



*Inventory Fulfillment Database Management System*  
*Hotel Dragonfly*

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## **PART 1 – INTRO**

### **Section II: Project Summary**

The project focuses on designing an inventory fulfillment database management system for the hotel rooms in Hotel Dragonfly located in Mumbai. The hotel has 30 rooms and 10 service apartments (apartments rented out for a longer duration by the employees of the corporate firms in the vicinity). The hotel is located close to the international airport so it caters to both business as well as leisure travelers. It provides hotel lodging, banquet halls for corporate and social events and restaurant services.

Hotels require a large amount of inventory for both guest rooms and other accommodations such as restaurants and banquet halls. This makes it crucial for any company within the hospitality industry to streamline their supply chain to ensure that there is enough inventory to provide excellent service to their customers.

At present, the inventory of food supplies and other items such as toiletries, towels, etc is managed manually by maintaining excel sheets and manual bookkeeping by the purchase manager. This is insufficient and can lead to several different issues. When the inventory for the room supplies and the restaurant items reach a critical level, the purchase manager orders them by compiling a list of items required and then contacts the vendor for them to be replenished. This happens when an inventory purchase is made that contains both order line and product. As a result, the hotel is in the process of entirely digitizing their operations.

In the proposed system, the customer's details are entered at the time of making a reservation and allotted a room depending on the group size of the customer as the hotel has a policy where they allow a maximum of three guests in a room so a reservation can include more than one room if the group size of the guests is more than three. The MealID associated with a reservation would be used to track the food items used in the complimentary breakfast and items ordered a la carte. The room number would be used to track the amount of room supplies (toiletries, towels, bedsheets, etc.) used up in a particular reservation. This data would be used by the purchase manager to compile a list of items to be purchased by checking the levels of the various items in the storage inventory to replenish the inventory for the rooms and the restaurant. The purchase manager then contacts the vendor and orders the items required.

By shifting towards a database management system for their inventory, they can eradicate several issues and get an accurate picture of the items left so that they can be replenished by the purchase manager by contacting their wholesaler. The inventory levels could be tracked in real time by different stakeholders and accordingly help them in making relevant business decisions. This will in turn aid in the pricing analysis of the hotel rooms and in maintaining a proper supply chain so that the inventory does not run out. In the proposed system, inventory fulfillment for rooms and the restaurant will be considered, along with the purchasing of inventory when it is low, and the reservation process as well.

Users:

**Hotel Manager-** Takes care of daily administration and employee scheduling

**Sales Head-** Oversees rooms and banquet hall events and bookings

**Purchase Manager-** Manages the inventory of the food items and other hotel supplies

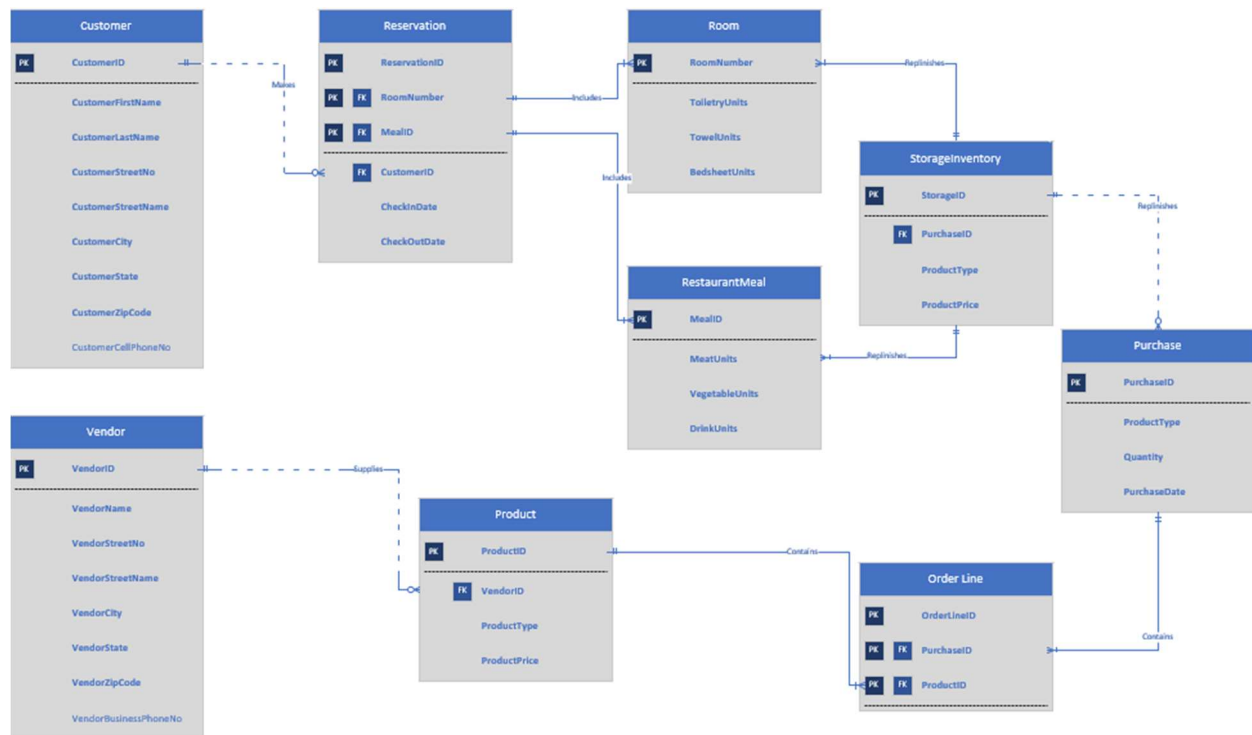
**Restaurant Manager-** Manages the restaurant and the cafe in the hotel

The hotel manager, sales head, restaurant manager and the purchase manager have equal access to the database.

The sales head, restaurant manager and the hotel manager are in constant touch with the purchase manager so as to communicate their daily requirements for their respective departments to him. The purchase manager then supplies them with their requirements and subsequently replenishes the items by ordering them.

## PART 2 – DATABASE SCHEMA

### Section III: Physical Model



### Section IV: Data Dictionary

1. Customer Table - Stores the information of the customers of the system.
2. Reservation Table - Stores the information of the reservations of the system.
3. Room Table - Stores the inventory levels of a particular room.
4. RestaurantMeal Table - Stores the inventory levels of a reservation's complimentary meal.
5. StorageInventory Table - Stores all records of purchased units in storage.
6. Purchase Table - Stores the information of the purchases made.
7. Orderline Table - Tertiary entity to resolve many-to-many relationships between product and purchase tables.
8. Product Table - Stores the information of the products of the system.
9. Vendor Table - Stores the information of the vendors of the system.

Entity Name:Customer	Attribute Name	Field Type	Null/Not Null	Explanation
Primary Key	CustomerID	CHAR(10)	Not Null	Unique Identifier of the customer
Other Attributes	CustomerFirstName	VARCHAR(30)	Not Null	First Name of the customer
	CustomerLastName	VARCHAR(30)	Not Null	Last Name of the customer
	CustomerStreetNo	VARCHAR(10)	Not Null	Street number of the customer's residence
	CustomerStreetName	VARCHAR(30)	Not Null	Street name of the customer's residence
	CustomerCity	VARCHAR(20)	Not Null	Customer's city
	CustomerState	VARCHAR(30)	Not Null	Customer's state
	CustomerZipCode	VARCHAR(10)	Not Null	Customer's Zip code
	CustomerCellPhoneNumber	VARCHAR(20)		Customer's cell phone number
Entity Name:Reservation	Attribute Name	Field Type	Null/Not Null	Explanation
Primary key	ReservationID	CHAR(10)	NOT NULL	Unique identifier of the reservation
Primary key+Foreign key	RoomNumber	CHAR(10)	NOT NULL	Room number allotted for the reservation
				Meal Id number assigned to the room allotted at the time of reservation for the complimentary breakfast and
Primary key+Foreign key	MealID	CHAR(10)	NOT NULL	meals ordered a la carte
Foreign key	CustomerID	CHAR(10)	NOT NULL	Unique Identifier of the customer
Other Attributes	CheckInDate	DATE	NOT NULL	Date when the customer checks in
	CheckOutDate	DATE	NOT NULL	Date when the customer checks out
Entity Name:Room	Attribute Name	Field Type	Null/Not Null	Explanation
Primary Key	RoomNumber	CHAR(10)	NOT NULL	Room number allotted for the reservation
Other Attributes	ToiletryUnits	VARCHAR(10)	NOT NULL	Stock of toiletries in the room
	TowelUnits	VARCHAR(10)	NOT NULL	Stock of towels in the room
	BedsheetUnits	VARCHAR(10)	NOT NULL	Stock of bedsheets in the room
Entity Name:Purchase	Attribute Name	Field Type	Null/Not Null	Explanation
Primary Key	PurchaseID	CHAR(10)	NOT NULL	Unique identifier for a particular purchase
Other Attributes	ProductType	VARCHAR(30)	NOT NULL	Product type includes only one of the following options: bedsheet, towel, toiletry, vegetable, meat and drink units
	Quantity	VARCHAR(30)	NOT NULL	The amount of the product type ordered
	PurchaseDate	DATE	NOT NULL	Date on which the purchase is made
Entity Name:RestaurantMeal	Attribute Name	Field Type	Null/Not Null	Explanation
Primary key	MealID	CHAR(10)	Not Null	Meal Id number assigned to the room allotted at the time of reservation for the complimentary breakfast and meals ordered a la carte
Other Attributes	MeatUnits	VARCHAR(20)	Not Null	Stock of the meat items in the restaurant
	VegetableUnits	VARCHAR(20)	Not Null	Stock of the vegetable items in the restaurant
	DrinkUnits	VARCHAR(20)	Not Null	Stock of the drinks in the restaurant
Entity Name:OrderLine	Attribute Name	Field Type	Null/Not Null	Explanation
Primary Key	OrderLineID	CHAR(10)	NOT NULL	Unique identifier for a particular orderline
Primary Key+Foreign Key	PurchaseID	CHAR(10)	NOT NULL	Unique identifier for a particular purchase
Primary Key+Foreign Key	ProductID	CHAR(10)	NOT NULL	Unique identifier for a particular product purchased

Entity Name:Product	Attribute Name	Field Type	Null/Not Null	Explanation
Primary key	ProductID	CHAR(10)	NOT NULL	Unique identifier for a particular product purchased
Foreign key	VendorID	CHAR(10)	NOT NULL	Unique identifier for a particular vendor
Other Attributes	ProductType	VARCHAR(20)	NOT NULL	Product type includes only one of the following options: bedsheet, towel, toiletry, vegetable, meat and drink units
	ProductPrice	VARCHAR(20)	NOT NULL	Price of the product per unit
Entity Name:Vendor	Attribute Name	Field Type	Null/Not Null	Explanation
Primary Key	VendorID	CHAR(10)	NOT NULL	Unique identifier for a particular vendor
Other Attributes	VendorName	VARCHAR(30)	NOT NULL	Business name of the vendor
	VendorStreetNo	VARCHAR(30)	NOT NULL	Street number of the vendor's office
	VendorStreetName	VARCHAR(30)	NOT NULL	Street name of the vendor's office
	VendorCity	VARCHAR(30)	NOT NULL	City of the vendor's office
	VendorState	VARCHAR(30)	NOT NULL	State of the vendor's office
	VendorZipCode	VARCHAR(30)	NOT NULL	Zip code of the vendor's office
	VendorBusinessPhoneNumber	VARCHAR(30)		Business phone number of the vendor
Entity Name:StorageInventory	Attribute Name	Field Type	Null/Not Null	Explanation
Primary key	StorageID	CHAR(10)	NOT NULL	Unique identifier for a product's storage inventory
Foreign Key	PurchaseID	CHAR(10)	NOT NULL	Unique identifier for a particular purchase
	ProductType	VARCHAR(30)	NOT NULL	Product type includes the following options: bedsheet, towel, toiletry, vegetable, meat and drink units
	ProductPrice	VARCHAR(30)	NOT NULL	Price of the product per unit

## PART 3 – STRUCTURE AND QUERY IMPLEMENTATION

### Section V: Database System Infrastructure

We used the default infrastructure of a client-server model. Below are the tools used in detail:

1. Microsoft Visio: We used Microsoft Visio as the entity relationship diagram design tool. Microsoft Visio is a diagramming and vector graphics application developed by Microsoft. We used this software to create our physical model.
2. Microsoft SQL Server: We used Microsoft SQL Server as the database engine. Microsoft SQL Server is a relational database management system developed by Microsoft. We used this to write SQL script for creating tables and inserting sample data. We also used it for SQL statements for answering major data questions.
3. Microsoft Access: We used Microsoft Access as the interface design tool. Microsoft Access is a database management system developed by Microsoft. We used this to generate forms and reports.

### Section VI: SQL Script for Creating Tables and Inserting Sample Data.

```
-- Final Project
-- Created by: Ian Ustanik and Rishabh Agarwal
-- Due Date: 12/3/2019

-- -----

-- SQL Script for Creating Tables and Inserting Sample Data.

-----Tables-----

-- Created Customer Table
CREATE TABLE Customer(
    CustomerID CHAR(10) NOT NULL,
    CustomerFirstName VARCHAR(30) NOT NULL,
    CustomerLastName VARCHAR(30) NOT NULL,
    CustomerStreetNo VARCHAR(10) NOT NULL,
    CustomerStreetName VARCHAR(30) NOT NULL,
    CustomerCity VARCHAR(20) NOT NULL,
    CustomerState VARCHAR(30) NOT NULL,
    CustomerZipCode VARCHAR(10) NOT NULL,
    CustomerCellPhoneNumber VARCHAR(20),

    CONSTRAINT Customer_PK PRIMARY KEY (CustomerId)
);

-- Created Vendor Table
CREATE TABLE Vendor(
    VendorID CHAR(10) NOT NULL,
    VendorName VARCHAR(30) NOT NULL,
    VendorStreetNo VARCHAR(30) NOT NULL,
```



```

VendorStreetName VARCHAR(30) NOT NULL,
VendorCity VARCHAR(30) NOT NULL,
VendorState VARCHAR(30) NOT NULL,
VendorZipCode VARCHAR(30) NOT NULL,
VendorBusinessPhoneNumber VARCHAR(30),

CONSTRAINT Vendor_PK PRIMARY KEY (VendorId)
);

-- Created Room Table
CREATE TABLE Room(
    RoomNumber CHAR(10) NOT NULL,
    ToiletryUnits VARCHAR(10) NOT NULL,
    TowelUnits VARCHAR(10) NOT NULL,
    BedsheetUnits VARCHAR(10) NOT NULL,

    CONSTRAINT Room_PK PRIMARY KEY (RoomNumber)
);

-- Created RestaurantMeal Table
CREATE TABLE RestaurantMeal(
    MealID CHAR(10) NOT NULL,
    MeatUnits VARCHAR(20) NOT NULL,
    VegetableUnits VARCHAR(20) NOT NULL,
    DrinkUnits VARCHAR(20) NOT NULL,

    CONSTRAINT RestaurantMeal_PK PRIMARY KEY (MealID)
);

-- Created Purchase Table
CREATE TABLE Purchase(
    PurchaseID CHAR(10) NOT NULL,
    ProductType VARCHAR(30) NOT NULL CHECK(ProductType IN ('Toiletry', 'Towel',
'Bedsheet', 'Meat', 'Vegetable', 'Drink')),
    Quantity VARCHAR(30) NOT NULL,
    PurchaseDate DATE NOT NULL,

    CONSTRAINT Purchase_PK PRIMARY KEY (PurchaseID)
);

-- Created StorageInventory Table
CREATE TABLE StorageInventory(
    StorageID CHAR(10) NOT NULL,
    PurchaseID CHAR(10) NOT NULL,
    ProductType VARCHAR(30) NOT NULL CHECK(ProductType IN ('Toiletry', 'Towel',
'Bedsheet', 'Meat', 'Vegetable', 'Drink')),
    ProductPrice VARCHAR(30) NOT NULL,

    CONSTRAINT StorageInventory_PK PRIMARY KEY (StorageID),
    CONSTRAINT StorageInventory_FK FOREIGN KEY (PurchaseID) REFERENCES
Purchase(PurchaseID)
);

-- Created Product Table
CREATE TABLE Product(
    ProductID CHAR(10) NOT NULL,
    VendorID CHAR(10) NOT NULL,

```

```

        ProductType VARCHAR(20) NOT NULL CHECK(ProductType IN ('Toiletry', 'Towel',
'Bedsheet', 'Meat', 'Vegetable', 'Drink')),
        ProductPrice VARCHAR(20) NOT NULL,

        CONSTRAINT Product_PK PRIMARY KEY (ProductID),
        CONSTRAINT Product_FK FOREIGN KEY (VendorID) REFERENCES Vendor(VendorID)

);

-- Created OrderLine Table
CREATE TABLE OrderLine(
    OrderLineID CHAR(10) NOT NULL,
    PurchaseID CHAR(10) NOT NULL,
    ProductID CHAR(10) NOT NULL,

    CONSTRAINT OrderLine_PK PRIMARY KEY (OrderLineID),
    CONSTRAINT OrderLine_FK1 FOREIGN KEY (PurchaseID) REFERENCES Purchase(PurchaseID),
    CONSTRAINT OrderLine_FK2 FOREIGN KEY (ProductID) REFERENCES Product(ProductID)

);

-- Created Reservation Table
CREATE TABLE Reservation(
    ReservationID CHAR(10) NOT NULL,
    RoomNumber CHAR(10) NOT NULL,
    MealID CHAR(10) NOT NULL,
    CustomerID CHAR(10) NOT NULL,
    CheckInDate DATE NOT NULL,
    CheckOutDate DATE NOT NULL,

    CONSTRAINT Reservation_PK PRIMARY KEY (ReservationID, RoomNumber, MealID),
    CONSTRAINT Reservation_FK1 FOREIGN KEY (RoomNumber) REFERENCES Room(RoomNumber),
    CONSTRAINT Reservation_FK2 FOREIGN KEY (MealID) REFERENCES RestaurantMeal(MealID),
    CONSTRAINT Reservation_FK3 FOREIGN KEY (CustomerID) REFERENCES
Customer(CustomerID)

);

-----Sample Data-----

-- Inserted Customer Data
INSERT INTO Customer
(CustomerID, CustomerFirstName, CustomerLastName, CustomerStreetNo, CustomerStreetName, Custom
erCity, CustomerState, CustomerZipCode, CustomerCellPhoneNumber)
VALUES('1', 'Rohit', 'Sharma', '112', 'Peddar
Rd', 'Mumbai', 'Maharashtra', '400003', '9930023011');
INSERT INTO Customer
(CustomerID, CustomerFirstName, CustomerLastName, CustomerStreetNo, CustomerStreetName, Custom
erCity, CustomerState, CustomerZipCode, CustomerCellPhoneNumber)
VALUES('2', 'Rahul', 'Kapoor', '1334', 'Nepensea
Rd', 'Mumbai', 'Maharashtra', '400003', '9830022011');
INSERT INTO Customer
(CustomerID, CustomerFirstName, CustomerLastName, CustomerStreetNo, CustomerStreetName, Custom
erCity, CustomerState, CustomerZipCode, CustomerCellPhoneNumber)
VALUES('3', 'Chris', 'Pulisic', '1445', 'Lancaster Ave', 'Syracuse', 'New
York', '13210', '3154667777');

```

```

INSERT INTO Customer
(CustomerID, CustomerFirstName, CustomerLastName, CustomerStreetNo, CustomerStreetName, CustomerCity, CustomerState, CustomerZipCode, CustomerCellPhoneNumber)
VALUES('4', 'Brad', 'Friedel', '111', 'Ackerman Ave', 'Syracuse', 'New York', '13210', '3154990007');
INSERT INTO Customer
(CustomerID, CustomerFirstName, CustomerLastName, CustomerStreetNo, CustomerStreetName, CustomerCity, CustomerState, CustomerZipCode, CustomerCellPhoneNumber)
VALUES('5', 'Michael', 'Scott', '303', 'Euclid Ave', 'Syracuse', 'New York', '13210', NULL);

-- Inserted Reservation Data
INSERT INTO
Reservation(ReservationID, RoomNumber, MealID, CustomerID, CheckInDate, CheckOutDate)
VALUES('11', '8001', '600', '3', '10/20/2019', '10/23/2019');
INSERT INTO
Reservation(ReservationID, RoomNumber, MealID, CustomerID, CheckInDate, CheckOutDate)
VALUES('12', '7001', '601', '2', '08/04/2018', '08/20/2018');
INSERT INTO
Reservation(ReservationID, RoomNumber, MealID, CustomerID, CheckInDate, CheckOutDate)
VALUES('13', '5001', '602', '1', '09/12/2018', '10/02/2018');
INSERT INTO
Reservation(ReservationID, RoomNumber, MealID, CustomerID, CheckInDate, CheckOutDate)
VALUES('15', '3001', '603', '4', '09/12/2019', '09/22/2019');
INSERT INTO
Reservation(ReservationID, RoomNumber, MealID, CustomerID, CheckInDate, CheckOutDate)
VALUES('14', '1001', '604', '5', '03/02/2019', '03/04/2019');

-- Inserted Room Data
INSERT INTO Room(RoomNumber, ToiletryUnits, TowelUnits, BedsheetUnits)
VALUES('8001', '15', '6', '5');
INSERT INTO Room(RoomNumber, ToiletryUnits, TowelUnits, BedsheetUnits)
VALUES('1001', '20', '3', '6');
INSERT INTO Room(RoomNumber, ToiletryUnits, TowelUnits, BedsheetUnits)
VALUES('3001', '12', '8', '9');
INSERT INTO Room(RoomNumber, ToiletryUnits, TowelUnits, BedsheetUnits)
VALUES('5001', '17', '4', '3');
INSERT INTO Room(RoomNumber, ToiletryUnits, TowelUnits, BedsheetUnits)
VALUES('7001', '14', '6', '8');

-- Inserted Purchase Data
INSERT INTO Purchase(PurchaseID, ProductType, Quantity, PurchaseDate)
VALUES('999', 'Vegetable', '30', '10/22/2019');
INSERT INTO Purchase(PurchaseID, ProductType, Quantity, PurchaseDate)
VALUES('900', 'Meat', '50', '01/02/2019');
INSERT INTO Purchase(PurchaseID, ProductType, Quantity, PurchaseDate)
VALUES('909', 'Towel', '100', '01/03/2019');
INSERT INTO Purchase(PurchaseID, ProductType, Quantity, PurchaseDate)
VALUES('903', 'Drink', '50', '01/09/2019');
INSERT INTO Purchase(PurchaseID, ProductType, Quantity, PurchaseDate)
VALUES('907', 'Toiletry', '20', '01/01/2019');
INSERT INTO Purchase(PurchaseID, ProductType, Quantity, PurchaseDate)
VALUES('908', 'Bedsheet', '60', '01/10/2019');

-- Inserted RestaurantMeal Data
INSERT INTO RestaurantMeal(MealID, MeatUnits, VegetableUnits, DrinkUnits)
VALUES('600', '30', '20', '16');
INSERT INTO RestaurantMeal(MealID, MeatUnits, VegetableUnits, DrinkUnits)
VALUES('601', '15', '10', '17');

```

```

INSERT INTO RestaurantMeal(MealID,MeatUnits,VegetableUnits,DrinkUnits)
VALUES('602','10','20','30');
INSERT INTO RestaurantMeal(MealID,MeatUnits,VegetableUnits,DrinkUnits)
VALUES('603','20','16','19');
INSERT INTO RestaurantMeal(MealID,MeatUnits,VegetableUnits,DrinkUnits)
VALUES('604','30','20','10');

-- Inserted OrderLine Data
INSERT INTO OrderLine(OrderLineID,PurchaseID,ProductID)
VALUES('700','999','300');
INSERT INTO OrderLine(OrderLineID,PurchaseID,ProductID)
VALUES('701','900','301');
INSERT INTO OrderLine(OrderLineID,PurchaseID,ProductID)
VALUES('702','909','302');
INSERT INTO OrderLine(OrderLineID,PurchaseID,ProductID)
VALUES('703','907','303');
INSERT INTO OrderLine(OrderLineID,PurchaseID,ProductID)
VALUES('704','903','304');

-- Inserted Product Data
INSERT INTO Product(ProductID,VendorID,ProductType,ProductPrice)
VALUES('300','400','Vegetable','20');
INSERT INTO Product(ProductID,VendorID,ProductType,ProductPrice)
VALUES('301','401','Meat','30');
INSERT INTO Product(ProductID,VendorID,ProductType,ProductPrice)
VALUES('302','402','Drink','3');
INSERT INTO Product(ProductID,VendorID,ProductType,ProductPrice)
VALUES('303','403','Towel','10');
INSERT INTO Product(ProductID,VendorID,ProductType,ProductPrice)
VALUES('304','404','Toiletry','9');

-- Inserted Vendor Data
INSERT INTO
Vendor(VendorID,VendorName,VendorStreetNo,VendorStreetName,VendorCity,VendorState,VendorZipCode,VendorBusinessPhoneNumber)
VALUES('400','ABC foods','1010','Colaba','Mumbai','Maharashtra','400001','9200202020');
INSERT INTO
Vendor(VendorID,VendorName,VendorStreetNo,VendorStreetName,VendorCity,VendorState,VendorZipCode,VendorBusinessPhoneNumber)
VALUES('401','CBD cold storage','1403','IC colony','Mumbai','Maharashtra','400004','9892207200');
INSERT INTO
Vendor(VendorID,VendorName,VendorStreetNo,VendorStreetName,VendorCity,VendorState,VendorZipCode,VendorBusinessPhoneNumber)
VALUES('402','THC beverages','1400','Orlem road','Mumbai','Maharashtra','400007','9636471777');
INSERT INTO
Vendor(VendorID,VendorName,VendorStreetNo,VendorStreetName,VendorCity,VendorState,VendorZipCode,VendorBusinessPhoneNumber)
VALUES('403','CVV furnishing','100','Cuffe Parade','Mumbai','Maharashtra','400002','9930013034');
INSERT INTO
Vendor(VendorID,VendorName,VendorStreetNo,VendorStreetName,VendorCity,VendorState,VendorZipCode,VendorBusinessPhoneNumber)
VALUES('404','NBC traders','101','Marine Lines','Mumbai','Maharashtra','400005', NULL);

```

```

-- Inserted StorageInventory Data (Data would not be manually entered, but inputted using
an inventory scanner at delivery)
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('800','999','Vegetable','20');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('801','900','Meat','30');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('802','909','Towel','10');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('803','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('804','907','Toiletry','9');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('805','908','Bedsheet','9');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('806','908','Bedsheet','9');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('807','908','Bedsheet','9');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('808','908','Bedsheet','9');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('809','908','Bedsheet','9');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('810','908','Bedsheet','9');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('811','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('812','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('813','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('814','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('815','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('816','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('817','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('818','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('819','907','Toiletry','9');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('820','907','Toiletry','9');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('821','907','Toiletry','9');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('822','907','Toiletry','9');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('823','907','Toiletry','9');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('824','907','Toiletry','9');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('825','907','Toiletry','9');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('826','900','Meat','30');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('827','900','Meat','30');

```

[illegible]

[illegible]



[illegible]



[illegible]

[illegible]

[illegible]

[illegible]

[illegible]



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[illegible]

[illegible]

[illegible]



[illegible]

[illegible]

```

INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('1447','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('1448','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('1449','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('1450','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('1451','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('1452','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('1453','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('1454','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('1455','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('1456','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('1457','903','Drink','3');
INSERT INTO StorageInventory(StorageID,PurchaseID,ProductType,ProductPrice)
VALUES('1458','903','Drink','3');

```

-- Viewed Completed Tables

```

SELECT * FROM Customer
SELECT * FROM Reservation
SELECT * FROM Room
SELECT * FROM RestaurantMeal
SELECT * FROM StorageInventory
SELECT * FROM Purchase
SELECT * FROM Product
SELECT * FROM OrderLine
SELECT * FROM Vendor

```

Results Messages

CustomerID	CustomerFirstName	CustomerLastName	CustomerStreetNo	CustomerStreetName	CustomerCity	CustomerState	CustomerZipCode	CustomerCellPhoneNumber
1	Rohit	Sharma	112	Peddar Rd	Mumbai	Maharashtra	400003	9930023011
2	Rahul	Kapoor	1334	Nepensee Rd	Mumbai	Maharashtra	400003	9830022011
3	Chris	Pulisc	1445	Lancaster Ave	Syracuse	New York	13210	3154667777
4	Brad	Friedel	111	Ackerman Ave	Syracuse	New York	13210	3154990007
5	Michael	Scott	303	Euclid Ave	Syracuse	New York	13210	NULL

ReservationID	RoomNumber	MealID	CustomerID	CheckInDate	CheckOutDate
1	11	8001	600	3	2019-10-20
2	12	7001	601	2	2018-08-04
3	13	5001	602	1	2018-09-12
4	14	1001	604	5	2019-03-02
5	15	3001	603	4	2019-09-12

RoomNumber	ToiletryUnits	TowelUnits	BedsheetUnits
1	1001	20	3
2	3001	12	8
3	5001	17	4
4	7001	14	6
5	8001	15	6

MealID	MeatUnits	VegetableUnits	DrinkUnits
1	600	30	20
2	601	15	10
3	602	10	20
4	603	20	16
5	604	30	20

StorageID	PurchaseID	ProductType	ProductPrice
1	1000	909	Towel
2	1001	909	Towel
3	1002	909	Towel
4	1003	909	Towel
5	1004	909	Towel
6	1005	909	Towel
7	1006	909	Towel
8	1007	909	Towel

PurchaseID	ProductType	Quantity	PurchaseDate
1	900	Meat	50
2	903	Drink	50
3	907	Toiletry	20
4	908	Bedsheet	60
5	909	Towel	100
6	999	Vegetable	30

ProductID	VendorID	ProductType	ProductPrice
1	300	Vegetable	20
2	301	Meat	30
3	302	Drink	3
4	303	Towel	10
5	304	Toiletry	9

OrderLineID	PurchaseID	ProductID
1	700	999
2	701	900
3	702	909
4	703	907
5	704	903

VendorID	VendorName	VendorStreetNo	VendorStreetName	VendorCity	VendorState	VendorZipCode	VendorBusinessPhoneNumber
1	400	ABC foods	1010	Colaba	Mumbai	Maharashtra	400001
2	401	CBD cold storage	1403	IC colony	Mumbai	Maharashtra	400004
3	402	THC beverages	1400	Orlem road	Mumbai	Maharashtra	400007
4	403	CVV furnishing	100	Cuffe Parade	Mumbai	Maharashtra	400002
5	404	NBC traders	101	Marine Lines	Mumbai	Maharashtra	400005

## Section VII: SQL Statements for Answering Major Data Questions.

### Major Data Questions:

1. How much room inventory is available for a reservation?

This question will aid the hotel manager in checking whether how much inventory (toiletries, towels and bedsheets) available in a room so that it can be allotted to a customer if the inventory levels are above the required level and if not then ask the room service staff to replenish them from the main inventory. This would help them in improving the customer satisfaction and keep a track as to how much inventory is used for a particular reservation. This information will then be rallied back to the purchase manager so that necessary purchases can be made if the inventory required for the rooms reaches a critical level in the main inventory. It would also aide the purchase manager in making bulk purchases as it would give an estimate as to how much room inventory is used up on an average in a particular month. This information is also useful to the sales head as it will help in the pricing analysis of the rooms.

2. How much restaurant inventory is available for a reservation?

This question will help the restaurant manager in ensuring that there is sufficient food inventory (vegetables, meat and drink products) left for a reservation for the complimentary breakfast and items ordered a la carte. It would help in ensuring that the restaurant never runs out of food items as it would negatively impact the customer satisfaction ratings if a particular food item isn't available to the customer. If the inventory levels in the restaurant reaches a critical level then it can be replenished from the main inventory. The purchase manager would keep a track as to how much inventory is left in the main inventory. This data will also be useful to the sales head in the pricing analysis for the restaurant dishes and rooms.

3. What are the customer details for a reservation?

This would help the hotel manager in quickly pulling out the customer details. In cases when the customer details are required by the law agencies then it would aid in quickly pulling out the data. It could also be used to check whether the customer is a repeating customer at the time of the reservation so that better prices and special attention can be given as the hotel would want to keep their loyal customers satisfied.

4. What are the vendor details for a product?

This would aid the purchase manager in pulling out the vendor details for a particular product as it would be helpful at the time of reordering it. In cases when a product is defective it can be easily traced as to which vendor had supplied that product.

5. What are current inventory levels in storage?

This would aid the purchase manager in checking what are the current inventory levels so that if they reach a critical level then it could be reordered.

-- SQL Statements for Answering Major Data Questions.

```
--1) ----- How much room inventory is there available for a reservation? -----
SELECT re.ReservationID, ro.*
FROM Room ro
JOIN Reservation re
ON ro.RoomNumber = re.RoomNumber
```

```
--2) ----- How much restaurant inventory is there available for a reservation? -----
-----
SELECT re.ReservationID, rm.*
FROM RestaurantMeal rm
JOIN Reservation re
ON rm.MealID = re.MealID
```

```
--3) ----- What are the customer details for a reservation? -----
SELECT re.ReservationID, c.*
FROM Customer c
JOIN Reservation re
ON c.CustomerID = re.CustomerID
```

```
--4) ----- What are the vendor details for a product? -----
SELECT p.ProductID, v.*
FROM Vendor v
JOIN Product p
ON v.VendorID = p.VendorID
```

```
--5) ----- What are current inventory levels in storage? -----
SELECT si.ProductType, COUNT(ProductType) 'Current Inventory'
FROM StorageInventory si
GROUP BY si.ProductType
```

Results

Messages

	ReservationID	RoomNumber	ToiletryUnits	TowelUnits	BedsheetUnits
1	11	8001	15	6	5
2	12	7001	14	6	8
3	13	5001	17	4	3
4	14	1001	20	3	6
5	15	3001	12	8	9

	ReservationID	MealID	Meat Units	Vegetable Units	Drink Units
1	11	600	30	20	16
2	12	601	15	10	17
3	13	602	10	20	30
4	14	604	30	20	10
5	15	603	20	16	19

	ReservationID	CustomerID	CustomerFirst Name	CustomerLast Name	CustomerStreetNo	CustomerStreet Name	CustomerCity	CustomerState	CustomerZipCode	CustomerCellPhone Number
1	11	3	Chris	Pulisc	1445	Lancaster Ave	Syracuse	New York	13210	3154667777
2	12	2	Rahul	Kapoor	1334	Nepensea Rd	Mumbai	Maharashtra	400003	9830022011
3	13	1	Rohit	Shama	112	Peddar Rd	Mumbai	Maharashtra	400003	9930023011
4	14	5	Michael	Scott	303	Euclid Ave	Syracuse	New York	13210	NULL
5	15	4	Brad	Friedel	111	Ackeman Ave	Syracuse	New York	13210	3154990007

	ProductID	VendorID	VendorName	VendorStreetNo	VendorStreetName	VendorCity	VendorState	VendorZipCode	VendorBusinessPhone Number
1	300	400	ABC foods	1010	Colaba	Mumbai	Maharashtra	400001	9200202020
2	301	401	CBD cold storage	1403	IC colony	Mumbai	Maharashtra	400004	9892207200
3	302	402	THC beverages	1400	Orlem road	Mumbai	Maharashtra	400007	9636471777
4	303	403	CVV furnishing	100	Cuffe Parade	Mumbai	Maharashtra	400002	9930013034
5	304	404	NBC traders	101	Marine Lines	Mumbai	Maharashtra	400005	NULL

	Product Type	Current Inventory
1	Bedsheet	105
2	Drink	109
3	Meat	107
4	Toiletry	108
5	Towel	108
6	Vegetable	112

Query executed successfully.

ist-s-students.syr.edu (12... | AD\ihustani (91) | IST659\_M003\_ihustani | 00:00:00 | 26 rows

## PART 4 – INTERFACE IMPLEMENTATION

### Section VIII: Forms

#### 1. Customer

Navigation Form

dragonfly  
hotel

Customer  
Reservation  
Room  
Restaurant  
Storage  
Product  
Purchase  
Vendor

Customer Form

CustomerID

1

FirstName

Rohit

LastName

Sharma

StreetNo

112

StreetName

Peddar Rd

City

Mumbai

State

Maharashtra

Zip Code

400003

Cell Phone Number

9930023011

Previous Record

Next Record

Delete Record

Add Record

#### 2. Reservation

Navigation Form

dragonfly  
hotel

Customer  
Reservation  
Room  
Restaurant  
Storage  
Product  
Purchase  
Vendor

Reservation Form

ReservationID

11

RoomNumber

8001

MealID

600

CustomerID

3

CheckInDate

10/20/2019

CheckOutDate

10/23/2019

Next Record

Previous Record

Add Record

Delete Record

### 3. Room

Navigation Form

dragonfly hotel

Customer

Reservation

Room

Restaurant

Storage

Product

Purchase

Vendor

Room Inventory

RoomNumber

1001

ToiletryUnits

20

TowelUnits

3

BedsheetUnits

6

Next Record

Previous Record

Delete Record

Add Record

### 4. Restaurant

Navigation Form

dragonfly hotel

Customer

Reservation

Room

Restaurant

Storage

Product

Purchase

Vendor

Restaurant Meal Inventory

MeallID

600

MeatUnits

30

VegetableUnits

20

DrinkUnits

16

Next Record

Previous Record

Add Record

Delete Record



## 5. Storage

Navigation Form

dragonfly hotel

Customer

Reservation

Room

Restaurant

Storage

Product

Purchase

Vendor

Storage Inventory Form

StorageID: 849

PurchaseID: 909

ProductType: Towel

ProductPrice: 10

Next Record

Previous Record

Add Record

Delete Record

dbo\_StorageInventory

Item	Count
Bedsheet	108
Drink	112
Meat	108
Toiletry	108
Towel	112
Vegetable	112

Storage Inventory Levels

Category	Color
Bedsheet	Blue
Drink	Orange
Meat	Grey
Toiletry	Yellow
Towel	Light Blue
Vegetable	Green

## 6. Product

Navigation Form

dragonfly hotel

Customer

Reservation

Room

Restaurant

Storage

Product

Purchase

Vendor

Product Details Form

ProductID: 300

VendorID: 400

ProductType: Vegetable

ProductPrice: 20

Next Record

Previous Record

Add Record

Delete Record

## 7. Purchase

Navigation Form

dragonfly hotel

Customer

Reservation

Room

Restaurant

Storage

Product

Purchase

Vendor

Purchase Record Form

PurchaseID

900

ProductType

Meat

Quantity

50

PurchaseDate

1/2/2019

Next Record

Previous Record

Add Record

Delete Record

## 8. Vendor

Navigation Form

dragonfly hotel

Customer

Reservation

Room

Restaurant

Storage

Product

Purchase

Vendor

Vendor Form

VendorID

400

Name

ABC foods

StreetNo

1010

StreetName

Colaba

City

Mumbai

State

Maharashtra

ZipCode

400001

Business Phone Number

9200202020

Next Record

Previous Record


Add Record

Delete Record


## Section IX: Reports

1. How much room inventory is available for a reservation?

Query1Report × Query2Report × Query3Report × Query4Report × Query5Report ×


 How much room inventory is there available for a reservation?

Reservation ID	Room Number	Toiletry Units	Towel Units	Bedsheet Units
11	8001	15	6	5
12	7001	14	6	8
13	5001	17	4	3
14	1001	20	3	6
15	3001	12	8	9




2. How much restaurant inventory is available for a reservation?

Query1Report × Query2Report × Query3Report × Query4Report × Query5Report ×

 How much restaurant inventory is there available for a reservation?

Reservation ID	Meal ID	Meat Units	Vegetable Units	Drink Units
11	600	30	20	16
12	601	15	10	17
13	602	10	20	30
14	604	30	20	10
15	603	20	16	19



### 3. What are the customer details for a reservation?

Query1Report x Query2Report x Query3Report x Query4Report x Query5Report x

What are the customer details for a reservation?

Reservation ID	Customer ID	Customer First Name	Customer Last Name	Customer Street Number	Customer Street Name	Customer City
11	3	Chris	Pulisic	1445	Lancaster Ave	Syracuse
12	2	Rahul	Kapoor	1334	Nepensea Rd	Mumbai
13	1	Rohit	Sharma	112	Peddar Rd	Mumbai
14	5	Michael	Scott	303	Euclid Ave	Syracuse
15	4	Brad	Friedel	111	Ackerman Ave	Syracuse

dragonfly hotel

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Customer State	Customer Zip Code	Customer Cell Phone Number
New York	13210	3154667777
Maharashtra	400003	9830022011
Maharashtra	400003	9930023011
New York	13210	
New York	13210	3154990007

### 4. What are the vendor details for a product?

Query1Report x Query2Report x Query3Report x Query4Report x Query5Report x

What are the vendor details for a product?

Product ID	Vendor ID	Vendor Name	Vendor Street Number	Vendor Street Name	Vendor City	Vendor State
300	400	ABC foods	1010	Colaba	Mumbai	Maharashtra
301	401	CBD cold storage	1403	IC colony	Mumbai	Maharashtra
302	402	THC beverages	1400	Orlem road	Mumbai	Maharashtra
303	403	CVV furnishing	100	Cuffe Parade	Mumbai	Maharashtra
304	404	NBC traders	101	Marine Lines	Mumbai	Maharashtra


dragonfly hotel

---

Vendor Zip Code	Vendor Business Phone Number
400001	9200202020
400004	9892207200
400007	9636471777
400002	9930013034
400005	

5. What are current inventory levels in storage?

Query1Report × Query2Report × Query3Report × Query4Report × Query5Report ×

 What are current inventory levels in storage?

Product Type	Current Inventory
Bedsheet	105
Drink	109
Meat	107
Toiletry	108
Towel	108
Vegetable	112

