is to create and manage database of a restaurant management where all the data can be placed and retrieved by using SQL. The restaurant management side can be benefitted by this project to store and track data about their 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.

# **ER Diagram**

**A diagram of a company

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**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 Creation (DDL Operations)**

|  |  |  |
| --- | --- | --- |
| StudentID1: Name: | StudentID3: Name: | |
| StudentID2: Name: | StudentID4: Name: | |
| **CO4**: Creating DML, DDL using Oracle and connection with ODBC/JDBC for existing JAVA application | | |
| **PO-e-2:** Use modern engineering and IT tools for prediction and modeling of complex computer science and engineering problem | | Marks |

**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

);

**Table: Seller**

CREATE TABLE Seller (

S\_ID NUMBER(10) PRIMARY KEY,

S\_name VARCHAR2(100) NOT NULL,

S\_startingdate DATE NOT NULL

);

**Table: Seller\_Contact**

CREATE TABLE Seller\_Contact (

S\_ID INT PRIMARY KEY,

S\_Phone VARCHAR(15) NOT NULL

);

**Table: Seller\_Food**

CREATE TABLE Seller\_Food (

S\_ID NUMBER,

F\_ID NUMBER,

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

);

**Table: Delivery\_Man**

CREATE TABLE Delivery\_Man (

DM\_ID NUMBER PRIMARY KEY,

DM\_name VARCHAR2(50),

Transportnum VARCHAR2(20)

);

**Table: Customer**

CREATE TABLE Customer (

C\_ID NUMBER PRIMARY KEY,

C\_name VARCHAR2(50),

Area VARCHAR2(50),

Street VARCHAR2(50),

House VARCHAR2(50)

);

**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)

);

**Table: Chef**

CREATE TABLE Chef (

CH\_ID NUMBER PRIMARY KEY,

CH\_name VARCHAR2(50),

CH\_email VARCHAR2(100)

);

**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)

);

**Table: Ingredient**

CREATE TABLE Ingredient (

I\_ID NUMBER PRIMARY KEY,

I\_name VARCHAR2(50)

);

**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)

);

# **Inserted Values in the tables**

**Table: Food**

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**

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**

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**

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);

A screenshot of a number

Description automatically generated

**Table: Delivery\_Man**

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');

A screenshot of a computer

Description automatically generated

**Table: Customer**

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**

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);

A screenshot of a computer

Description automatically generated

**Table: Chef**

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');

A screenshot of a computer

Description automatically generated

**Table Chef\_Food:**

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);

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**Table: Ingredient**

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**

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

# **Query Test in DB**

## There will be one simple query. One with Group/ Aggregate function, 2 single row Subquery, 2 Multiple Row subquery, 4 different types of joining.

1. simple query
2. Query with a single row function
3. Query with a Multiple row function/ aggregate function
4. 2 Single row subquery and 2 multiple row subqueries
5. 4 kinds of joining

1 simple view  
1 complex view  
  
## Provide query first, next the command for the query and at last the output:  
  
In the end show a simple view and a Complex view:  
Demo of a simple view is given below:

**Simple Query:**

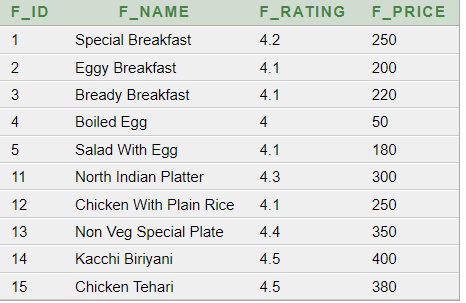
1.To find out the food table elements using view

create view foodview as

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

from Food

select \* from foodview



2.To find out the highest priced food using multiple row function MAX():

SELECT MAX(F\_price) as MAX

FROM Food

A close-up of a number

Description automatically generated

3. To find out the food with rating more than equal to 4.5

SELECT F\_name

FROM Food

WHERE F\_rating >= 4.5

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4. To select the seller who have joined after 1st January 2020:

SELECT S\_ID,S\_name

FROM Seller

WHERE S\_startingdate > TO\_DATE('01-01-2020', 'DD-MM-YYYY');

A screenshot of a calendar

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5. To update the seller name sadman (from short name) to Sadman Al sakib (full name):

UPDATE Seller

SET S\_name = 'Sadman Al sakib'

WHERE S\_name = 'Sadman'

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6. showing the customers name by using single row function UPPER():

SELECT C\_ID,UPPER(C\_name)

FROM Customer1

A screenshot of a computer

Description automatically generated

7.