**PROBLEM STATEMENT: PHASE 2**

**Restaurant Management System**

We have chosen this topic because one of us run a restaurant in India. Having seen and being part of its operations we feel that this would be an ideal topic since we understand the business well. The project will be an all in one restaurant software which contains the food and beverages offered, list of employees, list of customers. The software can be used to monitor which table is being addressed by which waiter, list of food and beverages ordered by each table etc. It should be able to generate a cost total of each table at the time of billing. It should be available for employees, customers and the management (directors, shareholders, investors). We are also considering of adding table reservation, home delivery by assigning an area code for ach delivery boy and in the future adding order online feature too.

The rest of the article describes the functionality and the data it would hold when it is completed.

**Data description: (brief description, might be subjected to modification)**

**Menu (food and beverage):**

MId: unique id for each item on the menu.

MName: name of the item on the menu.

MType: type of the item on the menu, for eg. Starters, curries, breads, beverages etc.

MCost: price of the item on the menu.

MCat: category of the item on the menu, for eg. Veg or non-veg.

IngName: Contains the names of the core ingredients used in the dish.

**Employee (super class):**

EmployeeId: unique id for every employee of the restaurant.

EmpName: first name of the employee.

Address: address of the employee.

Pnumber: phone number of the employee.

Designation: designation of the employee E.g. (waiter, Manager, Starter chef, dessert chef, etc.)

Salary: salary of the employee.

Leave: Holds the start and end date of leave. This provides the length of the employee’s absence.

**Dive-IN (sub class):**

This sub classed entity holds data of all the employees who works specifically inside the restaurant. They do not deal with the deliveries at all.

**Delivery (sub class):**

This sub classed entity holds data of all the employees who work specifically on delivery

DelArea: Area name for delivery.

**Chefs (sub class)**

**Customer:**

CId: unique id for every customer.

CustName: first name of the customer.

Address: address of the customer.

Pnumber: phone number of the customer.

Birthday (DOB): birthday of the customer. This field is used in order to offer some special discounts to the customer.

Anniversary: anniversary of the customer. This field is used in order to offer some special discounts to the customer.

**Order:**

OrderNo: Unique value to identify each order.

TableNo: unique value to identify each table.

MName: name of the item ordered.

EmployeeId: employee assigned for the particular order.

CustName: name of the customer.

OrderType: Whether the order is a Dine-in order or a delivery order.

**Inventory:**

IngId: Unique ID for each ingredient.

IngredientName: Name of the ingredient.

Quantity: Quantity of the ingredient.

SupplierId: Supplier identity.

**Supplier:**

SupplierName: Name of the supplier.

SupplierContact: Contact details of the supplier.

SupplierCost: Total cost of the items supplied by the supplier.

ENTITIES IDENTIFIED:

1. Menu

Mid: Menu id is used as the primary key.

1. Customer

CustId: Customer ID is used to identify a customer, hence it is used as a primary

key.

CustName: Customer Name is stored as a composite attribute containing first

name and last name.

1. Employee

EmployeeId: Employee ID is used as a primary key as it is used to identify an

Employee.

EmpName: Name of the employee is stored as a composite attribute containing

First name and last name.

1. Inventory

IngId: Used as primary key to identify the ingredient.

SupplierId: Used as a multivalued attribute to store multiple suppliers for a single

ingredient.

1. Supplier

SupId: Used as primary key as it is used to identify the supplier.

1. Table

TableNo: Used as primary key to identify a table.

1. Order

This entity is used as a weak entity of Customer entity (owner entity), since its existence depends on the existence of the customer entity.

OrderNo: Used as primary key to identify an order.

RELATIONSHIPS IDENTIFIED:

Views: Customer VIEWS the menu.

Books: Customer BOOKS a table. It has book as multivalued composite

Attribute , consisting of date and time.

Makes an: Customer MAKES AN order. It has orderdate as a multivalued attribute.

Manages: Employee MANAGES the Inventory.

Supervises: Employee SUPERVISES other Employees (Recursive relationship).

Negotiates: Employee NEGOTIATES with Suppliers.

**PROBLEM DESCRIPTION:**

No customer or 1 customers can view the menu, Customer can make any number of orders on different dates, for dine-in as well as delivery. If the order is delivery, the appropriate employee is assigned for the job. Customer can book any number of tables for a specific date and time. One designated employee can manage the inventory. One designated employee can negotiate with many suppliers. One designated employee supervises other employees. Many employees work on a 1 or more order. The bill is generated from the data in order, prices are derived from the menu and the employees working on the particular order can be derived from employee .

Functionalities:

1. Based on the data inserted we will be able to find out the following:
   * + The most ordered dish : This report can be generated by using the data in the order.
     + The least ordered dish : This report can be generated by using the data in the order.
2. Based on whether the most or the best ordered dish is a starter/main course /dessert we can identify the best chef : This report can be generated using the data in the menu and the employee table.
3. We can identify the most crowded day of the month : This report can be generated by using the number of bills generated on a day.
4. We can identify the most profitable day of the month : This report can be generated by summing up all the bill amounts generated for each day of the month.
5. We can also identify the area placing the most number of home delivery orders and concentrate on improving faster food delivery in these areas.
6. Based on the birthdays and anniversary dates collected from the customer table we can give them special discounts on these days and attract more customers.
7. Based on the total monthly income made and the salary given to each employee, important decisions of either hiring or firing employees can be taken: The data for the total income can be generated from the bills, and total expense from the employee data.
8. Based on the data in the Supplier data,we can identify frequency of late delivery.
9. Based on the least/most ordered dish we can identify , increase or decrease the quantity of order being placed.