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**CPSC 50900 Database Systems Project**

# Initial Proposal

## Data Description –

Data stored in my application is related to Restaurant management system. It contains data of entities like Customer, Orders, Food Menu, Ingredients Inventory, Cuisines, Customer Feedback, Employees, Suppliers and Payments.

## What is the application or business?

The database that I have created is very useful for any restaurant for managing data related to their Sales (to get better throughput) and Customers (for managing better relationships with customers).

## What data will be stored?

Data related to Customers (like name, email, phone, address), Orders (like order date, amount, customer), Payments (like payment mode, amount, payment date), Feedback (like customer, feedback, date of feedback, rating), Employees (like name, email, phone, address), Suppliers (Id, Name, Number) etc… will be stored.

## What is the value of this data?

This data is particularly valuable to any restaurant because –

Customer’s data will be used to maintain relationships with the customers, this can be done by –

1. Analyzing the data for understanding favorite dishes of the customer.

2. Analyzing the data for understanding the visiting times of the customer.

3. Providing loyalty rewards to the customers.

4. Notifying the customers about discounts, offers and other activities going at the restaurant.

Supplier’s data can be used to in –

1. Finding out which supplier supplies most of the ingredients, hence making contracts with them for long term and getting cheaper prices.

2. Comparing the prices of same items supplied by different suppliers.

Order’s data can be used to –

1. Finding out the sales done in a day, week, month, and financial year.

2. Finding out the average amount spent by customers on each order.

## Where will the data come from?

Parts of data like Customers and Orders data will come from the customers visiting the restaurant, data related to Suppliers and Inventory will come from the contacts of the Restaurant and the products supplied by suppliers. Data like Food (Menu) etc… will be created manually by us depending on the dishes that we can serve.

## Who will use this data?

Restaurant’s Owner can use the data to track the employee related and Sales related information, Restaurant’s Manager can use this data to track the sales and inventory related information.

Files are located at:

GITHUB LINK HERE…

# Relational Database Design Process

There are many entities in my database design. The entities present in my database design are as follows. 5 of them are described below:

Customer – Contains details about each Customer who visited the restaurant. Details like first name, last name, contact number and address are stored in the database.

Employee – Details about each employee who has worked in the restaurant are stored in this table. Details like first name, last name, address, contact number, salary and role in the restaurant are stored in this table.

Supplier – Details about each supplier who has supplied material at least once to the restaurant are stored in this table. Id, Supplier name and contact number are the attributes of this table.

Order – Details about each order placed by the customer is stored in this table. OrderDate, CustomerId, ServedBy, OrderType are some of the attributes of this table.

OrderDetails – Each item present in the Order are stored inside this table. Order constitutes of Order Details. Each order can contain multiple order details and total amount of each order is calculated using this table. It has attributes like food\_id (the item ordered), quantity and unit price of the item along with the order id with which this detail is linked.

Diagram, engineering drawing

Description automatically generatedPayment – Details about the amount paid, by a customer, for an order is stored in this table. Amount, PaymentDateTime, PaymentMode are some attributes of this table.

# Data Sources

# Data Definition Language Scripts

Create and Insert statements script is Present in Github

## Screenshots below:

Cuisine Type table

Graphical user interface, application

Description automatically generated

Customer table

Graphical user interface

Description automatically generated

Customer Feedback table

Graphical user interface, application

Description automatically generated

Employee Table

A picture containing table

Description automatically generated

Food table

Graphical user interface

Description automatically generated with medium confidence

Ingredients table

Table

Description automatically generated

# Data Manipulation Language Scripts

# Indexes

Below are the indexes that I have created.

ALTER TABLE `customer` ADD INDEX(`Phone\_no`);

The need of above index is – if we search customer by phone number, this would be useful, it will make query faster as data will be arranged by customer’s phone number.

[ALTER](http://localhost:2015/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/alter-table.html) [TABLE](http://localhost:2015/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/alter-table.html) `restaurant`.`employee` ADD INDEX `Role\_id` (`Role\_id`);

If we search employees by a particular role, this will speed up the query.

[ALTER](http://localhost:2015/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/alter-table.html) [TABLE](http://localhost:2015/phpmyadmin/url.php?url=https://dev.mysql.com/doc/refman/5.5/en/alter-table.html) `restaurant`.`ingredients` ADD INDEX `Supplied\_by` (`Supplied\_by`);

Similarly, if we search for ingredients by a particular supplier, then this query would be helpful because it will help us in fetching data faster from ingredients table.

# Views

1st. Find count of food in each category.

CREATE VIEW FoodByCategory AS

SELECT `food category`.`Category\_Name`, COUNT(`food`.`Food\_id`) AS `FoodCountInCategory` FROM `food category` INNER JOIN `food` ON

`food category`.`Category\_Id` = `food`.`category\_id`

GROUP BY `food category`.`Category\_Name`

ORDER BY 2 ASC;

Graphical user interface, application

Description automatically generated

2nd. Find count of products supplied by each supplier

CREATE VIEW ProductsBySupplier AS

SELECT `supplier`.`Supplier\_name`, count(`ingredients`.`Ingredient\_id`) IngredientCount FROM `ingredients` JOIN `supplier`

ON `ingredients`.`Supplied\_by` = `supplier`.`Supplier\_id`

GROUP BY `supplier`.`Supplier\_name`

ORDER BY 2 ASC;

A picture containing timeline

Description automatically generated

# Python Programming

import mysql.connector

from mysql.connector import errorcode

try:

cm\_connection = mysql.connector.connect(

user="cs509",

password="cs509",

host="127.0.0.1",

database="restaurant")

my\_cursor = cm\_connection.cursor()

query = ("SELECT \* FROM customer")

my\_cursor.execute(query)

for row in my\_cursor.fetchall():

print("{} is {}".format(row[1], row[2]))

my\_cursor.close()

cm\_connection.close()

except mysql.connector.Error as err:

if err.errno == errorcode.ER\_ACCESS\_DENIED\_ERROR:

print("Invalid credentials")

elif err.errno == errorcode.ER\_BAD\_DB\_ERROR:

print("Database not found")

else:

print("Cannot connect to database:", err)

else:

# Execute database operations...

cm\_connection.close()