CSCI 5408

Data Management, Warehousing, And Analytics

Assignment 1 - Problem 1

Building a Data Model for a business team on its Bed & Breakfast in Halifax region.

Prepared By

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Problem-1: Building a Data Model for a business team on its Bed & Breakfast in Halifax region.

Step-1: List of websites related to hotels or lodging facilities.

Based on the given requirements, following websites are identified related to hotels or lodging facilities that can provide useful information for building the backend information system for the "Hello12 Management team" Bed & Breakfast in the Halifax region:

Table 1: Hotel and Lodging Website Analysis

No.	Website URL	Gathered Information
1.	https://www.booking.com/bed-and-breakfast/city/ca/halifax.html	• It is a popular platform for booking accommodations worldwide. • Offers a wide range of lodging options, including bed and breakfast establishments. • Users can search for properties based on location, room types, and amenities. • The website provides detailed information about each property, including room descriptions, photos, prices, and guest reviews.
2.	http://www.airbnb.com/	• Airbnb is an online marketplace for short-term lodging, including bed and breakfasts. • Hosts can list their properties, and guests can book accommodations directly from the website. • Users can search for properties based on location, room types, and amenities. • The website provides property descriptions, photos, prices, and guest reviews.
3.	https://www.tripadvisor.com/Hotels-g154976-c2-Halifax_Halifax_Regional_Municipality_Nova_Scotia-Hotels.html	• TripAdvisor is a well-known travel website that includes reviews and details on various lodging establishments, including bed and breakfasts. • This website also provides property descriptions, photos, prices, and guest reviews along with search feature to look for rooms and amenities based on the selected locations.
4.	https://www.expedia.ca/Nova-Scotia-Bed-And-Breakfast.d11173-aaBedAndBreakfast.Travel-Guide-Accommodation	• Expedia provides detailed information about each property, including room

		descriptions, photos, prices, and guest reviews.
5.	https://ca.hotels.com/?locale=en_CA&pos=HCOM_CA&siteid=300000002	• This website provides additional information to scan the QR code with personal device camera and download applications. • Users can search for accommodations based on location, room types, and amenities.
6.	https://planetofhotels.com/en/canada/halifax/bed-and-breakfasts	• Planet Hotels provide the information based on the geo location of the user and gives various types of filters to search for the best choice. It also has the integration of TripAdvisor app rating.
7.	https://www.hotel-bb.com/en	• Each hotel is fully described on the internet, along with room images, pricing, and reviews from previous visitors including breakfast options
8.	https://staycanada.ca/49274-marigold-bed-and-breakfast-halifax.html	• The website, staycanada.ca, provides a listing for various accommodations in Canada, including bed and breakfasts, hotels, and vacation rentals. • The website provides a list of nearby places to eat, and the details of nearby banks, shops, and a movie theater.

Step-2: List of entities

Strong Entities:

1. **Bed & Breakfast:**
   This stands in for the company's primary entity. It is the focal point around which the entire system revolves, making it a strong entity. It may exist independently and has a distinct identity of its own.
2. **Branches:**
   Represent the various branches of the Bed & Breakfast hotel. This will be strong key because it can make some other connection based on itself only.
3. **Room:**
   Represents the different types of rooms available at the Bed & Breakfast. Each room has attributes like room number, capacity, amenities, and pricing. This is a strong entity because rooms are a fundamental component of the business's offerings.
4. **Guest:**
   Guests are the individuals or groups who stay at the bed and breakfast. They have attributes like name, contact information, reservation details, and preferences. Guests are considered strong entities as they have a unique identity and can exist independently.

5. **Reservation:**
   Represents the booking or reservation made by a guest for a specific room or specific date. It includes attributes like reservation number, guest details, room details, check-in and check-out dates, and any special requests. This is a strong entity as reservations are crucial for managing guest stays.
6. **Breakfast Item:**
   Breakfast items are the different types of food options offered to guests. Each breakfast item has its own characteristics, such as name, description, ingredients, and availability. Breakfast items are considered strong entities as they have a unique identity and can exist independently.
7. **Coupon:**
   Coupons are vouchers or discounts provided to guests for accessing external facilities like swimming pools or gyms. They have attributes such as a unique code, discount amount, expiration date, and terms of use. This is a strong entity as coupons are an integral part of the business's offerings.
8. **Staff:**
   Represents the staff members working at the Bed & Breakfast. It includes attributes like name, position, contact information, and assigned tasks. Staff are considered strong entities as staff members are essential for the smooth operation of the business.

Weak Entities:

1. **Dependant:**
   Represents the family members of the staff working at the Bed & Breakfast. It includes attributes like family member name, relationship to the staff member, and contact information. This entity is considered weak entity as it relies on the existence of the Staff entity.
2. **Amenities:**
   Amenities are the additional features or services provided by the bed and breakfast, such as Wi-Fi, parking, Gym, Swimming pool or laundry facilities. Amenities are considered weak entities because they depend on the existence of the room entity. They don't have a unique identity on their own. It includes attributes like amenity ID, room ID, description, and availability.
3. **Invoice:**
   Invoices are generated for guests to provide a breakdown of charges, including room rates, breakfast items, additional services, and taxes. Invoices are considered weak entities as they depend on the existence of the reservation entity. They are associated with specific reservation entities and don't have a unique identity on their own.

Step-3: Initial Chen Model ERD

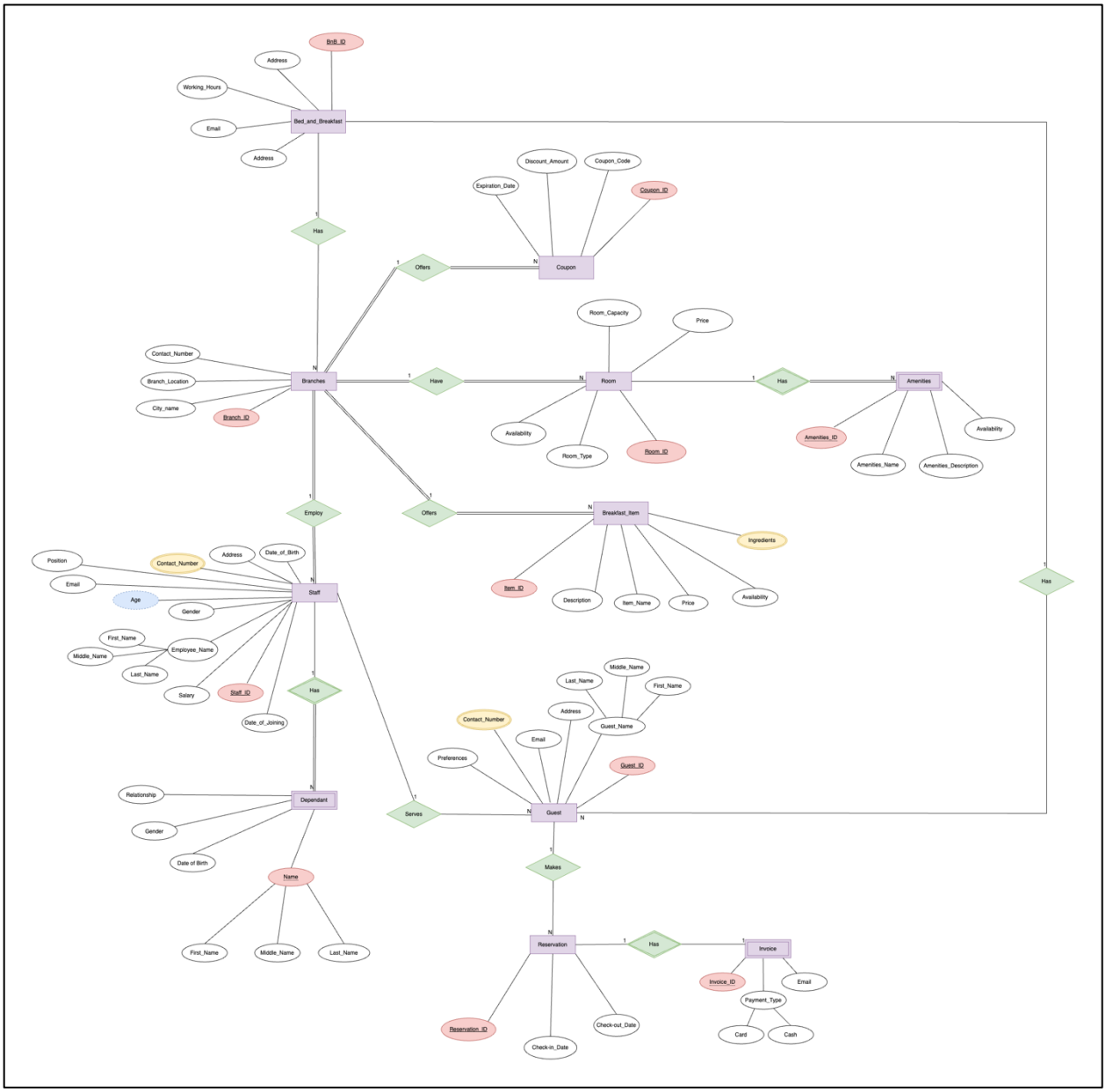

Figure 1: Initial Conceptual ER Diagram (Chen Model) of Bed & Breakfast Hotel

Explanation: This Chen model ERD includes the strong entities and the weak entities. It represents the attributes for each entity, the relationships, and cardinalities between them [2,4].

- ERD for Bed & Breakfast using Chen model has been drawn using https://www.draw.io [3].
- Primary key is underlined and highlighted with RED color.
- Entities are displayed with VIOLET color.
- Relationships are indicated with GREEN color.
- Multiple attributes are shown with YELLOW color.

- Derived attributes are shown with BLUE color.

Types of Attributes:

1. Prime Attributes:
    a. BnB_ID from Bed_and_Breakfast entity
    b. Branch_ID from Branches entity
    c. Staff_ID from Staff entity
    d. Guest_ID from Guest entity
    e. Reservation_ID from Reservation entity
    f. Item_ID from Breakfast_Item entity
    g. Room_ID from Room entity
    h. Coupon_ID from Coupon entity
2. Derived Attributes:
    a. Staff_Age from Staff entity
3. Multi-valued Attributes:
    a. Staff_Contact_Number from Staff entity
    b. Guest_Contact_Number from Guest entity
    c. Ingredients from Breakfast_Item entity
4. Partial Attributes:
    a. Dependent_Name from Dependent entity
    b. Invoice_ID from Invoice entity
    c. Amenities_ID from Amenities entity

Note: The rest of the attributes are all normal attributes.

All relationships:

- The Bed & Breakfast entity and the Guest entity are in a one-to-many relationship. A bed and breakfast have multiple guests and, many guest are operated by one bed & breakfast.
- The Bed & Breakfast entity and the Branches entity are in a one-to-many relationship. A bed and breakfast can have many branches.
- The Branches entity and Staff entity are in a one-to-many relationship. Branches employs many Staff.
- The Staff entity and a Dependent entity are in a one-to-many relationship. Staff have 1 or many dependents.
- The Staff entity and a Guest entity are in a one-to-many relationship. 1 Staff serves many Guests.
- The Guest entity and Reservation entity are in a one-to-many relationship. 1 Guest can make many Reservations.
- The Reservation entity and an Invoice entity are in a one-to-one relationship. The 1 Reservation has only 1 Invoice.
- The Branches entity and a Coupon entity are in a one-to-many relationship. One branch offers many Coupons for different amenities.
- The Branches entity and a Room entity are in a one-to-many relationship. One Branch have many Rooms.
- The Room entity and an Amenities entity are in a one-to-many relationship. One Room has many Amenities.

Step-4: Design issue in initial Chen Model

In the **Figure1** there were some design issues which were solved after making initial conceptual ERD model only [2]. The **fan trap** occurs in the relationship between the Staff entity and the Guest entity. According to the cardinality given, it states that one Staff serves many Guests. However, if we consider this relationship as it is, it creates a fan trap situation. Let's say a Staff member serves multiple Guests, and each Guest makes multiple Reservations. In this scenario, it becomes ambiguous which Reservation belongs to which Guest, leading to a fan trap.
In the refined ERD, we have made the following changes to address the design issues:

Fan Trap:

- Removed the direct relationship between Staff and Guest entities.
- Added a new relationship between Staff and Reservation entities, indicating that a Staff member can be assigned to a Reservation.

Refined Chen Model ERD:

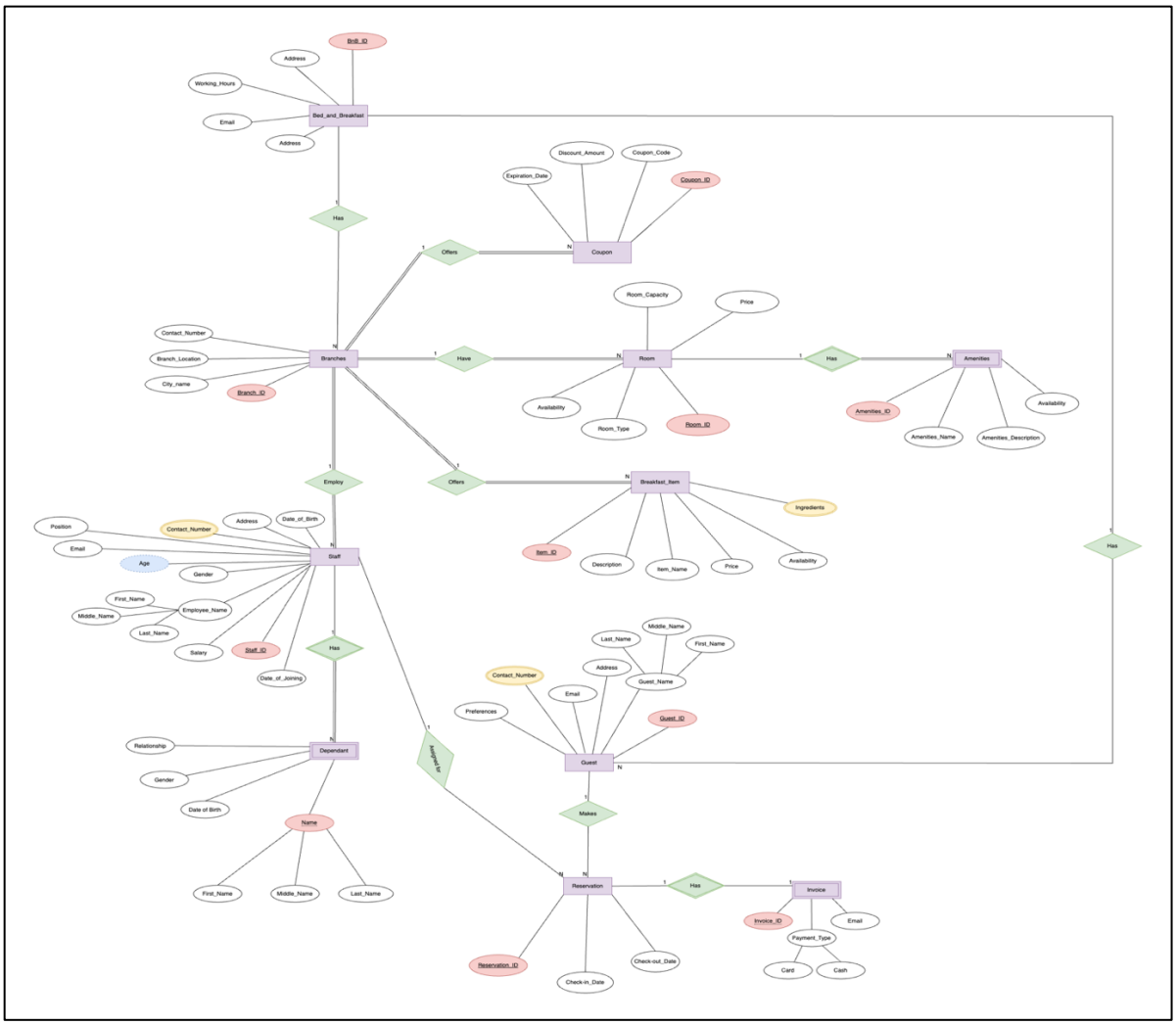

Figure 2: Refined Conceptual ER Diagram (Chen Model) of Bed & Breakfast Hotel

Step-5: Dependencies in Logical Model

Here is the tabular structure for each entity with all attributes:

Entity-1 Bed_and_Breakfast

Bed_and_Breakfast
BnB_ID
Address
Working_Hours
Email

Entity-2 Branches

Branches
Branch_ID
City_Name
Branch_Location
Email

- The **Branches** entity has a dependency on the **Bed_and_Breakfast** entity, as each branch is associated with a specific bed and breakfast (identified by BnB_ID).

Entity-3 Staff

Staff
Staff_ID
Employee_Name
Date_of_Birth
Address
Contact_Number
Position
Email

- The **Staff** entity has a dependency on the **Branches** entity, as each staff member is employed by a specific branch (identified by Branch_ID).

Age
Gender
Salary
Date_of_Joining

Entity-4 Dependant

Dependant
Dependant_Name
Date_of_Birth
Gender
Relationship

- The **Dependant** entity has a dependency on the **Staff** entity, as each dependent is related to a staff member (identified by Staff_ID).

Entity-5 Guest

Guest
Guest_ID
Guest_Name
Address
Email
Contact_Number
Preferences

Entity-6 Reservation

Reservation
Reservation_ID
Check-in_Date
Check-out_Date

- The **Reservation** entity has dependencies on both the **Guest** entity (identified by Guest_ID) and the Room entity (identified by Room_ID).

Entity-7 Invoice

Invoice
Invoice_ID
Payment_Type
Email

- The **Invoice** entity has a dependency on the **Reservation** entity (identified by Reservation_ID).

Entity-8 Breakfast_Item

Breakfast_Item
Item_ID
Description
Item_Name
Price
Availability
Ingredients

Entity-9 Room

Room
Room_ID
Room_Type
Price
Availability
Room_Capacity

Entity-10 Amenities

Amenities
Amenities_ID

- The Amenities entity has a dependency on the Room entity (identified by Room_ID), as each amenity is associated with a specific room.

Amenities_Name
Amenities_Description
Availability

Entity-11 Coupon

Coupon
Coupon_ID
Coupon_Code
Discount_Amount
Expiration_Date

- The **Coupon** entity has a dependency on the **Branches** entity (identified by Branch_ID), as each coupon is offered by a specific branch.

Step-6: Required Normalization

From the defined entities, the staff entity has Contact_Number as a multivalued attribute, the Guest entity has a Contact_Number as multivalued attribute and the Breakfast_Item entity has Ingredients as a multivalued attribute.

To normalize the multivalued attributes in the entities, need to perform the first normal form (1NF) by creating separate tables for these attributes. By separating the multivalued attributes into separate tables, we ensure that each attribute in a table contains atomic values. Here's the modified structure after applying 1NF.

Staff
Staff_ID (PK) Employee_Name Date_of_Birth Address Position Email Age Gender Salary Date_of_Joining

Staff_Contact
Staff_ID (FK) Contact_Number

Guest
Guest_ID (PK) Guest_Name Address Email Preferences

Guest_Contact
Guest_ID (FK) Contact_Number

Breakfast_Item
Item_ID (PK) Description Item_Name Price Availability

Ingredients
Item_ID (FK) Ingredient

The assumption behind this normalization is as follows:

1. **Staff Contact Numbers:**
   Staff members may have multiple contact numbers (e.g., personal and work), so separating them into a separate table allows for storing multiple values for each staff member's contact number.
2. **Guest Contact Numbers:**
   Similar to staff members, guests may have multiple contact numbers, such as home, mobile, or work. Storing guest contact numbers in a separate table enables handling multiple contact numbers per guest.
3. **Breakfast Item Ingredients:**
   Breakfast items can have multiple ingredients. By creating a separate table for ingredients, we can associate multiple ingredients with each breakfast item, allowing for flexibility in managing and querying the data.

Figure 3 illustrates the final logical model which is drawn using draw.io [3]

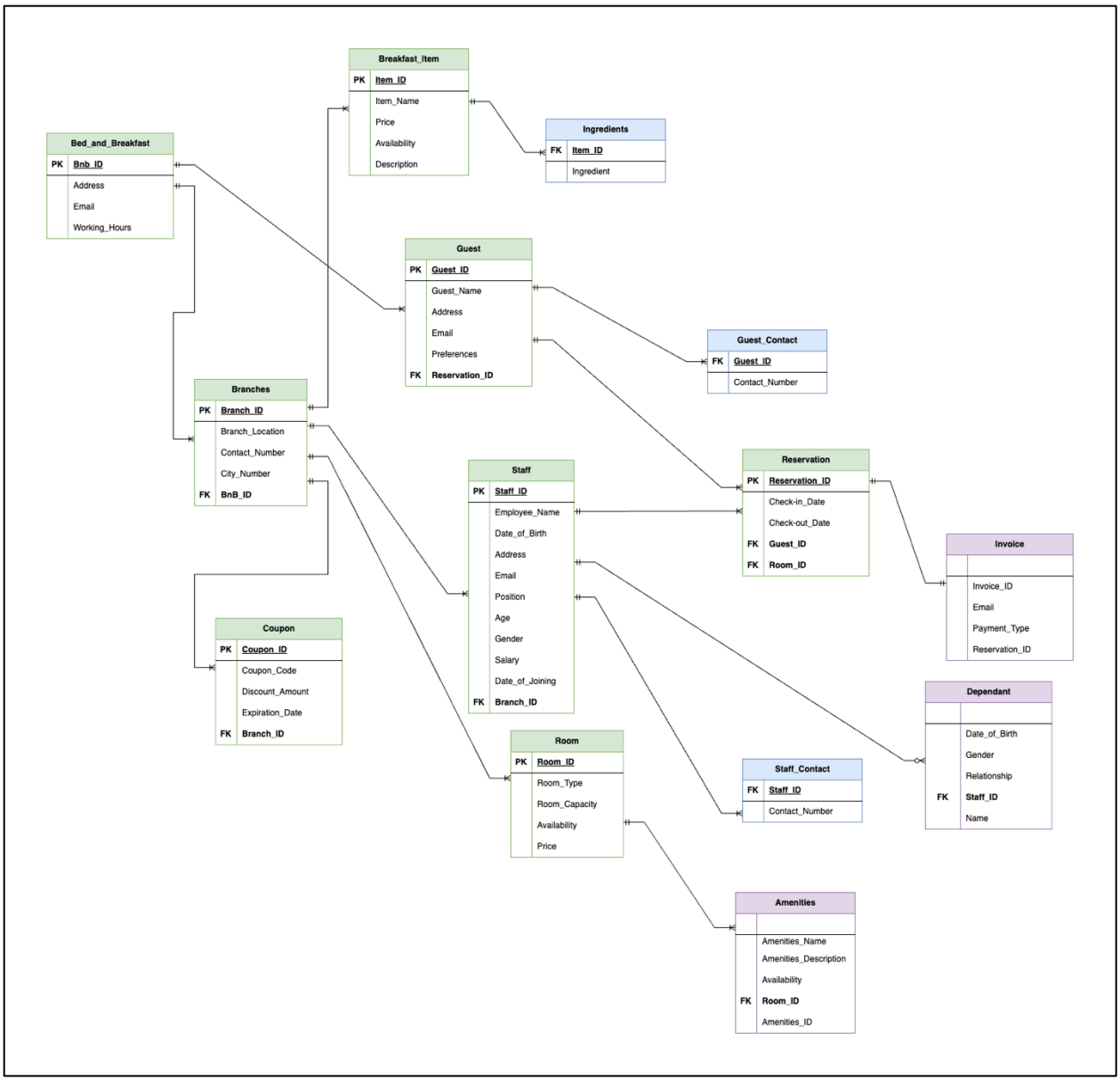

Figure 3: Final Logical ER Diagram of Bed & Breakfast Hotel

Explanation: This logical model includes the strong entities, weak entities, and entities after normalization. It represents the attributes for each entity, and cardinalities between them [2,4].

- Logical model for Bed & Breakfast has been drawn using https://www.draw.io [3].
- Primary and Foreign key are highlighted in bold fonts.
- Weak Entities are displayed with VIOLET color.
- Strong Entities are displayed with GREEN color.
- Entities after normalizations are displayed with BLUE color.

Step-7: Database and empty tables creation

```
-- New Schema creation for database BedBreakfast

CREATE SCHEMA IF NOT EXISTS BedBreakfast;

USE BedBreakfast;


-- Table 1: Bed_and_Breakfast

CREATE TABLE IF NOT EXISTS BedBreakfast.Bed_and_Breakfast (

BnB_ID INT NOT NULL PRIMARY KEY,

BnB_Email VARCHAR(45) NOT NULL,

BnB_Address VARCHAR(45) NOT NULL,

BnB_Working_Hours DATETIME NOT NULL);


-- Table 2: Branches

CREATE TABLE IF NOT EXISTS BedBreakfast.Branches (

Branch_ID INT NOT NULL PRIMARY KEY,

Branch_City_Name VARCHAR(45) NOT NULL,

Branch_Location VARCHAR(45) NOT NULL,

Branch_Contact_Number VARCHAR(45) NOT NULL,

BnB_ID INT REFERENCES Bed_and_Breakfast(BnB_ID));


-- Table 3: Coupon

CREATE TABLE IF NOT EXISTS BedBreakfast.Coupon (

Coupon_ID INT NOT NULL PRIMARY KEY,

Coupon_Code VARCHAR(45) NOT NULL,

Coupon_Discount_Amount DECIMAL NOT NULL,
```

```
Coupon_Expiration_Date DATETIME NOT NULL,
Branch_ID INT REFERENCES Branches(Branch_ID));

-- Table 4: Breakfast_Item
CREATE TABLE IF NOT EXISTS BedBreakfast.Breakfast_Item (
Item_ID INT NOT NULL PRIMARY KEY,
Item_Name VARCHAR(45) NOT NULL,
Item_Price DECIMAL NOT NULL,
Item_Availability VARCHAR(45) NOT NULL,
Item_Description VARCHAR(45) NOT NULL );

-- Table 5: Ingredients
CREATE TABLE IF NOT EXISTS BedBreakfast.Ingredients (
Ingredients VARCHAR(45) NOT NULL,
Item_ID INT REFERENCES Breakfast_Item(Item_ID));

-- Table 6: Staff
CREATE TABLE IF NOT EXISTS BedBreakfast.Staff (
Staff_ID INT NOT NULL PRIMARY KEY,
Employee_Name VARCHAR(45) NOT NULL,
Staff_Address VARCHAR(45) ,
Staff_Email VARCHAR(45) NOT NULL,
Staff_Position VARCHAR(45) NOT NULL,
Staff_Age VARCHAR(45) NOT NULL,
Staff_Salary DECIMAL NOT NULL,
```

```
Staff_Gender VARCHAR(45) NOT NULL,
Staff_Date_of_Birth DATETIME NOT NULL,
Staff_Date_of_Joining DATETIME NOT NULL,
Branch_ID INT REFERENCES Branches(Branch_ID));
```

-- Table 7: Staff_Contact

```
CREATE TABLE IF NOT EXISTS BedBreakfast.Staff_Contact (
Staff_Contact_Number VARCHAR(45) NOT NULL,
Staff_ID INT REFERENCES Staff(Staff_ID));
```

-- Table 8: Room

```
CREATE TABLE IF NOT EXISTS BedBreakfast.Room (
Room_ID INT NOT NULL PRIMARY KEY,
Room_Type VARCHAR(45) ,
Room_Capacity VARCHAR(45) NOT NULL,
Room_Availability VARCHAR(45) NOT NULL,
Room_Price DECIMAL NOT NULL,
Branch_ID INT REFERENCES Branches(Branch_ID));
```

-- Table 9: Guest

```
CREATE TABLE IF NOT EXISTS BedBreakfast.Guest (
Guest_ID INT NOT NULL PRIMARY KEY,
Guest_Name VARCHAR(45) NOT NULL,
Guest_Address VARCHAR(45) ,
Guest_Email VARCHAR(45) NOT NULL,
```

```
Guest_Preferences VARCHAR(45) NOT NULL,
Reservation_ID INT REFERENCES Reservation(Reservation_ID));

-- Table 10: Guest_Contact
CREATE TABLE IF NOT EXISTS BedBreakfast.Guest_Contact (
Guest_Contact_Number VARCHAR(45) NOT NULL,
Guest_ID INT REFERENCES Guest(Guest_ID));

-- Table 11: Reservation
CREATE TABLE IF NOT EXISTS BedBreakfast.Reservation (
Reservation_ID INT NOT NULL PRIMARY KEY,
Check_in_Date DATETIME NOT NULL,
Check_out_Date DATETIME NOT NULL,
Guest_ID INT REFERENCES Guest(Guest_ID),
Room_ID INT REFERENCES Room(Room_ID));

-- Table 12: Invoice
CREATE TABLE IF NOT EXISTS BedBreakfast.Invoice (
Invoice_ID INT NOT NULL,
Email VARCHAR(45) NOT NULL,
Payment_Type VARCHAR(45) ,
Reservation_ID INT REFERENCES Reservation(Reservation_ID));

-- Table 13: Amenities
CREATE TABLE IF NOT EXISTS BedBreakfast.Amenities (
```

Amenities_ID INT NOT NULL,

Amenities_Name VARCHAR(45) NOT NULL,

Amenities_Description VARCHAR(45),

Amenities_Availability VARCHAR(45) NOT NULL,

Room_ID INT REFERENCES Room(Room_ID));

-- Table 14: Dependant

CREATE TABLE IF NOT EXISTS BedBreakfast.Dependant (

Dependant_Name VARCHAR(45) NOT NULL,

Dependant_Gender VARCHAR(45),

Dependant_Relationship VARCHAR(45) NOT NULL,

Dependant_Date_of_Birth DATETIME NOT NULL,

Staff_ID INT REFERENCES Staff(Staff_ID));

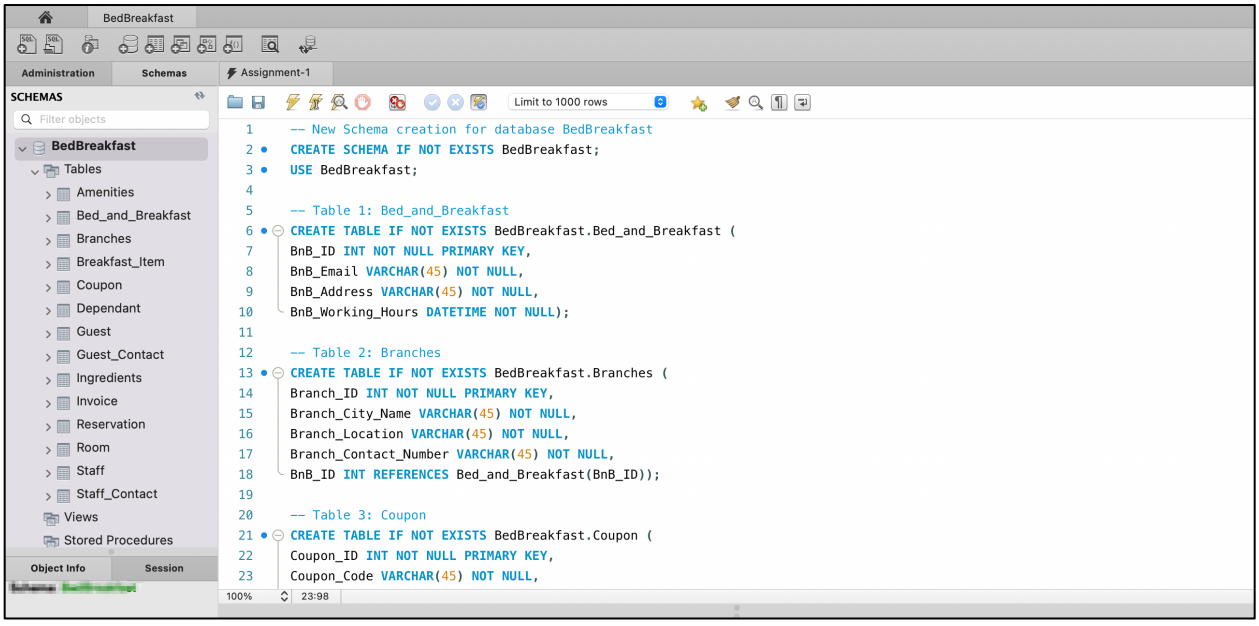

Figure 4: Physical Model of Bed & Breakfast Hotel

Step-8: Export the SQL Dump

To export the SQL dump of MySQL Workbench database, followed below mentioned steps [5]:

1. Open MySQL Workbench and connect to your MySQL database server.
2. Select the database you want to export in the "SCHEMAS" section on the left-hand side. Here the schema is bedbreakfast
3. Go to the "Server" menu at the top and choose "Data Export".
4. In the "Data Export" window, select the "Export to Self-Contained File" option.
5. Choose the location where the SQL dump file needs to be saved.
6. Select "Dump Structure and Data" option to export both the database structure and data.
7. Click the "Start Export" button to begin the export process.
8. The dump is saved in the given folder.

SQL Dump:

```
-- MySQL dump 10.13  Distrib 8.0.31, for macos12 (x86_64)

--

-- Host: 127.0.0.1    Database: bedbreakfast

-- ------------------------------------------------------

-- Server version        8.0.31


/*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT */;

/*!40101 SET @OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS
*/;

/*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION */;

/*!50503 SET NAMES utf8 */;

/*!40103 SET @OLD_TIME_ZONE=@@TIME_ZONE */;

/*!40103 SET TIME_ZONE='+00:00' */;

/*!40014 SET @OLD_UNIQUE_CHECKS=@@UNIQUE_CHECKS, UNIQUE_CHECKS=0
*/;

/*!40014 SET @OLD_FOREIGN_KEY_CHECKS=@@FOREIGN_KEY_CHECKS,
FOREIGN_KEY_CHECKS=0 */;

/*!40101 SET @OLD_SQL_MODE=@@SQL_MODE,
SQL_MODE='NO_AUTO_VALUE_ON_ZERO' */;
```

```
/*!40111 SET @OLD_SQL_NOTES=@@SQL_NOTES, SQL_NOTES=0 */;


--
-- Table structure for table `Amenities`
--


DROP TABLE IF EXISTS `Amenities`;
/*!40101 SET @saved_cs_client     = @@character_set_client */;
/*!50503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Amenities` (
  `Amenities_ID` int NOT NULL,
  `Amenities_Name` varchar(45) NOT NULL,
  `Amenities_Description` varchar(45) DEFAULT NULL,
  `Amenities_Availability` varchar(45) NOT NULL,
  `Room_ID` int DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;


--
-- Dumping data for table `Amenities`
--


LOCK TABLES `Amenities` WRITE;
/*!40000 ALTER TABLE `Amenities` DISABLE KEYS */;
/*!40000 ALTER TABLE `Amenities` ENABLE KEYS */;
```

```
UNLOCK TABLES;


--
-- Table structure for table `Bed_and_Breakfast`
--


DROP TABLE IF EXISTS `Bed_and_Breakfast`;
/*!40101 SET @saved_cs_client     = @@character_set_client */;
/*!50503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Bed_and_Breakfast` (
  `BnB_ID` int NOT NULL,
  `BnB_Email` varchar(45) NOT NULL,
  `BnB_Address` varchar(45) NOT NULL,
  `BnB_Working_Hours` datetime NOT NULL,
  PRIMARY KEY (`BnB_ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;


--
-- Dumping data for table `Bed_and_Breakfast`
--


LOCK TABLES `Bed_and_Breakfast` WRITE;
/*!40000 ALTER TABLE `Bed_and_Breakfast` DISABLE KEYS */;
/*!40000 ALTER TABLE `Bed_and_Breakfast` ENABLE KEYS */;
```

```
UNLOCK TABLES;


--
-- Table structure for table `Branches`
--


DROP TABLE IF EXISTS `Branches`;
/*!40101 SET @saved_cs_client     = @@character_set_client */;
/*!50503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Branches` (
  `Branch_ID` int NOT NULL,
  `Branch_City_Name` varchar(45) NOT NULL,
  `Branch_Location` varchar(45) NOT NULL,
  `Branch_Contact_Number` varchar(45) NOT NULL,
  `BnB_ID` int DEFAULT NULL,
  PRIMARY KEY (`Branch_ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;


--
-- Dumping data for table `Branches`
--


LOCK TABLES `Branches` WRITE;
/*!40000 ALTER TABLE `Branches` DISABLE KEYS */;
```

```
/*!40000 ALTER TABLE `Branches` ENABLE KEYS */;
UNLOCK TABLES;

--
-- Table structure for table `Breakfast_Item`
--

DROP TABLE IF EXISTS `Breakfast_Item`;
/*!40101 SET @saved_cs_client     = @@character_set_client */;
/*!50503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Breakfast_Item` (
  `Item_ID` int NOT NULL,
  `Item_Name` varchar(45) NOT NULL,
  `Item_Price` decimal(10,0) NOT NULL,
  `Item_Availability` varchar(45) NOT NULL,
  `Item_Description` varchar(45) NOT NULL,
  PRIMARY KEY (`Item_ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;

--
-- Dumping data for table `Breakfast_Item`
--

LOCK TABLES `Breakfast_Item` WRITE;
```

```
/*!40000 ALTER TABLE `Breakfast_Item` DISABLE KEYS */;
/*!40000 ALTER TABLE `Breakfast_Item` ENABLE KEYS */;
UNLOCK TABLES;

--
-- Table structure for table `Coupon`
--

DROP TABLE IF EXISTS `Coupon`;
/*!40101 SET @saved_cs_client     = @@character_set_client */;
/*!50503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Coupon` (
  `Coupon_ID` int NOT NULL,
  `Coupon_Code` varchar(45) NOT NULL,
  `Coupon_Discount_Amount` decimal(10,0) NOT NULL,
  `Coupon_Expiration_Date` datetime NOT NULL,
  `Branch_ID` int DEFAULT NULL,
  PRIMARY KEY (`Coupon_ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;

--
-- Dumping data for table `Coupon`
--
```

```
LOCK TABLES `Coupon` WRITE;
/*!40000 ALTER TABLE `Coupon` DISABLE KEYS */;
/*!40000 ALTER TABLE `Coupon` ENABLE KEYS */;
UNLOCK TABLES;

--
-- Table structure for table `Dependant`
--

DROP TABLE IF EXISTS `Dependant`;
/*!40101 SET @saved_cs_client     = @@character_set_client */;
/*!50503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Dependant` (
  `Dependant_Name` varchar(45) NOT NULL,
  `Dependant_Gender` varchar(45) DEFAULT NULL,
  `Dependant_Relationship` varchar(45) NOT NULL,
  `Dependant_Date_of_Birth` datetime NOT NULL,
  `Staff_ID` int DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;

--
-- Dumping data for table `Dependant`
--
```

```
LOCK TABLES `Dependant` WRITE;
/*!40000 ALTER TABLE `Dependant` DISABLE KEYS */;
/*!40000 ALTER TABLE `Dependant` ENABLE KEYS */;
UNLOCK TABLES;

--
-- Table structure for table `Guest`
--

DROP TABLE IF EXISTS `Guest`;
/*!40101 SET @saved_cs_client     = @@character_set_client */;
/*!50503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Guest` (
  `Guest_ID` int NOT NULL,
  `Guest_Name` varchar(45) NOT NULL,
  `Guest_Address` varchar(45) DEFAULT NULL,
  `Guest_Email` varchar(45) NOT NULL,
  `Guest_Preferences` varchar(45) NOT NULL,
  `Reservation_ID` int DEFAULT NULL,
  PRIMARY KEY (`Guest_ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;

--
-- Dumping data for table `Guest`
```

```
--


LOCK TABLES `Guest` WRITE;
/*!40000 ALTER TABLE `Guest` DISABLE KEYS */;
/*!40000 ALTER TABLE `Guest` ENABLE KEYS */;
UNLOCK TABLES;


--
-- Table structure for table `Guest_Contact`
--


DROP TABLE IF EXISTS `Guest_Contact`;
/*!40101 SET @saved_cs_client     = @@character_set_client */;
/*!50503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Guest_Contact` (
  `Guest_Contact_Number` varchar(45) NOT NULL,
  `Guest_ID` int DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;


--
-- Dumping data for table `Guest_Contact`
--


LOCK TABLES `Guest_Contact` WRITE;
```

```
/*!40000 ALTER TABLE `Guest_Contact` DISABLE KEYS */;
/*!40000 ALTER TABLE `Guest_Contact` ENABLE KEYS */;
UNLOCK TABLES;

--
-- Table structure for table `Ingredients`
--

DROP TABLE IF EXISTS `Ingredients`;
/*!40101 SET @saved_cs_client     = @@character_set_client */;
/*!50503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Ingredients` (
  `Ingredients` varchar(45) NOT NULL,
  `Item_ID` int DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;

--
-- Dumping data for table `Ingredients`
--

LOCK TABLES `Ingredients` WRITE;
/*!40000 ALTER TABLE `Ingredients` DISABLE KEYS */;
/*!40000 ALTER TABLE `Ingredients` ENABLE KEYS */;
UNLOCK TABLES;
```

```
--
-- Table structure for table `Invoice`
--

DROP TABLE IF EXISTS `Invoice`;
/*!40101 SET @saved_cs_client     = @@character_set_client */;
/*!50503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Invoice` (
  `Invoice_ID` int NOT NULL,
  `Email` varchar(45) NOT NULL,
  `Payment_Type` varchar(45) DEFAULT NULL,
  `Reservation_ID` int DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;

--
-- Dumping data for table `Invoice`
--

LOCK TABLES `Invoice` WRITE;
/*!40000 ALTER TABLE `Invoice` DISABLE KEYS */;
/*!40000 ALTER TABLE `Invoice` ENABLE KEYS */;
UNLOCK TABLES;
```

```
--
-- Table structure for table `Reservation`
--

DROP TABLE IF EXISTS `Reservation`;
/*!40101 SET @saved_cs_client     = @@character_set_client */;
/*!50503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Reservation` (
  `Reservation_ID` int NOT NULL,
  `Check_in_Date` datetime NOT NULL,
  `Check_out_Date` datetime NOT NULL,
  `Guest_ID` int DEFAULT NULL,
  `Room_ID` int DEFAULT NULL,
  PRIMARY KEY (`Reservation_ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;

--
-- Dumping data for table `Reservation`
--

LOCK TABLES `Reservation` WRITE;
/*!40000 ALTER TABLE `Reservation` DISABLE KEYS */;
/*!40000 ALTER TABLE `Reservation` ENABLE KEYS */;
UNLOCK TABLES;
```

```
--
-- Table structure for table `Room`
--

DROP TABLE IF EXISTS `Room`;
/*!40101 SET @saved_cs_client     = @@character_set_client */;
/*!50503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Room` (
  `Room_ID` int NOT NULL,
  `Room_Type` varchar(45) DEFAULT NULL,
  `Room_Capacity` varchar(45) NOT NULL,
  `Room_Availability` varchar(45) NOT NULL,
  `Room_Price` decimal(10,0) NOT NULL,
  `Branch_ID` int DEFAULT NULL,
  PRIMARY KEY (`Room_ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;

--
-- Dumping data for table `Room`
--

LOCK TABLES `Room` WRITE;
/*!40000 ALTER TABLE `Room` DISABLE KEYS */;
```

```
/*!40000 ALTER TABLE `Room` ENABLE KEYS */;
UNLOCK TABLES;


--
-- Table structure for table `Staff`
--


DROP TABLE IF EXISTS `Staff`;
/*!40101 SET @saved_cs_client     = @@character_set_client */;
/*!50503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Staff` (
  `Staff_ID` int NOT NULL,
  `Employee_Name` varchar(45) NOT NULL,
  `Staff_Address` varchar(45) DEFAULT NULL,
  `Staff_Email` varchar(45) NOT NULL,
  `Staff_Position` varchar(45) NOT NULL,
  `Staff_Age` varchar(45) NOT NULL,
  `Staff_Salary` decimal(10,0) NOT NULL,
  `Staff_Gender` varchar(45) NOT NULL,
  `Staff_Date_of_Birth` datetime NOT NULL,
  `Staff_Date_of_Joining` datetime NOT NULL,
  `Branch_ID` int DEFAULT NULL,
  PRIMARY KEY (`Staff_ID`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;
```

```
--
-- Dumping data for table `Staff`
--

LOCK TABLES `Staff` WRITE;
/*!40000 ALTER TABLE `Staff` DISABLE KEYS */;
/*!40000 ALTER TABLE `Staff` ENABLE KEYS */;
UNLOCK TABLES;

--
-- Table structure for table `Staff_Contact`
--

DROP TABLE IF EXISTS `Staff_Contact`;
/*!40101 SET @saved_cs_client     = @@character_set_client */;
/*!50503 SET character_set_client = utf8mb4 */;
CREATE TABLE `Staff_Contact` (
  `Staff_Contact_Number` varchar(45) NOT NULL,
  `Staff_ID` int DEFAULT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 COLLATE=utf8mb4_0900_ai_ci;
/*!40101 SET character_set_client = @saved_cs_client */;

--
-- Dumping data for table `Staff_Contact`
```

```
--


LOCK TABLES `Staff_Contact` WRITE;
/*!40000 ALTER TABLE `Staff_Contact` DISABLE KEYS */;
/*!40000 ALTER TABLE `Staff_Contact` ENABLE KEYS */;
UNLOCK TABLES;
/*!40103 SET TIME_ZONE=@OLD_TIME_ZONE */;


/*!40101 SET SQL_MODE=@OLD_SQL_MODE */;
/*!40014 SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS */;
/*!40014 SET UNIQUE_CHECKS=@OLD_UNIQUE_CHECKS */;
/*!40101 SET CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */;
/*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;
/*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;
/*!40111 SET SQL_NOTES=@OLD_SQL_NOTES */;


-- Dump completed on 2023-06-04 20:23:46
```

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[3] "Flowchart Maker & Online Diagram Software," *Draw.io* [Online]. Available: https://app.diagrams.net/ [Accessed: May 20, 2023].

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[5] "About the MySQL for Sitehost data backup and restoration policy," *University Information Technology Services* [Online]. Available: https://kb.iu.edu/d/apnn [Accessed: May 30, 2023].