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I confirm that I understand my coursework needs to be submitted online via Google Classroom under the relevant module page before the deadline in order for my assignment to be accepted and marked. I am fully aware that late submissions will be treated as non-submission and a mark of zero will be awarded.

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Company Information

1. Introduction

BSR Movies a relatively new cinema operator located at BG Mall in Gongabu, Kathmandu which provides cinema and entertainment related services such as bookings, accommodations, and meals with cinema to the general consumers. BSR movie is the first installment from Sarthak Entertainment Pvt. Ltd. It has two halls which preview latest and popular movies from all over the world to satisfy its audience who are willing to pay to watch their desired show. Both the halls are fully equipped with high-end projectors and sound systems which previews various movies in 2K resolution and with Dolby Atmos audio systems and can contain 160 spectators. As it has become more and more popular and gaining new customers, the management team have decided to enlarge the business by adding online booking system. This will satisfy the needs of the customers while the business will also profit due to bigger sales. The enlargement of the business will increase the number of employees, customers, available meals, shows and reservations which will complicate storing and retrieving information tedious. The aim of this project is to manage a database which will host a platform for a good booking system so that the customer can easily book their preferred movie with desired features.

So, to handle this huge amount of information a good database model is required to be implemented so, various data can be stored efficiently with minimal data redundancy within its various tables. The booking system is supposed to handle multiple bookings entered by the employee from online bookings forms and request from the customer. So this project is based on developing a database for a theatre operating system to manage information regarding its services, employees, customers, bookings, halls, shows, movies and mainly involves the tickets bought by the customers directly or booked. The database will include various entities with numerous attributes which were created so that the database is normalized till the 3rd normalization form, to reduce anomalies while maintaining and updating the database with new information. This all process is to be done and documented properly so that one can easily understand the design and flow of the database if it needs to be redesigned or viewed for inspection.

2. Business activities & Operations

BSR Movies provides various entertainment related services such as previewing of new/popular movies of mainly three different languages: Hindi, English, and Nepali. The company targets a wide range of customers, from teenagers to senior citizens, but the customer base was observed to be dominated by youths who have more exposure to smartphones and the internet, an online system for booking and buying ticket seems mandatory. The entertainment company provides accommodation services at various rates with different features. The company will also implement an online booking system which will require an employee handling the database who will take requests from the company's website where users can log in/register to get access to the related services. The show and accommodation type can be booked so that customers can enjoy their movie with desired features. The company is also proposing to hold a discount event for a week after announcing the online booking system to book a ticket. This event will advertise the company while also spreading the news of a new online booking system. The event offers 25% off on any tickets booked via the online procedure.

The customers should register to book the tickets. Then the customer can book available seats for a show allowing them to pick the desired accommodation and show. Then the booking must be confirmed by the customer within an hour by submitting the total amount for the ticket. Customers can also buy multiple tickets at the counter which will also be stored as a booking event as it is done before the actual show. The theatre also manages small vendors for selling food items such as candy, popcorn, and drinks. These vendors also provide free meals as specified by the show.

The accommodations consist of Platinum, Gold, and Silver categories allocated in each hall. Platinum seats contain luxurious seats with many features is priced at Rs 500. Gold Seats are normal seating without additional features which costs Rs 400. Silver seats are regular seating which costs Rs 300. Any employee can get a single ticket for themselves for free by submitting their Id at the counter which will also be recorded which will be treated as Exclusive Accommodation.

3. Rules to be followed

The company has already defined a set of rules to dictate the process of buying the tickets and various activities that can be held in its jurisdiction. The terms and conditions are presented to the customers in both the websites and at the hardcopy of the registration form. For the company to operate the new online system new rules must be followed which are:

3.1. Registration Rules:

- The customer should fill all the required details in the registration process,
- To register the customer should be above 15 years,
- For customers below the age of 15 years, parental guidance is required,
- Phone number, address, name, and sex must be specified while registering.

3.2. Ticket & Booking Policy:

- The customer should be registered book tickets online,
- Tickets temporary booked must be cleared before an hour of previewing the show,
- The temporary bookings will be dismissed if not cleared,
- The temporary bookings can be canceled but tickets cannot be refunded,
- If required to be refunded the customer must have a valid reason,
- The ticket for a particular show is only eligible for that show,
- The exclusive seat also require a ticket but is free,
- One ticket for Exclusive seat can only be redeemed by the employee for One show,
- Employees have to buy tickets if no Exclusive seats are available,

4. Database Design

4.1. Creation of Objects – Entities and Attributes:

Entities are any object or event that contains various information about them. Entities in the Database can be both physical (people, ticket, accommodation etc.) or abstract (booking, show, shifts etc.) (Scottish Qualifications Authority, 2010). Attributes are simply characteristics of the Entity, it stores the information about different aspects of an entity (IBM Corporation, 2018). For example, taking a person (Entity), a person will have a name, age, sex, and address (attributes).

Scenario analysis.

The scenario states that the database will have to record a person's addresses as well as mailing addresses. In which each address consists of a country, zone, city, street and street number. the person's contact is also stored which will have phone-no, cell-no, e-mail, and fax-no (fax-no can be null). The type of person, sex, age and DOB (optional) is also stored in a person entity. The type will determine if the person is an employee or a customer which will further categorize the person into new-customer, old-customer or an employee. The employee of any type can have benefits such as free tickets and meals.

As the scenario only emphasizes the detail of an individual customer or an employee, the attributes for the ticket and booking is also important as this database will deal with cinemas. So, practically it has a previewing movie, preview date/time, usher, hall, meals, and accommodation-information. Assuming these as the required information, the initial ER-Diagram becomes like the following:

4.2. Identifying relations and Defining Keys using Data Dictionary:

Assuming the required attributes of all the entities, a database can be formed, which will be functional but not quite practical. To design a better database, this base database model must be observed, so several data dictionaries are created to define and relate these entities and attributes. Data dictionary describes the structure of the whole database which is represented in a table by including detailed information about an entity in a database and defines the nature of attributes which provides all the required information about a database. Data dictionary simply put is a collection of tables which gives us detailed information on the inner mechanics of a database (Kreines, 2009). The three separate entities data dictionaries for this table are as follows:

Table 1: Data Dictionary for Person table

Entity	Attributes	Datatype	Length	Description	Constraints
Person	<u>Person_ID</u>	NUMBER	10	Unique Identifier of the person	PRIMARY_KEY
	Name	VARCHAR2	20	Name of person	NOT_NULL
	Age	NUMBER	5	Age of person	NOT_NULL
	Sex	VARCHAR2	20	Sex of person	NOT_NULL
	DOB	DATE		DOB of person	
	Type	VARCHAR2	20	Type of person	NOT_NULL
	Job	VARCHAR2	20	Job of person	
	Salary	NUMBER	10	Salary of person	
	E_mail	VARCHAR2	50	e-mail of person	UNIQUE
	Phone_No	NUMBER	10	phone number of the person	
	Cell_No	NUMBER	10	the cell number of the person	UNIQUE
	Fax_No	NUMBER	10	fax number of the person	
	Location_ID	NUMBER	10	Unique Identifier of the location	NOT_NULL
	Country	VARCHAR2	20	Country of person	NOT_NULL
	Zone	VARCHAR2	20	Zone of person	NOT_NULL
	City	VARCHAR2	20	City of person	NOT_NULL
	Street	VARCHAR2	20	Street of person	NOT_NULL
	Street_Name	VARCHAR2	20	street number of the person	NOT_NULL
	POB_Address	VARCHAR2	1	The mailing address of the person	DEFAULT = Y

Table 2: Data Dictionary for Booking table

Entity	Attributes	Datatype	Length	Description	Constraints
Booking	<u>Person ID</u> *	NUMBER	10	Unique Identifier of the person	PRIMARY_KEY, FOREIGN_KEY
	<u>Show ID</u> *	NUMBER	10	Unique Identifier for the show	FOREIGN_KEY
	No_Tickets	NUMBER	10	Number of tickets booked	DEFAULT=1
	Booking_Date	DATE		Date of booking	NOT_NULL
	Accommodation	VARCHAR2	20	Accommodation type	NOT_NULL
	Price	NUMBER	10	Price of each ticket	DEFAULT=0

Table 3: Data Dictionary for Show table

Entity	Attributes	Datatype	Length	Description	Constraints
Show	<u>Show ID</u>	NUMBER	10	Unique Identifier for the show	NOT_NULL
	Meal	VARCHAR2	20	Meal served in the show	
	<u>Usher</u> *	NUMBER	10	An employee who ushers the show	FOREIGN_KEY
	Date	DATE		Date of show	NOT_NULL
	Time	NUMBER	10	Time of show	NOT_NULL
	Hall	VARCHAR2	20	Hall of show	NOT_NULL
	Movie_Name	VARCHAR2	20	Name of the movie	NOT_NULL
	Duration	NUMBER	10	Duration of the movie	
	Rating	NUMBER	10	Rating of the movie	

The purposed data dictionaries will help understand the type of data and its relation to various entities. The final data dictionaries will also have the same data types but the constraints might differ due to the creation and assigning of new prime attributes or minor changes.

5. Entity Relationship Diagram

The main purpose of ER-Diagrams is to clarify the connection between the entities and their properties (Song, et al., 1994). After a lot of assuming and correcting the entities and their attributes, the basic structure of the unnormalized database is created below. The notation used in this model to describe the relation between the entities is Crows-foot notation which utilizes look across cardinality and participation. So for a better understanding of the base model of the database, an ER-Diagram is created to state the relationship between various entities.

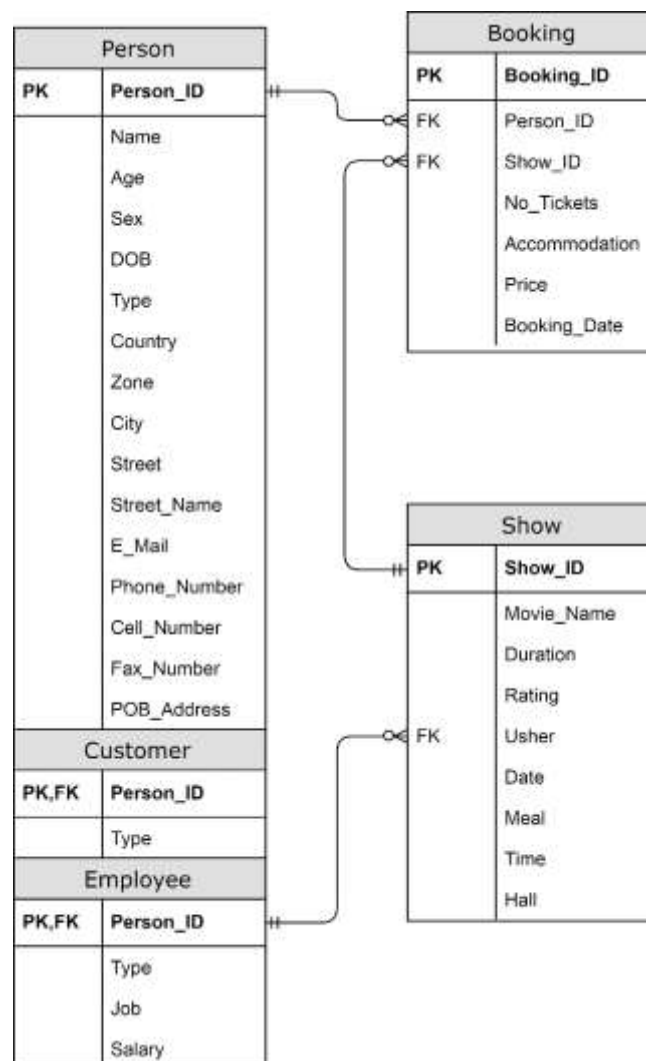


Figure 1: Initial ER-Diagram

Assumptions

- A booking can have multiple tickets but needs to be of a certain accommodation.
- A booking cannot specify two separate accommodations for a single show.
- The employee gets a free ticket for Exclusive seat.
- Tickets shouldn't be issued more than 180 for each show due to hall capacity.
- The booking must first be confirmed before being entering into the database.
- Any booking without payment is treated as a temporary booking.
- Temporary bookings will be dismissed before an hour of the show.
- the POB_Address is a Boolean value denoted by a string 'y' or 'n'.
- When the address is being specified, one address is required to be POB_Address.
- The database is not accessible by customers.
- All of the information stored in the database is handled by an employee.
- Any modification on the records is required to be handled by the supervision of the manager.
- The job of an employee isn't related to the salary, i.e. the same job might have different salaries for different individuals.

Normalization

1. Un-Normalized form (UNF)

In the un-normalized form, all the attributes are listed. This un-normalized form the person is taken a reference entity. When Person is taken as a reference, according to the scenario a person can have many addresses and can also watch many shows. If the data within each repeating group is not related to any other data within any other repeating group, it is considered as multiple repeating group. So according to that logic, the person will have multiple repeating groups which are addresses and show detail as shown in a simple ER Diagram below:

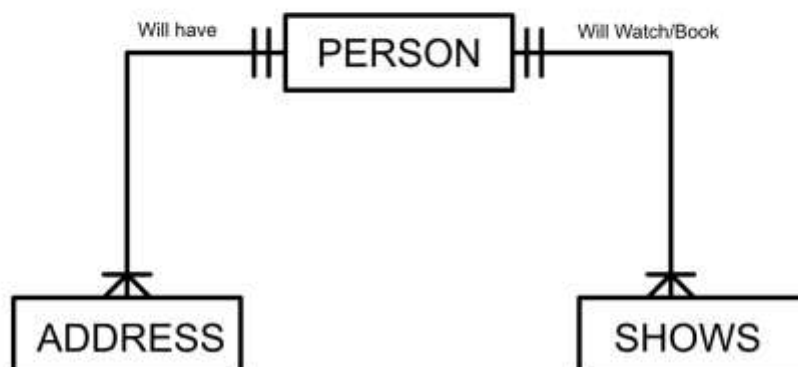


Figure 2: Possible repeating group for a person

UNF:

Person (Person_ID, Type, Name, Age, Sex, DOB, Job, Salary, E_mail, Phone_No, Cell_No, Fax_No, { Address_ID, Country, Zone, City, Street, Street_Name, POB_Address } , { , No_Tickets, Booking_Date, Show_ID, Meal, Usher, Show_Date, Show_Time, Hall, Movie_Name, Duration, Rating, Accommodation, price })

2. First-Normal Form (1NF)

To normalize the entities in the first normal form we must remove all the repeating group from the person table, which is: multiple addresses and multiple bookings. However the person can also be an employee or a customer, so these subtypes of person will also be separated in the First Normal form. The primary Key of the person will be also be invoked by the Customer and Employee subtypes as their own primary key while the Address and booking will have composite primary keys to define the addresses and the bookings of a single person.

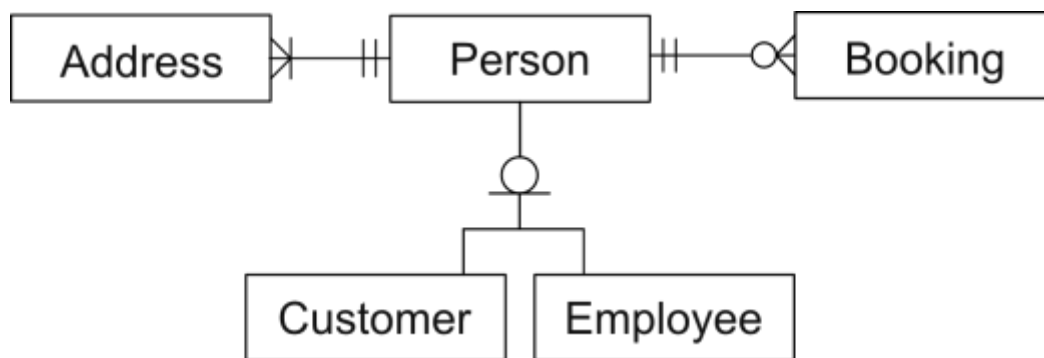


Figure 3: Every relation with person entity

1NF:

Person (Person ID, Name, Age, Sex, DOB, E_mail, Phone_No, Cell_No, Fax_No)

Employee (Person ID*, Job, Salary)

Customer (Person ID*, Type)

Address (Person ID*, Location ID, Country, Zone, City, Street, Street_Name, POB_Address)

Booking (Person ID*, Show ID, No_Tickets, Booking_Date, Accommodation, price, Meal, Usher, Show_Date, Show_Time, Hall, Movie_Name, Duration, Rating)

3. Second-Normal Form (2NF)

To normalize the database model into 2nf all of the tables must be in 1NF and then all the partial dependencies must be analyzed and removed. Partial dependency is simply a functional dependency when a non-prime attribute is linked to fewer prime attributes than being fully linked to all of the prime attributes. For example, IF A & B is a prime attribute in a table with C which is fully dependent on A (i.e. A can give C) but B is not linked to C then it is a partial dependency. To remove partial dependencies all of the tables are analyzed.

1. **Person**: Every non-prime attributes is dependent on Person_ID

Person_ID === Name, Age, Sex, DOB, E_mail, Phone_No, Cell_No, Fax_No

2. **Employee**: Every non-prime attributes is dependent on Person_ID

Person_ID === Job, Salary

3. **Customer**: Every non-prime attributes is dependent on Person_ID

Person_ID === Type

4. **Address**: The geographical location details are dependent on Location_ID and partially dependent on Person_ID, while the POB_Address is fully dependent on both Location and Person

Person_ID*, Location_ID === POB_Address

Location_ID === Country, Zone, City, Street, Street_Name

5. **Booking**: The Person_ID is not required to give the show and movie details.

Person_ID*, Show_ID === No_Tickets, Booking_Date, Accommodation, price

Person_ID* ===

Show_ID === Meal, Usher, Show_Date, Show_Time, Hall, Movie_Name, Duration, Rating

Removing all the partial dependencies from the address and booking tables we get:

2NF:

Location (**Location_ID**, Country, Zone, City, Street, Street_Name)

Address (**Person_ID***, **Location_ID***, POB_No)

Person (**Person_ID**, Type, Name, Age, Sex, DOB, Job, Salary, E_mail, Phone_No, Cell_No, Fax_No)

Employee (**Person_ID***, Job, Salary)

Customer (**Person_ID***, Type)

Booking (**Person_ID***, **Show_ID***, No_Tickets, Booking_Date, price, Accommodation)

Show (**Show_ID**, Meal, Usher, Show_Date, Show_Time, Hall, Movie_Name, Duration, Rating)

4. Third-Normal Form (3NF)

To normalize the database model into 3NF all of the tables must be in 2NF and then all the transitive dependencies must be analyzed and removed. A transitive dependency is simply a functional dependency when a non-prime attribute is functionally dependent on another non-prime attribute. For example If A is a prime attribute in a table with B which is fully dependent on A and there also exists an attribute C which could be given by B then the partial dependency occurs between A and C as A gives B and B gives C. To remove all of the transitive dependencies from the tables above analyzing all the transitive dependencies in each table.

1. Location: Every non-prime attribute is fully functionally dependent on location ID.
2. Address: POB_Address is functionally dependent on Location and person.
3. Person: Every non-prime attribute is fully functionally dependent on location ID.
4. Employee: Every non-prime attribute is fully functionally dependent on location ID.
5. Customer: Every non-prime attribute is fully functionally dependent on location ID.
6. Booking: Person_ID and Show_ID will define Accommodation which can also give a price.
Person_ID* , Show_ID === Accommodation === Price
Accommodation === Price
7. Show: the only non-key relation is how Movie details are given by Movie_Name
Show_ID == Movie_Name == Duration, Rating
Movie_Name == Duration, Rating

By removing all of these transitive dependencies we get:

3NF:

Location (**Location ID**, Country, Zone, City, Street, Street_Name)

Address (**Person ID***, **Location ID***, POB_Address)

Person (**Person ID**, Name, Age, Sex, DOB, E_mail, Phone_No, Cell_No, Fax_No)

Employee (**Person ID***, Job, Salary)

(note: the Different Employee can have different salaries for the same job)

Customer (**Person ID***, Type)

Booking (**Person ID***, **Show ID***, No_Tickets, Booking_Date, Accommodation*)

Accommodation (**Accommodation**, Price)

Show (**Show ID**, Meal, *Usher**, Show_Date, Show_Time, Hall, *Movie Name**)

Movie (**Movie Name**, Duration, Rating)

Since all of the attributes are fully dependent on the prime attributes and no repeating groups occur so the following database model is in 3NF.

5. Entity Relationship Diagram after Normalization

After Normalization, there will be nine entities and their relations are clarified below:

1. Location can be related to none to many addresses.
2. The address must have a location and person.
3. The person will have at least one address.
4. A person can be, employee, customer or both.
5. A person can have none to multiple bookings
6. A booking must have Person, Show, and Accommodation specified.
7. Accommodation can be booked none to many in one show.
8. The show must have an usher and a movie.
9. The show could be booked none to multiple times.
10. A movie could be in zero to many shows.
11. An usher could usher in zero to many shows.

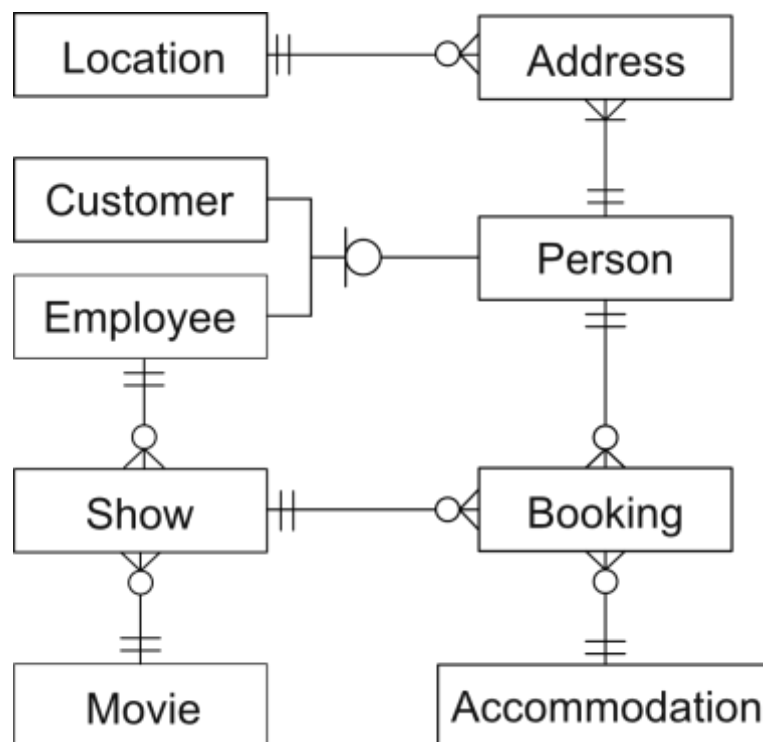


Figure 4: Minimized ER diagram to clarify the relationship between entities

The entity full entity relationship diagram with relation with attributes will look as follows:

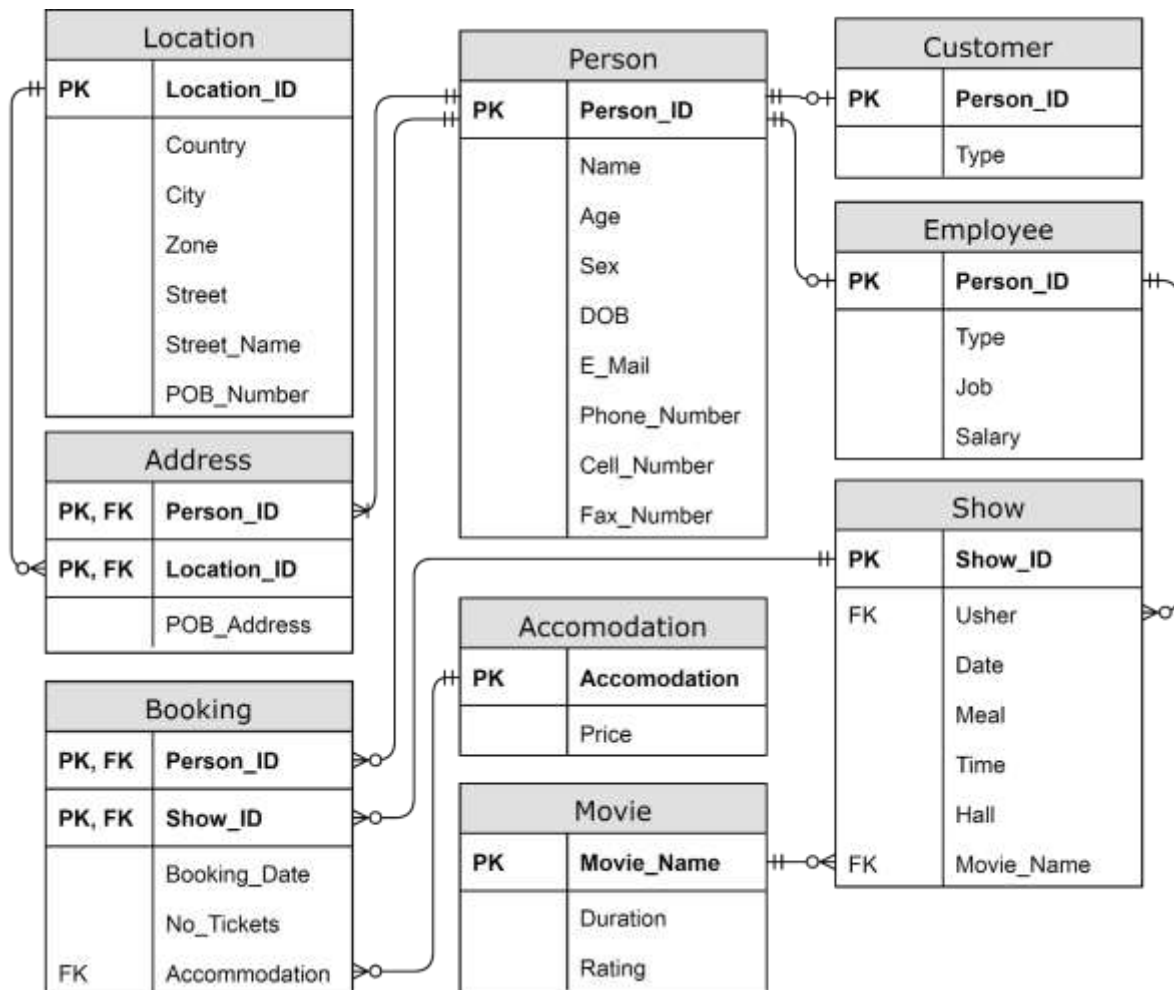


Figure 5: ER Diagram After Normalization

6. Data Dictionaries:

After normalization the same entities are now divided within different entities which will finally form a functioning database system, so the entities and its attributes are now listed with detailed constraint specification for each attribute in the tables:

Table 4: Data-Dictionary for Location table

Entity	Attributes	Datatype	Length	Description	Constraints
Location	<u>Location_ID</u>	NUMBER	10	Location identifier	PRIMARY_KEY
	Country	VARCHAR2	20	Country of person	NOT_NULL
	Zone	VARCHAR2	20	Zone of person	NOT_NULL
	City	VARCHAR2	20	City of person	NOT_NULL
	Street	VARCHAR2	20	Street of person	NOT_NULL
	Street_Name	VARCHAR2	20	street name of the person	NOT_NULL

Table 5: Data-Dictionary for the Address table

Entity	Attributes	Datatype	Length	Description	Constraints
Address	<u>Person_ID*</u>	NUMBER	10	Unique Identifier of the person	PRIMARY_KEY, FOREIGN_KEY
	<u>Location_ID*</u>	NUMBER	10	Unique Identifier of the location	PRIMARY_KEY, FOREIGN_KEY
	POB_Address	VARCHAR2	1	The mailing address of the person	

Table 6: Data-Dictionary for Person table

Entity	Attributes	Datatype	Length	Description	Constraints
Person	<u>Person_ID</u>	NUMBER	10	Unique Identifier of the person	PRIMARY_KEY
	Name	VARCHAR2	20	Name of person	NOT_NULL
	Age	NUMBER	5	Age of person	NOT_NULL
	Sex	VARCHAR2	20	Sex of person	NOT_NULL
	DOB	DATE		DOB of person	
	E_mail	VARCHAR2	50	e-mail of person	UNIQUE
	Phone_No	NUMBER	10	phone number of the person	
	Cell_No	NUMBER	10	the cell number of the person	UNIQUE
	Fax_No	NUMBER	10	fax number of the person	

Table 7: Data-Dictionary for Employee table

Entity	Attributes	Datatype	Length	Description	Constraints
Employee	<u>Person_ID*</u>	NUMBER	10	Unique Identifier of the person	PRIMARY_KEY
	Job	VARCHAR2	20	Job of person	NOT_NULL
	Salary	NUMBER	10	Salary of person	NOT_NULL

Table 8: Data-Dictionary for the Customer table

Entity	Attributes	Datatype	Length	Description	Constraints
Customer	<u>Person_ID*</u>	NUMBER	10	Unique Identifier of the person	PRIMARY_KEY
	Type	VARCHAR2	20	Type of person	DEFAULT = "New Customer"

Table 9: Data-Dictionary for Booking table

Entity	Attributes	Datatype	Length	Description	Constraints
Booking	<u>Person_ID*</u>	NUMBER	10	Unique Identifier of the person	PRIMARY_KEY, FOREIGN_KEY
	<u>Show_ID*</u>	NUMBER	10	Unique Identifier for the show	PRIMARY_KEY, FOREIGN_KEY
	No_Tickets	NUMBER	10	Number of tickets booked	DEFAULT=1
	Booking_Date	DATE		Date of booking	NOT_NULL
	<u>Accommodation*</u>	VARCHAR	20	Accommodation type	NOT_NULL

Table 10: Data-Dictionary for Accommodation table

Entity	Attributes	Datatype	Length	Description	Constraints
Accommodation	<u>Accommodation</u>	VARCHAR2	20	Accommodation type	PRIMARY_KEY
	Price	NUMBER	10	Price of each ticket	DEFAULT=0

Table 11: Data-Dictionary for Movie table

Entity	Attributes	Datatype	Length	Description	Constraints
--------	------------	----------	--------	-------------	-------------

Movie	<u>Movie_Name</u>	VARCHAR2	20	Name of the movie	PRIMARY_KEY
	Duration	NUMBER	10	Duration of the movie in minutes	
	Rating	NUMBER	10	Rating of the movie out of 10	

Table 12: Data-Dictionary for Show table

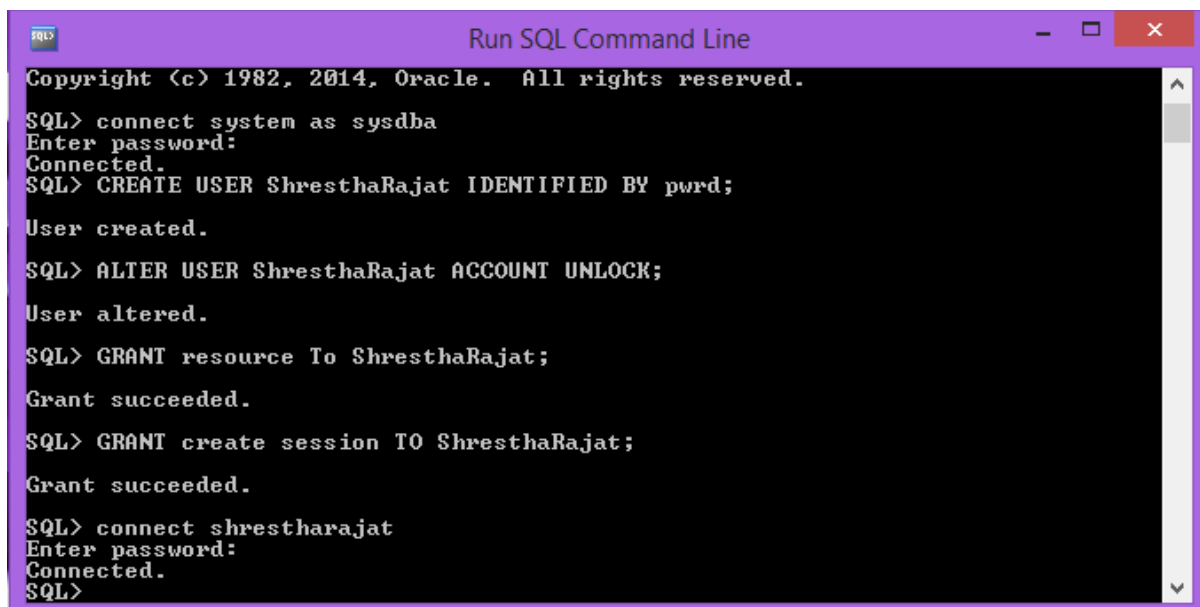
Entity	Attributes	Datatype	Length	Description	Constraints
Show	<u>Show_ID</u>	NUMBER	10	Unique Identifier for the show	PRIMARY_KEY
	<i>Movie_Name</i> *	VARCHAR	20	Name of the movie	FOREIGN_KEY
	Meal	VARCHAR	20	Meal served in the show	
	<i>Usher</i> *	NUMBER	10	An employee who ushers the show	FOREIGN_KEY
	Date	DATE		Date of show	NOT_NULL
	Time	NUMBER	10	Time of show in military time(24-hour)	NOT_NULL
	Hall	VARCHAR	20	Hall of show	NOT_NULL

Database Implementation

1. Create User

To create various tables, add data on the tables and to run queries, a user must be created at first. A user is created to test the database design as follows:

```
CONNECT sys as sysdba;  
CREATE USER ShresthaRajat IDENTIFIED BY pwr;  
ALTER USER ShresthaRajat ACCOUNT UNLOCK;  
GRANT resource TO ShresthaRajat;  
GRANT create session TO ShresthaRajat;  
CONNECT ShresthaRajat
```

A screenshot of a Windows-style window titled "Run SQL Command Line". The window has a purple title bar with standard minimize, maximize, and close buttons. The main area is black with white text. It shows the Oracle SQL prompt and the execution of several commands to create a user named "ShresthaRajat". The commands and their outputs are: "connect system as sysdba" (password prompt, then "Connected."), "CREATE USER ShresthaRajat IDENTIFIED BY pwr;" (output: "User created."), "ALTER USER ShresthaRajat ACCOUNT UNLOCK;" (output: "User altered."), "GRANT resource TO ShresthaRajat;" (output: "Grant succeeded."), "GRANT create session TO ShresthaRajat;" (output: "Grant succeeded."), and "connect shrestharajat" (password prompt, then "Connected.", followed by a new "SQL>" prompt).

```
Run SQL Command Line  
Copyright (c) 1982, 2014, Oracle. All rights reserved.  
SQL> connect system as sysdba  
Enter password:  
Connected.  
SQL> CREATE USER ShresthaRajat IDENTIFIED BY pwr;  
User created.  
SQL> ALTER USER ShresthaRajat ACCOUNT UNLOCK;  
User altered.  
SQL> GRANT resource TO ShresthaRajat;  
Grant succeeded.  
SQL> GRANT create session TO ShresthaRajat;  
Grant succeeded.  
SQL> connect shrestharajat  
Enter password:  
Connected.  
SQL>
```

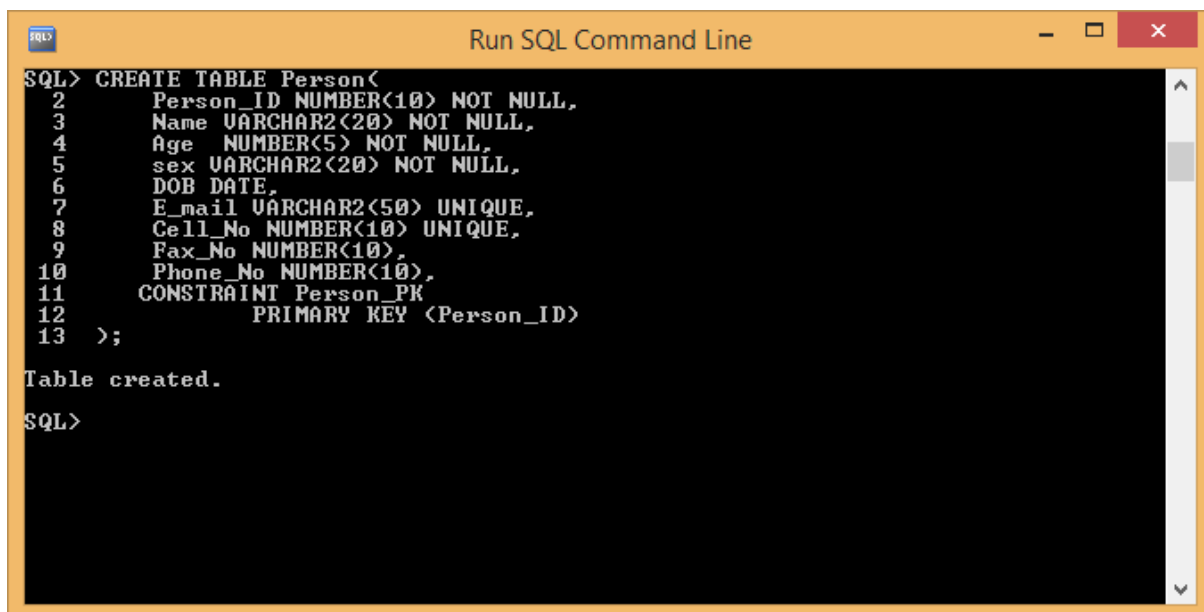
Figure 6: Creating a user

2. Table Generation

All of the tables are created at Oracle Command line, The tables are created in such an order that all of the tables will have its relation intact:

2.1. Person

```
CREATE TABLE Person(  
    Person_ID NUMBER(10) NOT NULL,  
    Name VARCHAR2(20) NOT NULL,  
    Age  NUMBER(5) NOT NULL,  
    sex VARCHAR2(20) NOT NULL,  
    DOB DATE,  
    E_mail VARCHAR2(50) UNIQUE,  
    Cell_No NUMBER(10) UNIQUE,  
    Fax_No NUMBER(10),  
    Phone_No NUMBER(10),  
    CONSTRAINT Person_PK  
        PRIMARY KEY (Person_ID)  
);
```

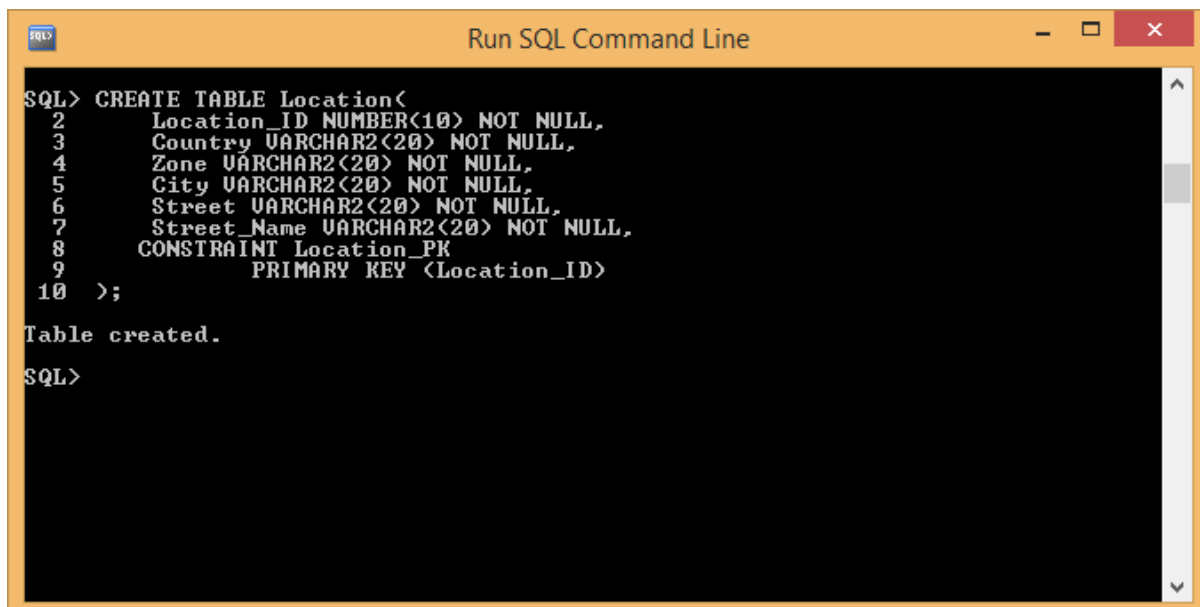
A screenshot of a Windows-style application window titled "Run SQL Command Line". The window has a yellow title bar and standard minimize, maximize, and close buttons. The main area is a black terminal with white text. It shows the execution of an SQL command to create a table named "Person". The command is entered line by line, with line numbers 2 through 13 visible on the left. The command defines columns: Person_ID (NUMBER(10) NOT NULL), Name (VARCHAR2(20) NOT NULL), Age (NUMBER(5) NOT NULL), sex (VARCHAR2(20) NOT NULL), DOB (DATE), E_mail (VARCHAR2(50) UNIQUE), Cell_No (NUMBER(10) UNIQUE), Fax_No (NUMBER(10)), and Phone_No (NUMBER(10)). It also includes a primary key constraint named Person_PK on the Person_ID column. After the command is executed, the terminal displays "Table created." and then "SQL>".

```
SQL> CREATE TABLE Person(  
2     Person_ID NUMBER(10) NOT NULL,  
3     Name VARCHAR2(20) NOT NULL,  
4     Age  NUMBER(5) NOT NULL,  
5     sex VARCHAR2(20) NOT NULL,  
6     DOB DATE,  
7     E_mail VARCHAR2(50) UNIQUE,  
8     Cell_No NUMBER(10) UNIQUE,  
9     Fax_No NUMBER(10),  
10    Phone_No NUMBER(10),  
11    CONSTRAINT Person_PK  
12        PRIMARY KEY (Person_ID)  
13    );  
  
Table created.  
SQL>
```

Figure 7: Creating Table Person

2.2. Location

```
CREATE TABLE Location(  
    Location_ID NUMBER(10) NOT NULL,  
    Country VARCHAR2(20) NOT NULL,  
    Zone VARCHAR2(20) NOT NULL,  
    City VARCHAR2(20) NOT NULL,  
    Street VARCHAR2(20) NOT NULL,  
    Street_Name VARCHAR2(20) NOT NULL,  
    CONSTRAINT Location_PK  
        PRIMARY KEY (Location_ID)  
);
```

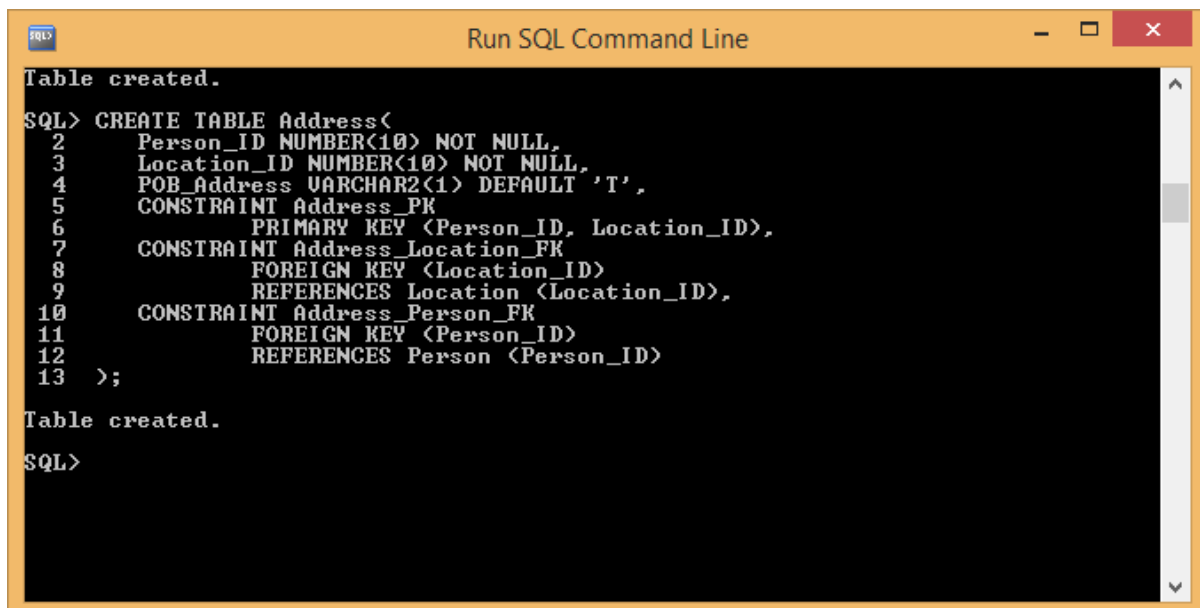


The screenshot shows a window titled "Run SQL Command Line" with a black background and white text. The SQL command entered is:
SQL> CREATE TABLE Location(
2 Location_ID NUMBER(10) NOT NULL,
3 Country VARCHAR2(20) NOT NULL,
4 Zone VARCHAR2(20) NOT NULL,
5 City VARCHAR2(20) NOT NULL,
6 Street VARCHAR2(20) NOT NULL,
7 Street_Name VARCHAR2(20) NOT NULL,
8 CONSTRAINT Location_PK
9 PRIMARY KEY (Location_ID)
10);
The response from the database is: Table created.
The prompt SQL> is visible at the bottom.

Figure 8: Creating Table Location

2.3. Address

```
CREATE TABLE Address(  
    Person_ID NUMBER(10) NOT NULL,  
    Location_ID NUMBER(10) NOT NULL,  
    POB_Address VARCHAR2(1) DEFAULT 'T',  
    CONSTRAINT Address_PK  
        PRIMARY KEY (Person_ID, Location_ID),  
    CONSTRAINT Address_Location_FK  
        FOREIGN KEY (Location_ID)  
        REFERENCES Location (Location_ID),  
    CONSTRAINT Address_Person_FK  
        FOREIGN KEY (Person_ID)  
        REFERENCES Person (Person_ID)  
);
```



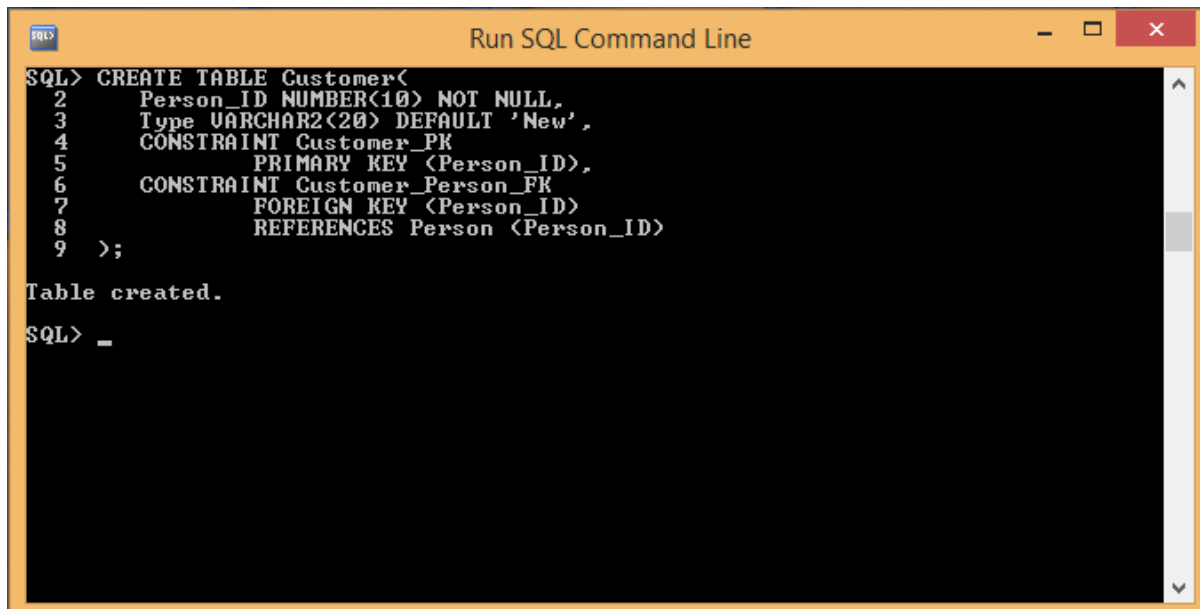
The screenshot shows a window titled "Run SQL Command Line" with a black background and white text. The text displays the SQL command being executed and the successful response from the database. The command is a CREATE TABLE statement for a table named 'Address'. It includes columns for 'Person_ID' (NUMBER(10) NOT NULL), 'Location_ID' (NUMBER(10) NOT NULL), and 'POB_Address' (VARCHAR2(1) with a default value of 'T'). It also defines three constraints: a primary key 'Address_PK' on (Person_ID, Location_ID), a foreign key 'Address_Location_FK' on Location_ID referencing the Location table, and a foreign key 'Address_Person_FK' on Person_ID referencing the Person table. The response shows "Table created." followed by the prompt "SQL>".

```
SQL> CREATE TABLE Address(  
2     Person_ID NUMBER(10) NOT NULL,  
3     Location_ID NUMBER(10) NOT NULL,  
4     POB_Address VARCHAR2(1) DEFAULT 'T',  
5     CONSTRAINT Address_PK  
6         PRIMARY KEY (Person_ID, Location_ID),  
7     CONSTRAINT Address_Location_FK  
8         FOREIGN KEY (Location_ID)  
9         REFERENCES Location (Location_ID),  
10    CONSTRAINT Address_Person_FK  
11        FOREIGN KEY (Person_ID)  
12        REFERENCES Person (Person_ID)  
13    >;  
Table created.  
SQL>
```

Figure 9: Creating Table Address

2.4. Customer

```
CREATE TABLE Customer(  
    Person_ID NUMBER(10) NOT NULL,  
    Type VARCHAR2(20) DEFAULT 'New',  
    CONSTRAINT Customer_PK  
        PRIMARY KEY (Person_ID),  
    CONSTRAINT Customer_Person_FK  
        FOREIGN KEY (Person_ID)  
        REFERENCES Person (Person_ID)  
);
```

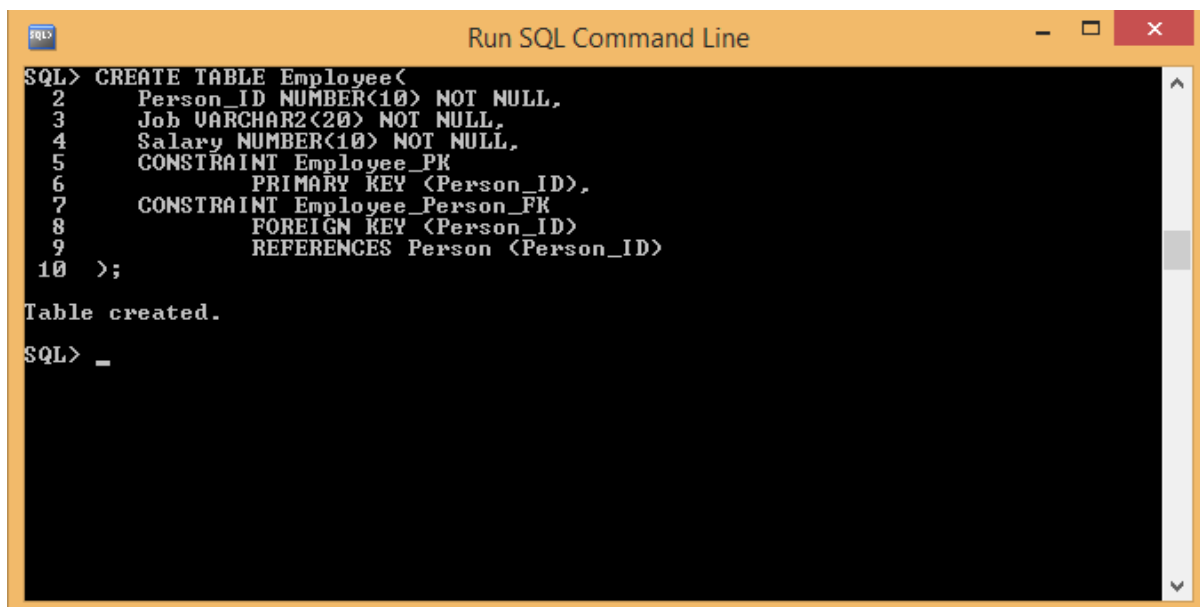
A screenshot of a 'Run SQL Command Line' window. The window has a title bar with a minus, maximize, and close button. The main area is a black terminal with white text. The text shows a multi-line SQL command to create a table named 'Customer'. The command includes columns 'Person_ID' (NUMBER(10) NOT NULL) and 'Type' (VARCHAR2(20) DEFAULT 'New'). It also defines two constraints: 'Customer_PK' as a primary key on 'Person_ID' and 'Customer_Person_FK' as a foreign key on 'Person_ID' referencing the 'Person' table's 'Person_ID'. The command ends with a semicolon. Below the command, the response 'Table created.' is shown, followed by a new SQL prompt 'SQL> _'.

```
SQL> CREATE TABLE Customer(  
2     Person_ID NUMBER(10) NOT NULL,  
3     Type VARCHAR2(20) DEFAULT 'New',  
4     CONSTRAINT Customer_PK  
5         PRIMARY KEY (Person_ID),  
6     CONSTRAINT Customer_Person_FK  
7         FOREIGN KEY (Person_ID)  
8         REFERENCES Person (Person_ID)  
9 );  
  
Table created.  
SQL> _
```

Figure 10: Creating Table Customer

2.5. Employee

```
CREATE TABLE Employee(  
    Person_ID NUMBER(10) NOT NULL,  
    Job VARCHAR2(20) NOT NULL,  
    Salary NUMBER(10) NOT NULL,  
    CONSTRAINT Employee_PK  
        PRIMARY KEY (Person_ID),  
    CONSTRAINT Employee_Person_FK  
        FOREIGN KEY (Person_ID)  
        REFERENCES Person (Person_ID)  
);
```

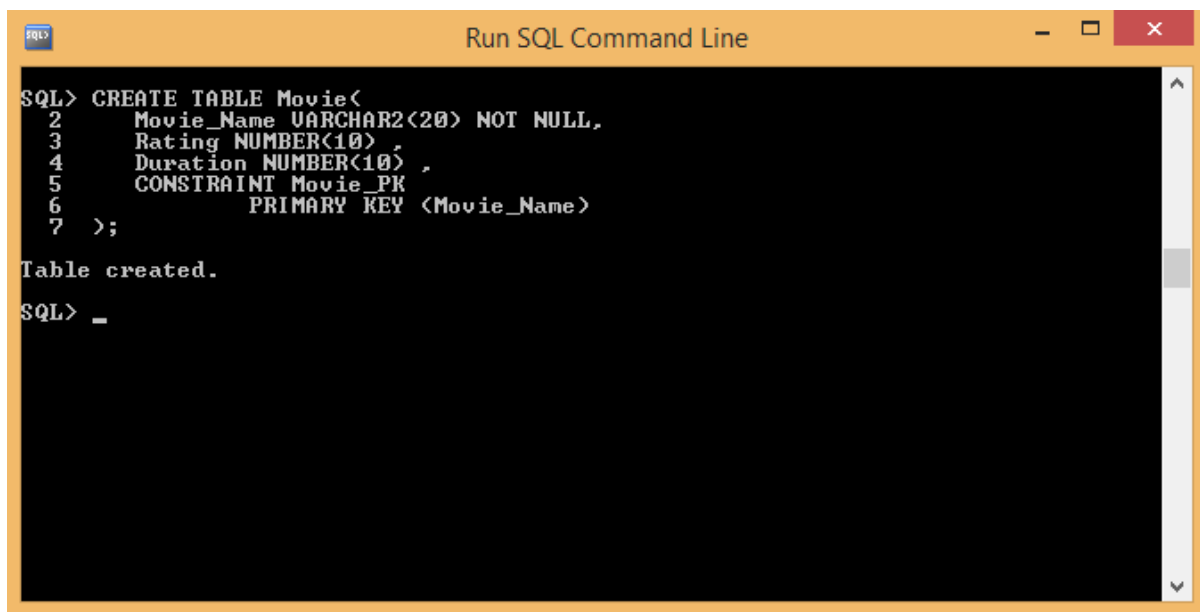
A screenshot of a 'Run SQL Command Line' window. The window has a title bar with a minus, maximize, and close button. The main area is a black terminal with white text. The text shows a multi-line SQL command to create a table named 'Employee' with columns 'Person_ID', 'Job', and 'Salary'. It also includes two constraints: a primary key 'Employee_PK' on 'Person_ID' and a foreign key 'Employee_Person_FK' on 'Person_ID' that references the 'Person' table's 'Person_ID'. The command is terminated with a semicolon. Below the command, the output 'Table created.' is displayed. The prompt 'SQL>' is followed by a cursor line.

```
Run SQL Command Line  
SQL> CREATE TABLE Employee(  
2     Person_ID NUMBER(10) NOT NULL,  
3     Job VARCHAR2(20) NOT NULL,  
4     Salary NUMBER(10) NOT NULL,  
5     CONSTRAINT Employee_PK  
6         PRIMARY KEY (Person_ID),  
7     CONSTRAINT Employee_Person_FK  
8         FOREIGN KEY (Person_ID)  
9         REFERENCES Person (Person_ID)  
10  >;  
Table created.  
SQL> _
```

Figure 11: Creating Table Employee

2.6. Movie

```
CREATE TABLE Movie(  
    Movie_Name VARCHAR2(20) NOT NULL,  
    Rating NUMBER(10) ,  
    Duration NUMBER(10) ,  
    CONSTRAINT Movie_PK  
        PRIMARY KEY (Movie_Name)  
);
```

A screenshot of a 'Run SQL Command Line' window. The window has a yellow title bar with standard Windows window controls. The main area is a black terminal with white text. The text shows an SQL prompt 'SQL>' followed by a multi-line 'CREATE TABLE Movie' statement. The statement defines 'Movie_Name' as a VARCHAR2(20) NOT NULL, 'Rating' as a NUMBER(10), and 'Duration' as a NUMBER(10). It also includes a primary key constraint named 'Movie_PK' on the 'Movie_Name' column. The statement ends with a semicolon. Below the statement, the output 'Table created.' is displayed. The prompt 'SQL>' is followed by a cursor line.

```
SQL> CREATE TABLE Movie(  
2     Movie_Name VARCHAR2(20) NOT NULL,  
3     Rating NUMBER(10) ,  
4     Duration NUMBER(10) ,  
5     CONSTRAINT Movie_PK  
6         PRIMARY KEY (Movie_Name)  
7 );  
  
Table created.  
SQL> _
```

Figure 12: Creating Table Movie

2.7. Accommodation

```
CREATE TABLE Accommodation(  
    Accommodation VARCHAR2(20) NOT NULL,  
    Price NUMBER(10) NOT NULL,  
    CONSTRAINT Accommodation_PK  
        PRIMARY KEY (Accommodation)  
);
```

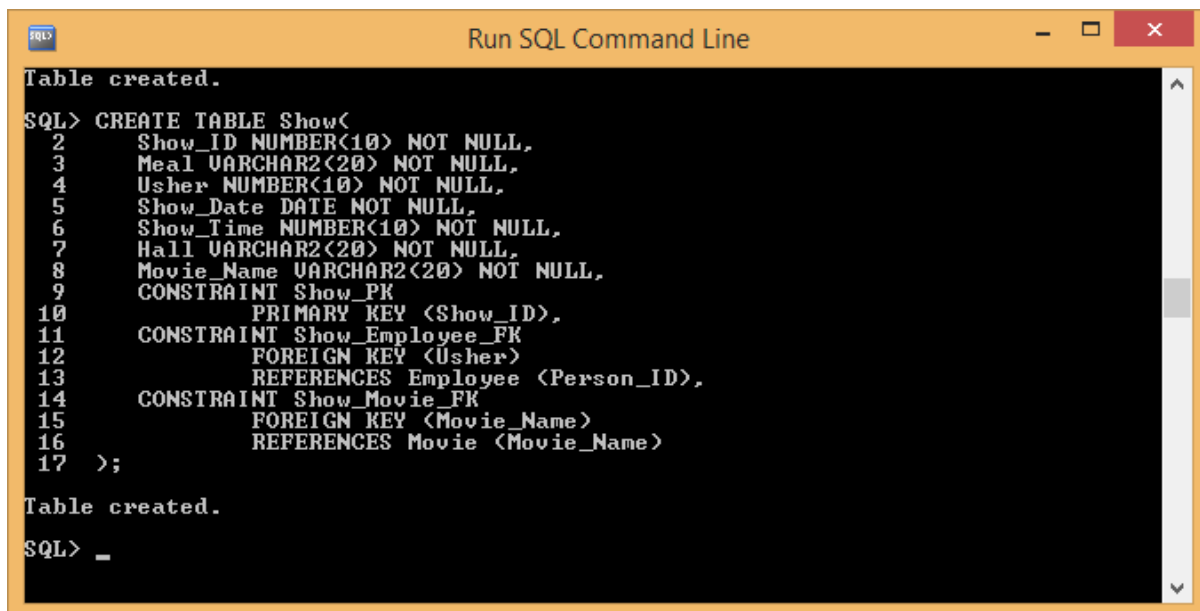
A screenshot of a 'Run SQL Command Line' window. The window has a yellow title bar with a small 'SQL' icon on the left and standard window controls (minimize, maximize, close) on the right. The main area is a black terminal with white text. It shows the command 'CREATE TABLE Accommodation(' followed by indented lines for 'Accommodation VARCHAR2(20) NOT NULL,', 'Price NUMBER(10) NOT NULL,', 'CONSTRAINT Accommodation_PK', and 'PRIMARY KEY (Accommodation)', ending with ');'. The output shows 'Table created.' twice, once before and once after the command. The prompt 'SQL>' is followed by a cursor line.

```
Run SQL Command Line  
Table created.  
SQL> CREATE TABLE Accommodation(  
2     Accommodation VARCHAR2(20) NOT NULL,  
3     Price NUMBER(10) NOT NULL,  
4     CONSTRAINT Accommodation_PK  
5         PRIMARY KEY (Accommodation)  
6 );  
Table created.  
SQL> _
```

Figure 13: Creating Table Accommodation

2.8. Show

```
CREATE TABLE Show(  
    Show_ID NUMBER(10) NOT NULL,  
    Meal VARCHAR2(20) NOT NULL,  
    Usher NUMBER(10) NOT NULL,  
    Show_Date DATE NOT NULL,  
    Show_Time NUMBER(10) NOT NULL,  
    Hall VARCHAR2(20) NOT NULL,  
    Movie_Name VARCHAR2(20) NOT NULL,  
    CONSTRAINT Show_PK  
        PRIMARY KEY (Show_ID),  
    CONSTRAINT Show_Employee_FK  
        FOREIGN KEY (Usher)  
        REFERENCES Employee (Person_ID),  
    CONSTRAINT Show_Movie_FK  
        FOREIGN KEY (Movie_Name)  
        REFERENCES Movie (Movie_Name)  
);
```

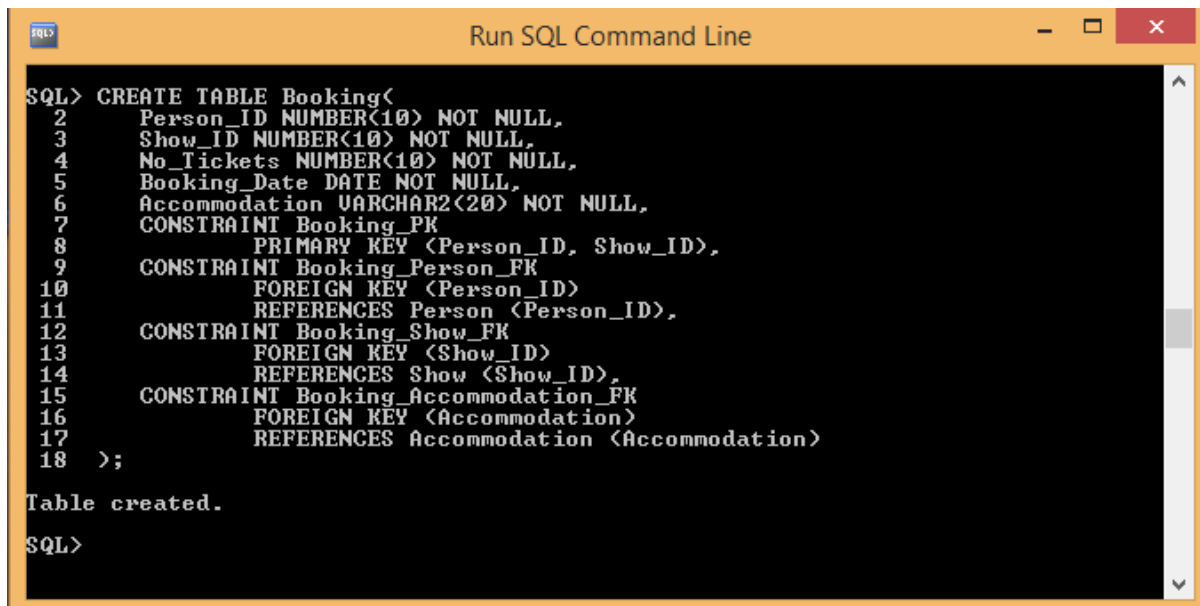
A screenshot of a 'Run SQL Command Line' window. The window has a title bar with a minus, maximize, and close button. The main area is a black terminal with white text. It shows the command to create the 'Show' table, followed by a confirmation message 'Table created.' and the prompt 'SQL> _'.

```
Run SQL Command Line  
Table created.  
SQL> CREATE TABLE Show(  
2     Show_ID NUMBER(10) NOT NULL,  
3     Meal VARCHAR2(20) NOT NULL,  
4     Usher NUMBER(10) NOT NULL,  
5     Show_Date DATE NOT NULL,  
6     Show_Time NUMBER(10) NOT NULL,  
7     Hall VARCHAR2(20) NOT NULL,  
8     Movie_Name VARCHAR2(20) NOT NULL,  
9     CONSTRAINT Show_PK  
10        PRIMARY KEY (Show_ID),  
11     CONSTRAINT Show_Employee_FK  
12        FOREIGN KEY (Usher)  
13        REFERENCES Employee (Person_ID),  
14     CONSTRAINT Show_Movie_FK  
15        FOREIGN KEY (Movie_Name)  
16        REFERENCES Movie (Movie_Name)  
17 >;  
Table created.  
SQL> _
```

Figure 14: Creating Table Show

2.9. Booking

```
CREATE TABLE Booking(  
    Person_ID NUMBER(10) NOT NULL,  
    Show_ID NUMBER(10) NOT NULL,  
    No_Tickets NUMBER(10) NOT NULL,  
    Booking_Date DATE NOT NULL,  
    Accommodation VARCHAR2(20) NOT NULL,  
    CONSTRAINT Booking_PK  
        PRIMARY KEY (Person_ID, Show_ID),  
    CONSTRAINT Booking_Person_FK  
        FOREIGN KEY (Person_ID)  
        REFERENCES Person (Person_ID),  
    CONSTRAINT Booking_Show_FK  
        FOREIGN KEY (Show_ID)  
        REFERENCES Show (Show_ID),  
    CONSTRAINT Booking_Accommodation_FK  
        FOREIGN KEY (Accommodation)  
        REFERENCES Accommodation (Accommodation)  
);
```



The screenshot shows a window titled "Run SQL Command Line" with a black background and white text. The SQL command is entered line by line, with line numbers 1 through 18 on the left. The command is the same as the one in the previous block. After the command, the response "Table created." is shown, followed by a new SQL prompt "SQL>".

```
SQL> CREATE TABLE Booking(  
2     Person_ID NUMBER(10) NOT NULL,  
3     Show_ID NUMBER(10) NOT NULL,  
4     No_Tickets NUMBER(10) NOT NULL,  
5     Booking_Date DATE NOT NULL,  
6     Accommodation VARCHAR2(20) NOT NULL,  
7     CONSTRAINT Booking_PK  
8         PRIMARY KEY (Person_ID, Show_ID),  
9     CONSTRAINT Booking_Person_FK  
10        FOREIGN KEY (Person_ID)  
11        REFERENCES Person (Person_ID),  
12    CONSTRAINT Booking_Show_FK  
13        FOREIGN KEY (Show_ID)  
14        REFERENCES Show (Show_ID),  
15    CONSTRAINT Booking_Accommodation_FK  
16        FOREIGN KEY (Accommodation)  
17        REFERENCES Accommodation (Accommodation)  
18 >;  
  
Table created.  
SQL>
```

Figure 15: Creating Table Booking

2.10. Dropping the tables:

The booking table must be dropped at first because it is not referenced by any other entities in the relation. Then the show should be dropped as it was only referenced by booking. Accommodation and Movie can be dropped after the show and booking tables are dropped. The address table stores the address info of the person by calling the Person_ID and the Location_ID so it must be removed. Then location table can also be removed. As the employee and Customer are subtypes of person so Employee and customer should be removed before removing person. Simply the command to drop all of the tables without any error will be:

```
DROP TABLE Booking;  
DROP TABLE Show;  
DROP TABLE Movie;  
DROP TABLE Accommodation;  
DROP TABLE Address;  
DROP TABLE Location;  
DROP TABLE Employee;  
DROP TABLE Customer;  
DROP TABLE Person;
```

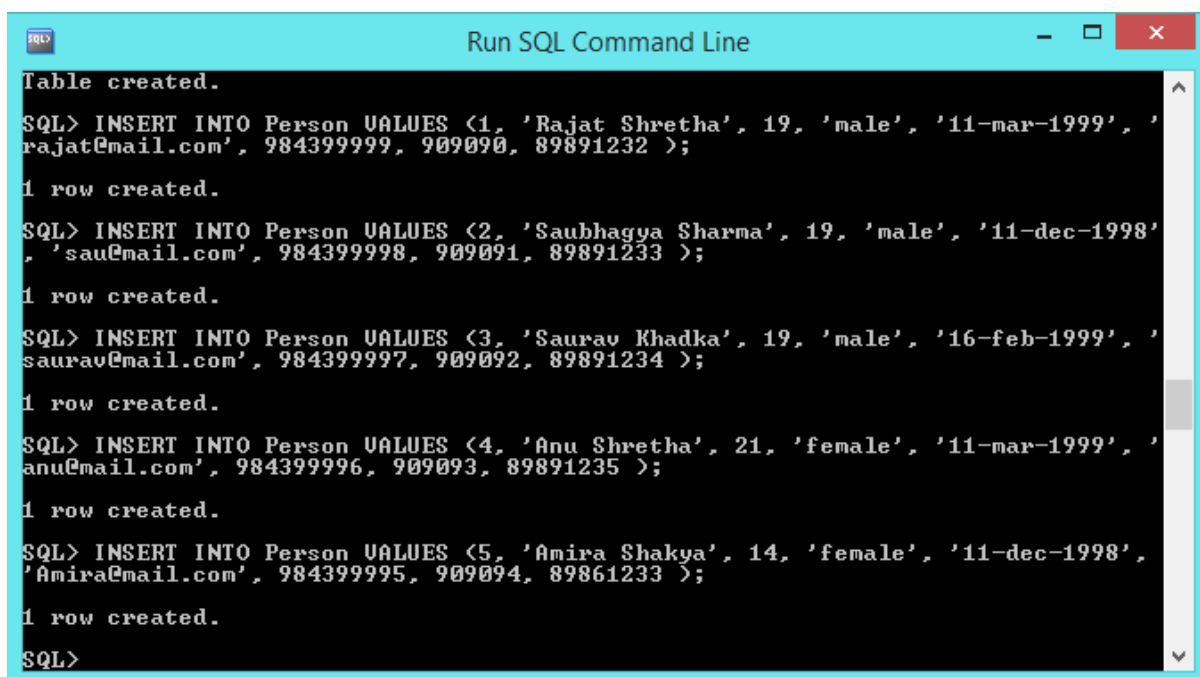
This command is stored as an sql file so that it will be easier to drop all of the tables by simply calling the file in the SQL command line.

3. Populating database tables

The database must have some sort of data so that we can understand its functionality. So to understand the inner mechanics of the database the tables are populated by direct inserting values. The other methods of inserting values are further discussed in the appendix.

3.1. Person

```
INSERT INTO Person VALUES (1, 'Rajat Shretha', 19, 'male', '11-mar-1999',  
'rajat@mail.com', 984399999, 909090, 89891232 );  
INSERT INTO Person VALUES (2, 'Saubhagya Sharma', 19, 'male', '11-dec-  
1998', 'sau@mail.com', 984399998, 909091, 89891233 );  
INSERT INTO Person VALUES (3, 'Saurav Khadka', 19, 'male', '16-feb-1999',  
'saurav@mail.com', 984399997, 909092, 89891234 );  
INSERT INTO Person VALUES (4, 'Anu Shretha', 21, 'female', '11-mar-1999',  
'anu@mail.com', 984399996, 909093, 89891235 );  
INSERT INTO Person VALUES (5, 'Amira Shakya', 14, 'female', '11-dec-  
1998', 'Amira@mail.com', 984399995, 909094, 89861233 );
```

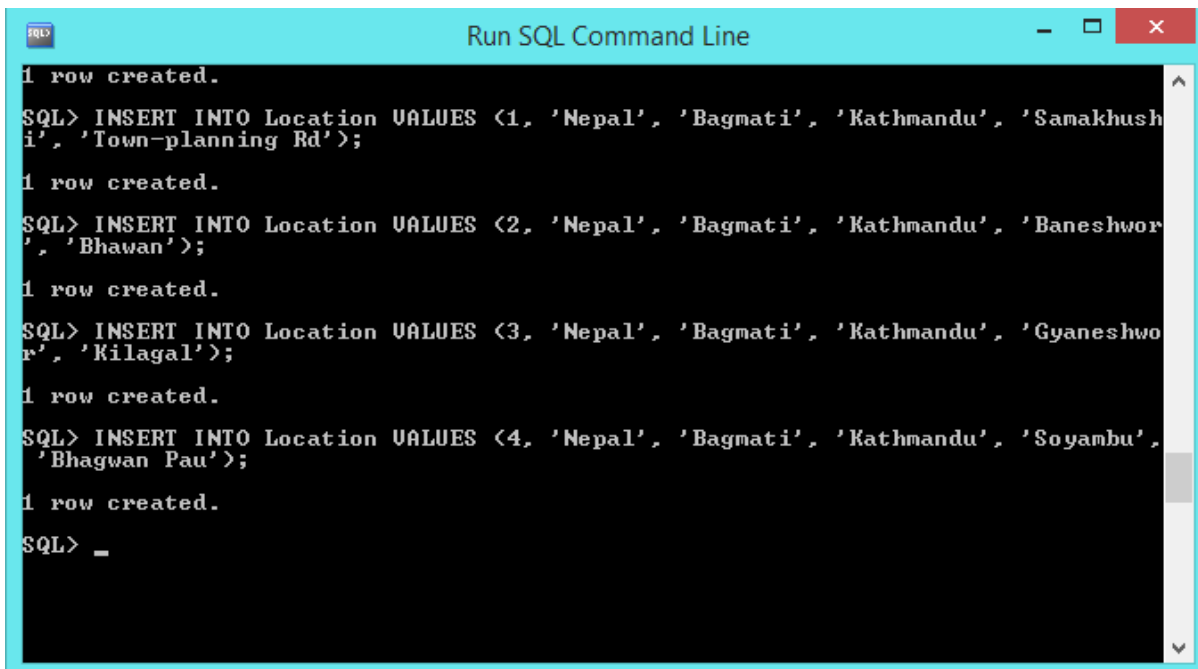


```
Run SQL Command Line  
Table created.  
SQL> INSERT INTO Person VALUES (1, 'Rajat Shretha', 19, 'male', '11-mar-1999',  
'rajat@mail.com', 984399999, 909090, 89891232 );  
1 row created.  
SQL> INSERT INTO Person VALUES (2, 'Saubhagya Sharma', 19, 'male', '11-dec-1998',  
'sau@mail.com', 984399998, 909091, 89891233 );  
1 row created.  
SQL> INSERT INTO Person VALUES (3, 'Saurav Khadka', 19, 'male', '16-feb-1999',  
'saurav@mail.com', 984399997, 909092, 89891234 );  
1 row created.  
SQL> INSERT INTO Person VALUES (4, 'Anu Shretha', 21, 'female', '11-mar-1999',  
'anu@mail.com', 984399996, 909093, 89891235 );  
1 row created.  
SQL> INSERT INTO Person VALUES (5, 'Amira Shakya', 14, 'female', '11-dec-1998',  
'Amira@mail.com', 984399995, 909094, 89861233 );  
1 row created.  
SQL>
```

Figure 16: Populating Table Person

3.2. Location

```
INSERT INTO Location VALUES (1, 'Nepal', 'Bagmati', 'Kathmandu',  
'Samakhushi', 'Town-planning Rd');  
INSERT INTO Location VALUES (2, 'Nepal', 'Bagmati', 'Kathmandu',  
'Baneshwor', 'Bhawan');  
INSERT INTO Location VALUES (3, 'Nepal', 'Bagmati', 'Kathmandu',  
'Gyaneshwor', 'Kilagal');  
INSERT INTO Location VALUES (4, 'Nepal', 'Bagmati', 'Kathmandu',  
'Soyambu', 'Bhagwan Pau');
```

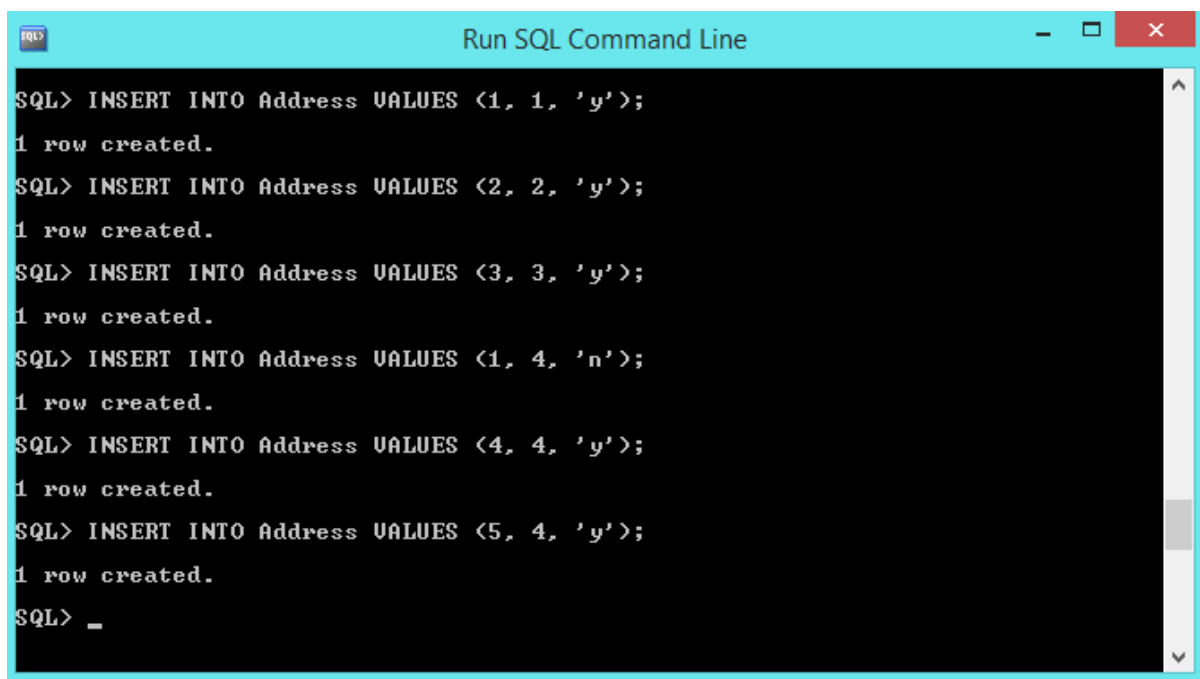


```
Run SQL Command Line  
1 row created.  
SQL> INSERT INTO Location VALUES (1, 'Nepal', 'Bagmati', 'Kathmandu', 'Samakhush  
i', 'Town-planning Rd');  
1 row created.  
SQL> INSERT INTO Location VALUES (2, 'Nepal', 'Bagmati', 'Kathmandu', 'Baneshwor  
, 'Bhawan');  
1 row created.  
SQL> INSERT INTO Location VALUES (3, 'Nepal', 'Bagmati', 'Kathmandu', 'Gyaneshwo  
r', 'Kilagal');  
1 row created.  
SQL> INSERT INTO Location VALUES (4, 'Nepal', 'Bagmati', 'Kathmandu', 'Soyambu',  
'Bhagwan Pau');  
1 row created.  
SQL> _
```

Figure 17: Populating Table Location

3.3. Address

```
INSERT INTO Address VALUES (1, 1, 'y');  
INSERT INTO Address VALUES (2, 2, 'y');  
INSERT INTO Address VALUES (3, 3, 'y');  
INSERT INTO Address VALUES (1, 4, 'n');  
INSERT INTO Address VALUES (4, 4, 'y');  
INSERT INTO Address VALUES (5, 4, 'y');
```

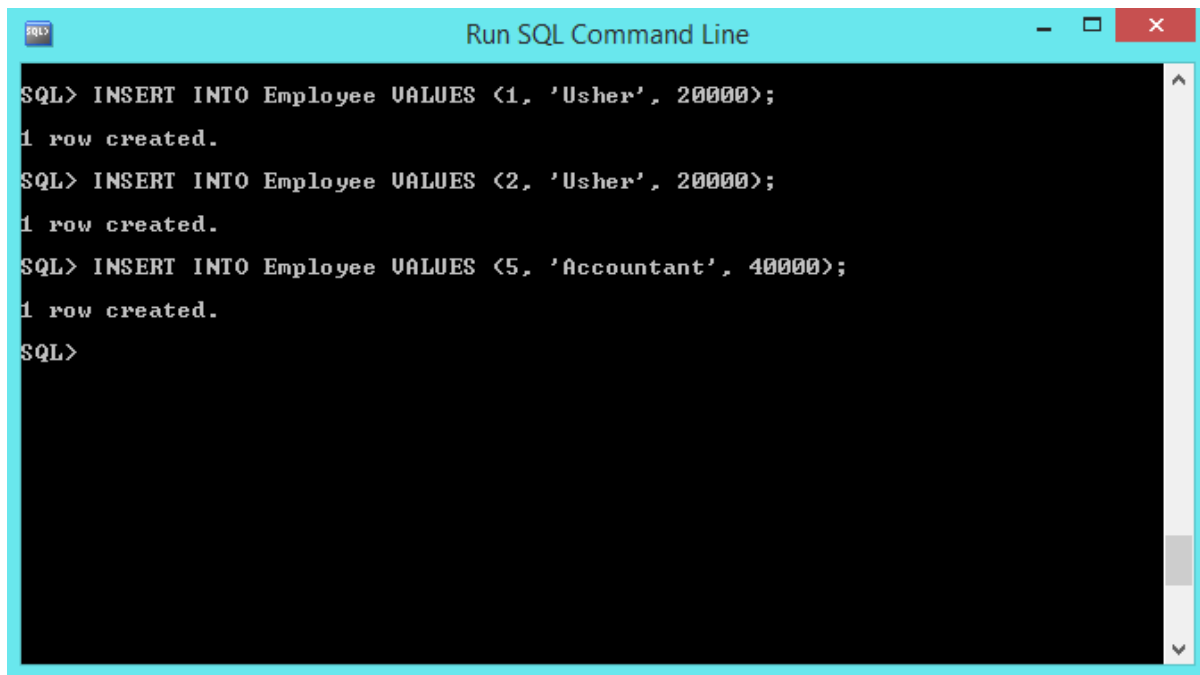


```
SQL> INSERT INTO Address VALUES (1, 1, 'y');  
1 row created.  
SQL> INSERT INTO Address VALUES (2, 2, 'y');  
1 row created.  
SQL> INSERT INTO Address VALUES (3, 3, 'y');  
1 row created.  
SQL> INSERT INTO Address VALUES (1, 4, 'n');  
1 row created.  
SQL> INSERT INTO Address VALUES (4, 4, 'y');  
1 row created.  
SQL> INSERT INTO Address VALUES (5, 4, 'y');  
1 row created.  
SQL> _
```

Figure 18: Populating Table Address

3.4. Employee

```
INSERT INTO Employee VALUES (1, 'Usher', 20000);  
INSERT INTO Employee VALUES (2, 'Usher', 20000);  
INSERT INTO Employee VALUES (5, 'Accountant', 40000);
```



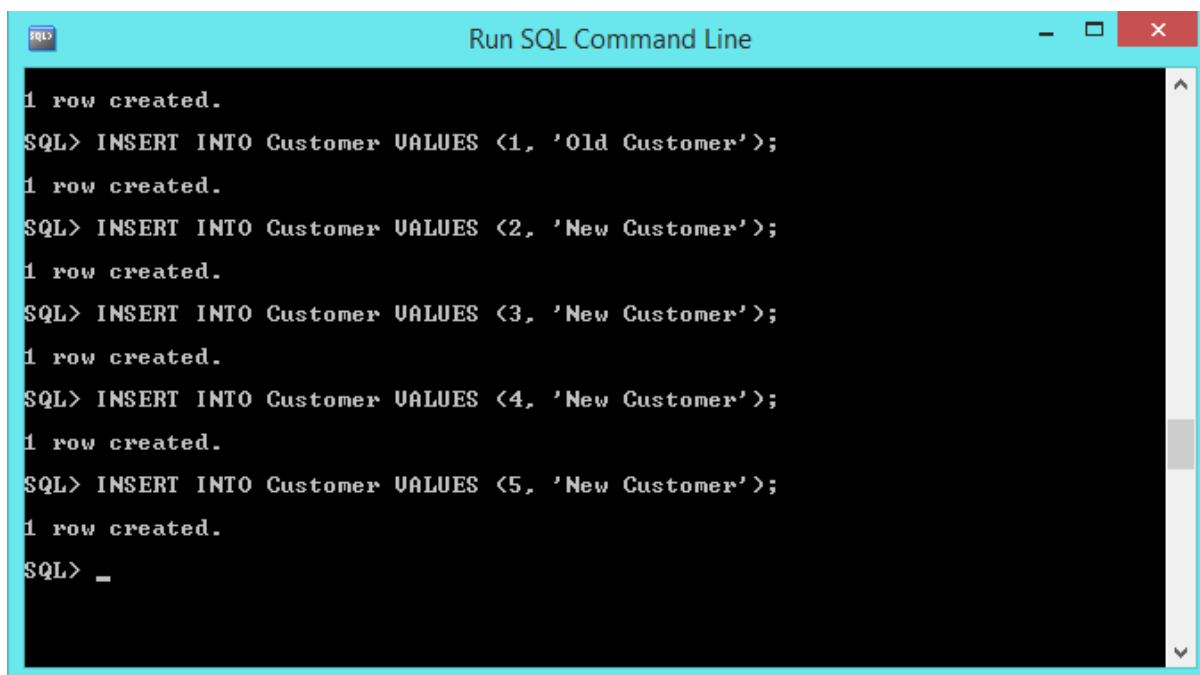
The screenshot shows a window titled "Run SQL Command Line" with a black background and white text. It displays the execution of three SQL INSERT statements. Each statement is followed by the response "1 row created." The statements are: 1. INSERT INTO Employee VALUES (1, 'Usher', 20000); 2. INSERT INTO Employee VALUES (2, 'Usher', 20000); 3. INSERT INTO Employee VALUES (5, 'Accountant', 40000); The window has a standard Windows-style title bar with minimize, maximize, and close buttons.

```
SQL> INSERT INTO Employee VALUES (1, 'Usher', 20000);  
1 row created.  
SQL> INSERT INTO Employee VALUES (2, 'Usher', 20000);  
1 row created.  
SQL> INSERT INTO Employee VALUES (5, 'Accountant', 40000);  
1 row created.  
SQL>
```

Figure 19: Populating Table Employee

3.5. Customer

```
INSERT INTO Customer VALUES (1, 'Old Customer');  
INSERT INTO Customer VALUES (2, 'New Customer');  
INSERT INTO Customer VALUES (3, 'New Customer');  
INSERT INTO Customer VALUES (4, 'New Customer');  
INSERT INTO Customer VALUES (5, 'New Customer');
```

A screenshot of a SQL Command Line window titled "Run SQL Command Line". The window has a light blue title bar with standard Windows window controls (minimize, maximize, close). The main area is a black terminal with white text. It shows the execution of five INSERT statements into a table named "Customer". Each statement is followed by the response "1 row created.". The statements are: 1. INSERT INTO Customer VALUES (1, 'Old Customer'); 2. INSERT INTO Customer VALUES (2, 'New Customer'); 3. INSERT INTO Customer VALUES (3, 'New Customer'); 4. INSERT INTO Customer VALUES (4, 'New Customer'); 5. INSERT INTO Customer VALUES (5, 'New Customer'); The prompt "SQL>" is visible at the end of the last statement, followed by a cursor line.

```
SQL>  
1 row created.  
SQL> INSERT INTO Customer VALUES (1, 'Old Customer');  
1 row created.  
SQL> INSERT INTO Customer VALUES (2, 'New Customer');  
1 row created.  
SQL> INSERT INTO Customer VALUES (3, 'New Customer');  
1 row created.  
SQL> INSERT INTO Customer VALUES (4, 'New Customer');  
1 row created.  
SQL> INSERT INTO Customer VALUES (5, 'New Customer');  
1 row created.  
SQL> _
```

Figure 20: Populating Table Customer

3.6. Movie

```
INSERT INTO Movie VALUES ('Aquawoman', 9, 100);  
INSERT INTO Movie VALUES ('Bohemien', 10, 130);  
INSERT INTO Movie VALUES ('Sinatra', 7, 140);
```



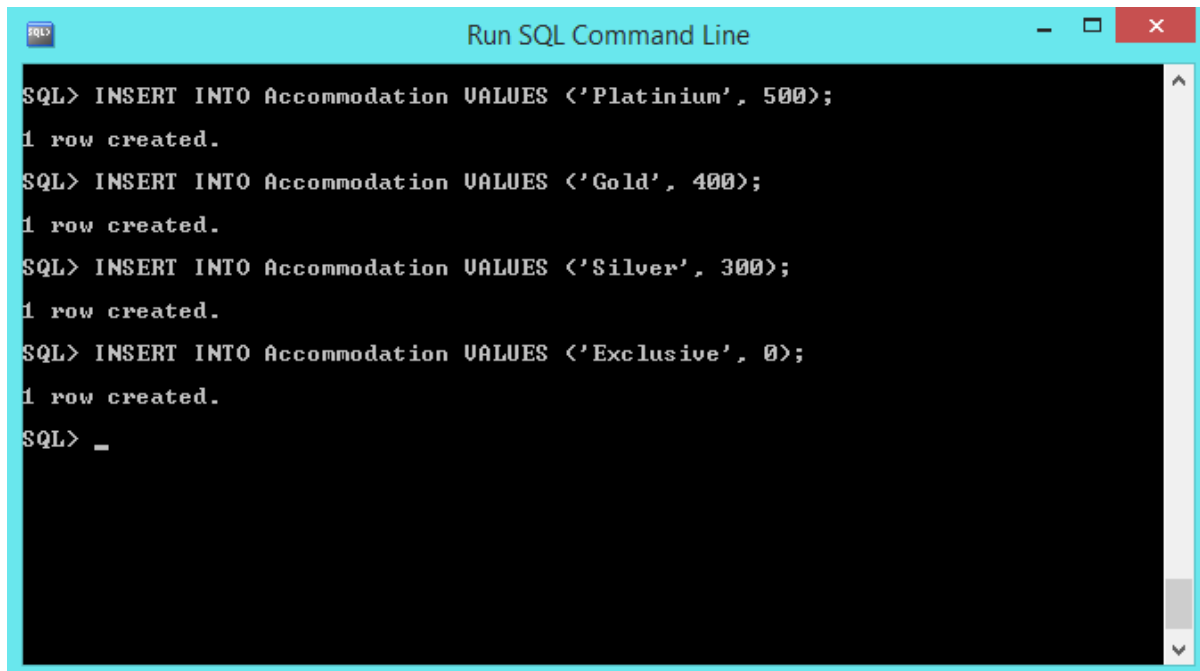
The screenshot shows a window titled "Run SQL Command Line" with a black background and white text. It displays the execution of three SQL INSERT statements. Each statement is followed by the response "1 row created.".

```
SQL> INSERT INTO Movie VALUES ('Aquawoman', 9, 100);  
1 row created.  
SQL> INSERT INTO Movie VALUES ('Bohemien', 10, 130);  
1 row created.  
SQL> INSERT INTO Movie VALUES ('Sinatra', 7, 140);  
1 row created.  
SQL>
```

Figure 21: Populating Table Movie

3.7. Accommodation

```
INSERT INTO Accommodation VALUES ('Platinum', 500);  
INSERT INTO Accommodation VALUES ('Gold', 400);  
INSERT INTO Accommodation VALUES ('Silver', 300);  
INSERT INTO Accommodation VALUES ('Exclusive', 0);
```



```
SQL> INSERT INTO Accommodation VALUES ('Platinum', 500);  
1 row created.  
SQL> INSERT INTO Accommodation VALUES ('Gold', 400);  
1 row created.  
SQL> INSERT INTO Accommodation VALUES ('Silver', 300);  
1 row created.  
SQL> INSERT INTO Accommodation VALUES ('Exclusive', 0);  
1 row created.  
SQL> _
```

Figure 22: Populating Table Accommodation

3.8. Show

```
INSERT INTO Show VALUES (1, 'breakfast', 1, '11-jan-2019', 0900, 'A', 'Aquawoman');
INSERT INTO Show VALUES (2, 'dinner', 1, '11-jan-2019', 2100, 'B', 'Bohemien');
INSERT INTO Show VALUES (3, 'dinner', 1, '11-jan-2019', 2100, 'A', 'Sinatra');
INSERT INTO Show VALUES (4, 'lunch', 1, '12-jan-2019', 1200, 'B', 'Sinatra');
```

A screenshot of a 'Run SQL Command Line' window with a black background and white text. The window title bar is light blue with standard Windows window controls. The text inside shows a series of SQL INSERT statements being executed, each followed by the confirmation '1 row created.'. The statements are: 1. INSERT INTO Accommodation VALUES ('Exclusive', 0); 2. INSERT INTO Show VALUES (1, 'breakfast', 1, '11-jan-2019', 0900, 'A', 'Aquawoman'); 3. INSERT INTO Show VALUES (2, 'dinner', 1, '11-jan-2019', 2100, 'B', 'Bohemien'); 4. INSERT INTO Show VALUES (3, 'dinner', 1, '11-jan-2019', 2100, 'A', 'Sinatra'); 5. INSERT INTO Show VALUES (4, 'lunch', 1, '12-jan-2019', 1200, 'B', 'Sinatra'); The prompt 'SQL>' is visible at the end of the last statement.


```
Run SQL Command Line

1 row created.
SQL> INSERT INTO Accommodation VALUES ('Exclusive', 0);
1 row created.
SQL> INSERT INTO Show VALUES (1, 'breakfast', 1, '11-jan-2019', 0900, 'A', 'Aquawoman');
1 row created.
SQL> INSERT INTO Show VALUES (2, 'dinner', 1, '11-jan-2019', 2100, 'B', 'Bohemien');
1 row created.
SQL> INSERT INTO Show VALUES (3, 'dinner', 1, '11-jan-2019', 2100, 'A', 'Sinatra');
1 row created.
SQL> INSERT INTO Show VALUES (4, 'lunch', 1, '12-jan-2019', 1200, 'B', 'Sinatra');
1 row created.
SQL>
```

Figure 23: Populating Table Show

3.9. Booking

```
INSERT INTO Booking VALUES (1, 2, 1, '2-jan-2019', 'Exclusive');
INSERT INTO Booking VALUES (2, 2, 1, '3-jan-2019', 'Exclusive');
INSERT INTO Booking VALUES (3, 2, 1, '3-jan-2019', 'Silver');
INSERT INTO Booking VALUES (3, 1, 2, '3-jan-2019', 'Platinum');
INSERT INTO Booking VALUES (3, 3, 1, '3-jan-2019', 'Gold');
INSERT INTO Booking VALUES (1, 4, 1, '12-jan-2019', 'Exclusive');
```



```
Run SQL Command Line

1 row created.
SQL> INSERT INTO Booking VALUES (1, 2, 1, '2-jan-2019', 'Exclusive');
1 row created.
SQL> INSERT INTO Booking VALUES (2, 2, 1, '3-jan-2019', 'Exclusive');
1 row created.
SQL> INSERT INTO Booking VALUES (3, 2, 1, '3-jan-2019', 'Silver');
1 row created.
SQL> INSERT INTO Booking VALUES (3, 1, 2, '3-jan-2019', 'Platinum');
1 row created.
SQL> INSERT INTO Booking VALUES (3, 3, 1, '3-jan-2019', 'Gold');
1 row created.
SQL> INSERT INTO Booking VALUES (1, 4, 1, '12-jan-2019', 'Exclusive');
1 row created.
SQL>
```

Figure 24: Populating Table Booking

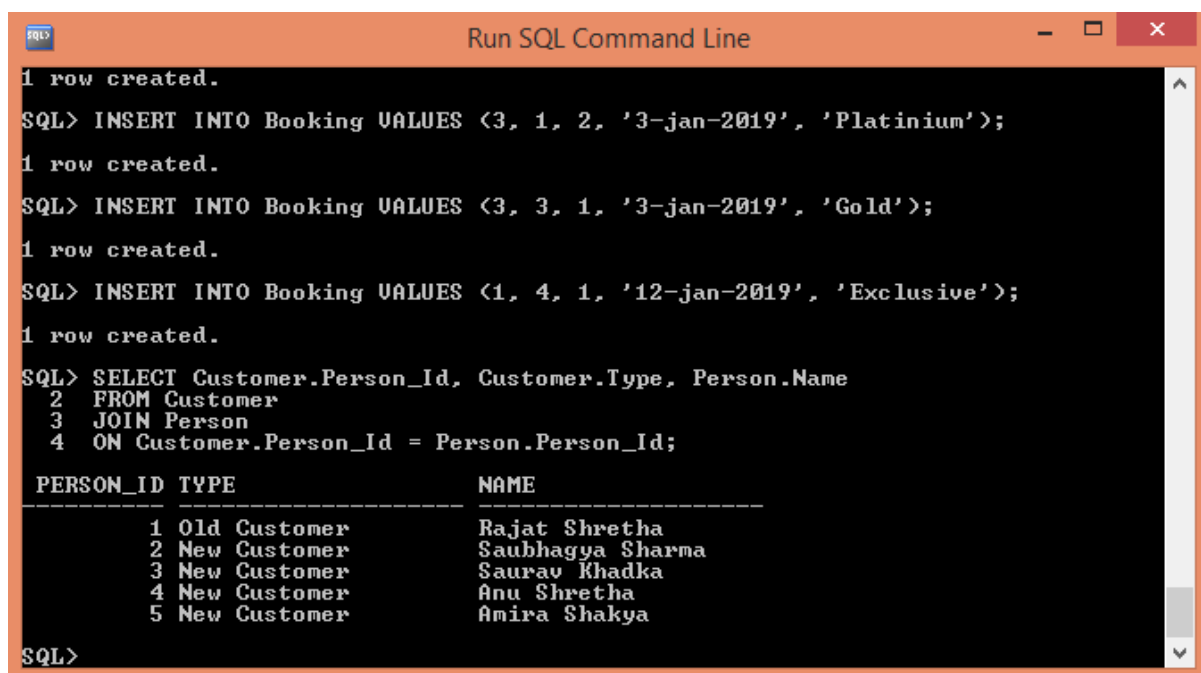
(note: The detailed specification of each tables and the entries are discussed at the appendix)

Queries

1. Information Queries

1.1. List all customers, old and current

```
SELECT Customer.Person_Id, Customer.Type, Person.Name
FROM Customer
JOIN Person
ON Customer.Person_Id = Person.Person_Id;
```



The screenshot shows a SQL Command Line window with the following content:

```
1 row created.
SQL> INSERT INTO Booking VALUES (3, 1, 2, '3-jan-2019', 'Platinum');
1 row created.
SQL> INSERT INTO Booking VALUES (3, 3, 1, '3-jan-2019', 'Gold');
1 row created.
SQL> INSERT INTO Booking VALUES (1, 4, 1, '12-jan-2019', 'Exclusive');
1 row created.
SQL> SELECT Customer.Person_Id, Customer.Type, Person.Name
2 FROM Customer
3 JOIN Person
4 ON Customer.Person_Id = Person.Person_Id;

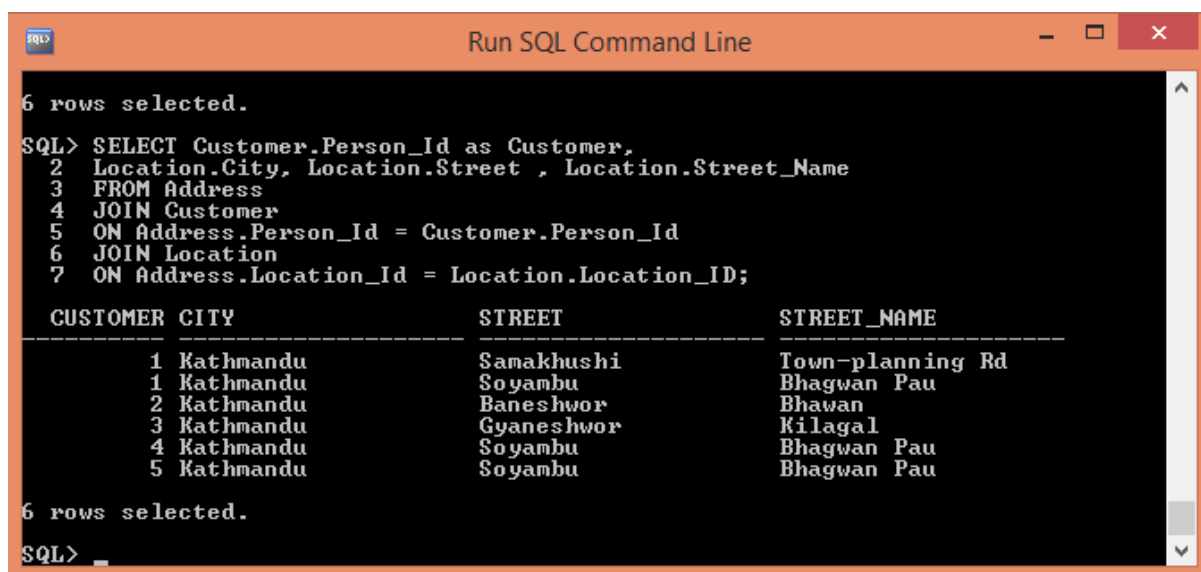
PERSON_ID TYPE NAME
-----
1 Old Customer Rajat Shretha
2 New Customer Saubhagya Sharma
3 New Customer Saurav Khadka
4 New Customer Anu Shretha
5 New Customer Amira Shakya

SQL>
```

Figure 25: Information Query1: Customer listing

1.2. List all customers with all their addresses

```
SELECT Customer.Person_Id as Customer,
Location.City, Location.Street , Location.Street_Name
FROM Address
JOIN Customer
ON Address.Person_Id = Customer.Person_Id
JOIN Location
ON Address.Location_Id = Location.Location_ID;
```



```
Run SQL Command Line

6 rows selected.
SQL> SELECT Customer.Person_Id as Customer,
 2 Location.City, Location.Street , Location.Street_Name
 3 FROM Address
 4 JOIN Customer
 5 ON Address.Person_Id = Customer.Person_Id
 6 JOIN Location
 7 ON Address.Location_Id = Location.Location_ID;

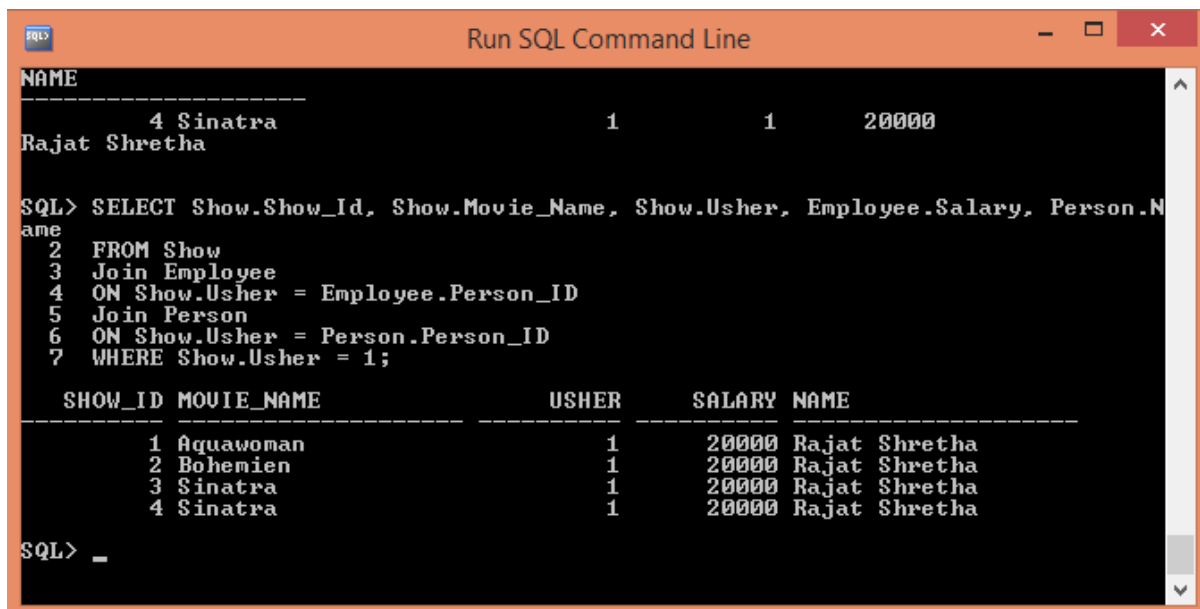
CUSTOMER CITY          STREET          STREET_NAME
-----
1 Kathmandu Samakhushi Town-planning Rd
1 Kathmandu Soyambu Bhagwan Pau
2 Kathmandu Baneshwor Bhawan
3 Kathmandu Gyaneshwor Kilagal
4 Kathmandu Soyambu Bhagwan Pau
5 Kathmandu Soyambu Bhagwan Pau

6 rows selected.
SQL> _
```

Figure 26: Information Query2: Customer and their addresses

- 1.3. For a given usher, find all the shows he/she ushered or will usher and the amount he/she got/will get for ushering the show.

```
SELECT Show.Show_Id, Show.Movie_Name, Show.Usher, Employee.Salary,
Person.Name
FROM Show
Join Employee
ON Show.Usher = Employee.Person_ID
Join Person
ON Show.Usher = Person.Person_ID
WHERE Show.Usher = 1;
```



```
Run SQL Command Line
```

```
NAME
-----
      4 Sinatra                1          1      20000
Rajat Shretha

SQL> SELECT Show.Show_Id, Show.Movie_Name, Show.Usher, Employee.Salary, Person.N
ame
2 FROM Show
3 Join Employee
4 ON Show.Usher = Employee.Person_ID
5 Join Person
6 ON Show.Usher = Person.Person_ID
7 WHERE Show.Usher = 1;

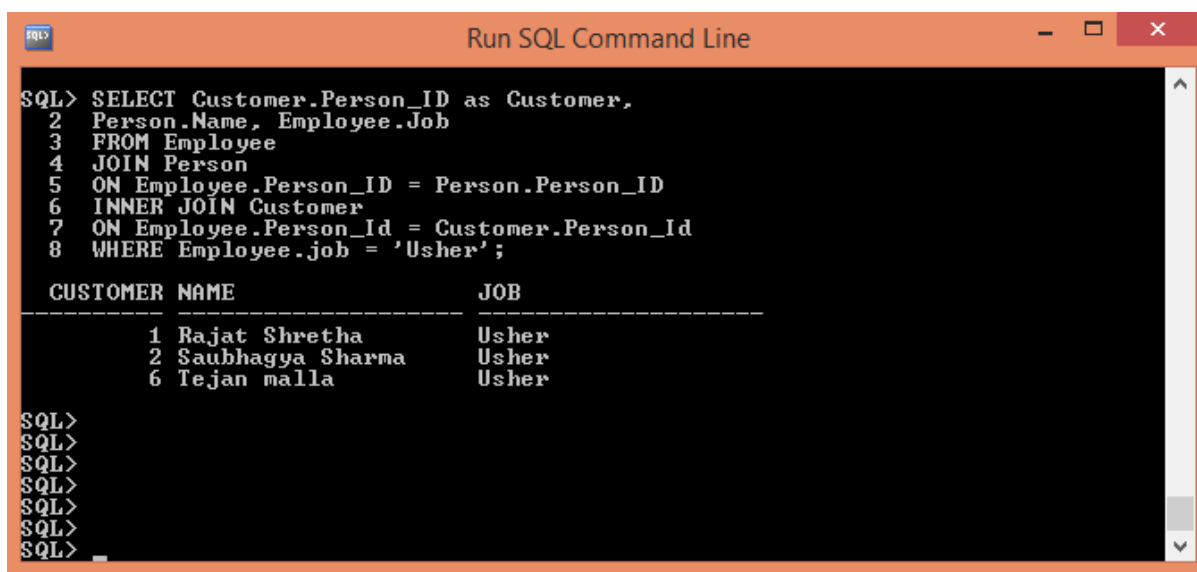
SHOW_ID MOVIE_NAME          USHER    SALARY NAME
-----
      1 Aquawoman             1      20000 Rajat Shretha
      2 Bohemien              1      20000 Rajat Shretha
      3 Sinatra                1      20000 Rajat Shretha
      4 Sinatra                1      20000 Rajat Shretha

SQL> _
```

Figure 27: Information Query3: usher and shows with the salary

1.4. List all customers that are also ushers.

```
SELECT Customer.Person_ID as Customer,  
Person.Name, Employee.Job  
FROM Employee  
JOIN Person  
ON Employee.Person_ID = Person.Person_ID  
INNER JOIN Customer  
ON Employee.Person_Id = Customer.Person_Id  
WHERE Employee.job = 'Usher';
```



The screenshot shows a SQL Command Line window with the following content:

```
SQL> SELECT Customer.Person_ID as Customer,  
2 Person.Name, Employee.Job  
3 FROM Employee  
4 JOIN Person  
5 ON Employee.Person_ID = Person.Person_ID  
6 INNER JOIN Customer  
7 ON Employee.Person_Id = Customer.Person_Id  
8 WHERE Employee.job = 'Usher';
```

CUSTOMER	NAME	JOB
1	Rajat Shretha	Usher
2	Saubhagya Sharma	Usher
6	Tejan malla	Usher

```
SQL>  
SQL>  
SQL>  
SQL>  
SQL>  
SQL>  
SQL>
```

Figure 28: Information Query4: usher who are also customer

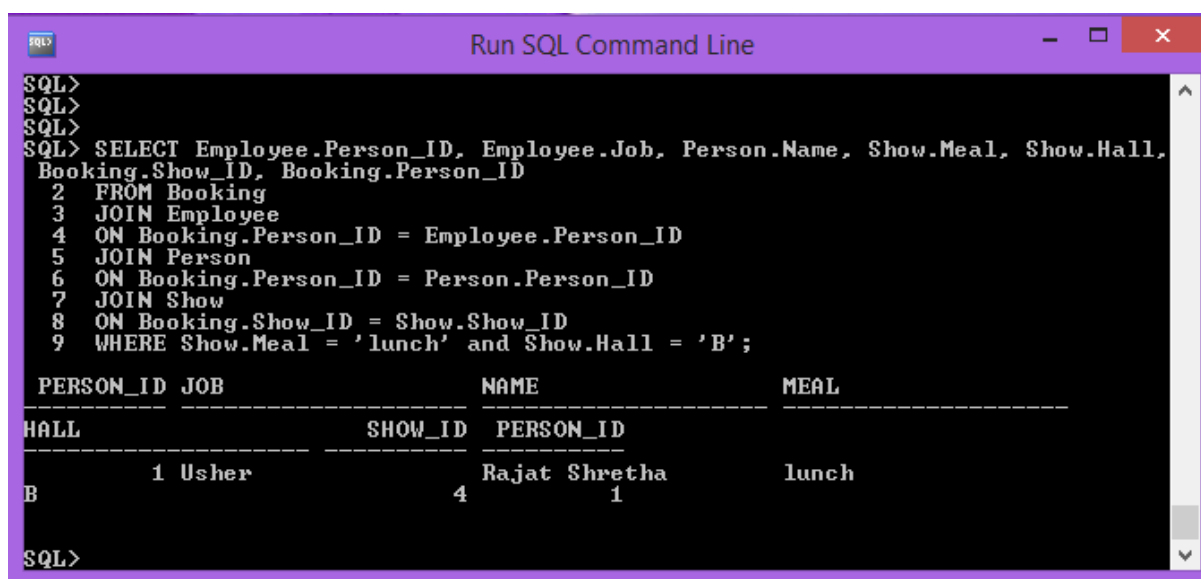
2. Transaction Queries

2.1. List all ushers that attended a show that had lunch in a given place.

```

SELECT Employee.Person_ID, Employee.Job, Person.Name, Show.Meal,
Show.Hall, Booking.Show_ID, Booking.Person_ID
FROM Booking
JOIN Employee
ON Booking.Person_ID = Employee.Person_ID
JOIN Person
ON Booking.Person_ID = Person.Person_ID
JOIN Show
ON Booking.Show_ID = Show.Show_ID
WHERE Show.Meal = 'lunch' and Show.Hall = 'B';

```



```

SQL>
SQL>
SQL>
SQL> SELECT Employee.Person_ID, Employee.Job, Person.Name, Show.Meal, Show.Hall,
Booking.Show_ID, Booking.Person_ID
2 FROM Booking
3 JOIN Employee
4 ON Booking.Person_ID = Employee.Person_ID
5 JOIN Person
6 ON Booking.Person_ID = Person.Person_ID
7 JOIN Show
8 ON Booking.Show_ID = Show.Show_ID
9 WHERE Show.Meal = 'lunch' and Show.Hall = 'B';

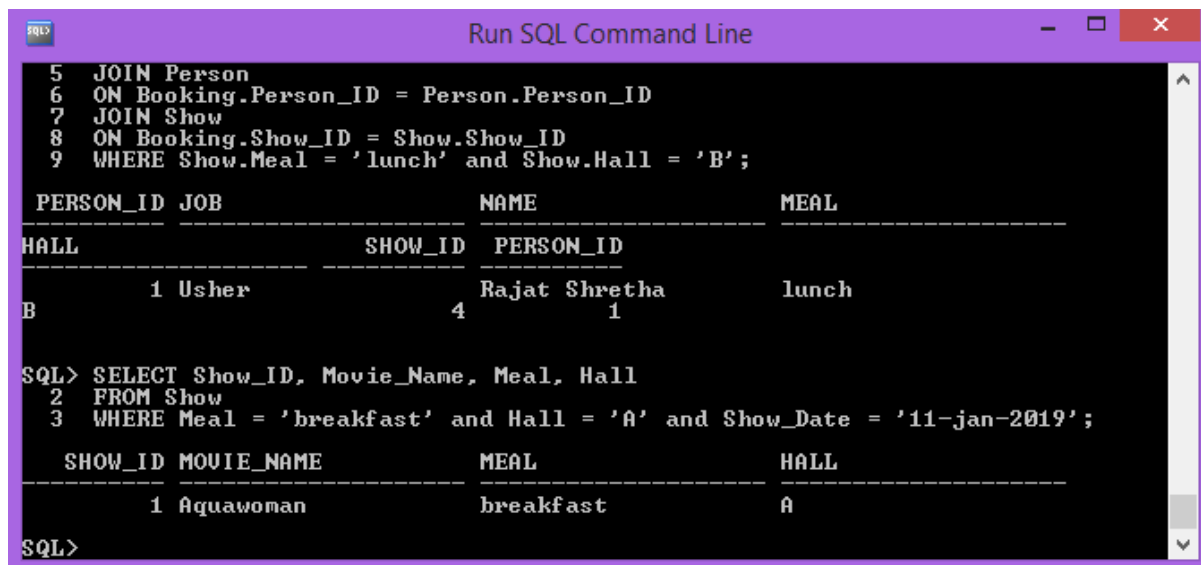
```

PERSON_ID	JOB	NAME	MEAL
1	Usher	Rajat Shretha	lunch

Figure 29: Transaction Query1: Usher show and lunch

2.2. List the shows that will have breakfast at a given place on a given date.

```
SELECT Show_ID, Movie_Name, Meal, Hall
FROM Show
WHERE Meal = 'breakfast' and Hall = 'A' and Show_Date = '11-jan-2019';
```



The screenshot shows a 'Run SQL Command Line' window with a black background and white text. It displays two SQL queries and their results.

Query 1:

```
5 JOIN Person
6 ON Booking.Person_ID = Person.Person_ID
7 JOIN Show
8 ON Booking.Show_ID = Show.Show_ID
9 WHERE Show.Meal = 'lunch' and Show.Hall = 'B';
```

Result 1:

PERSON_ID	JOB	NAME	MEAL
1	Usher	Rajat Shretha	lunch

Query 2:

```
SQL> SELECT Show_ID, Movie_Name, Meal, Hall
2 FROM Show
3 WHERE Meal = 'breakfast' and Hall = 'A' and Show_Date = '11-jan-2019';
```

Result 2:

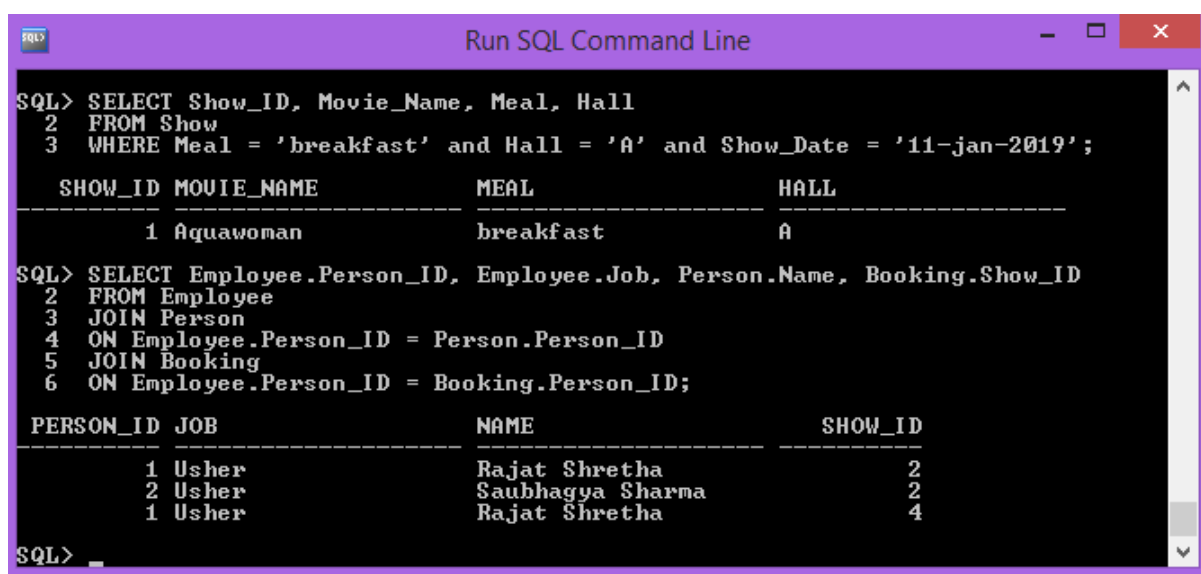
SHOW_ID	MOVIE_NAME	MEAL	HALL
1	Aquawoman	breakfast	A

The window ends with the prompt 'SQL>'.

Figure 30: Transaction Query2: meal and place by show

2.3. List all employees that have worked as an usher or will work as an usher for a show or who have attended or will attend a show.

```
SELECT Employee.Person_ID, Employee.Job, Person.Name, Booking.Show_ID
FROM Employee
JOIN Person
ON Employee.Person_ID = Person.Person_ID
JOIN Booking
ON Employee.Person_ID = Booking.Person_ID;
```



The screenshot shows a 'Run SQL Command Line' window with a black background and white text. It displays two SQL queries and their results.

Query 1:

```
SQL> SELECT Show_ID, Movie_Name, Meal, Hall
2 FROM Show
3 WHERE Meal = 'breakfast' and Hall = 'A' and Show_Date = '11-jan-2019';
```

Result 1:

SHOW_ID	MOVIE_NAME	MEAL	HALL
1	Aquawoman	breakfast	A

Query 2:

```
SQL> SELECT Employee.Person_ID, Employee.Job, Person.Name, Booking.Show_ID
2 FROM Employee
3 JOIN Person
4 ON Employee.Person_ID = Person.Person_ID
5 JOIN Booking
6 ON Employee.Person_ID = Booking.Person_ID;
```

Result 2:

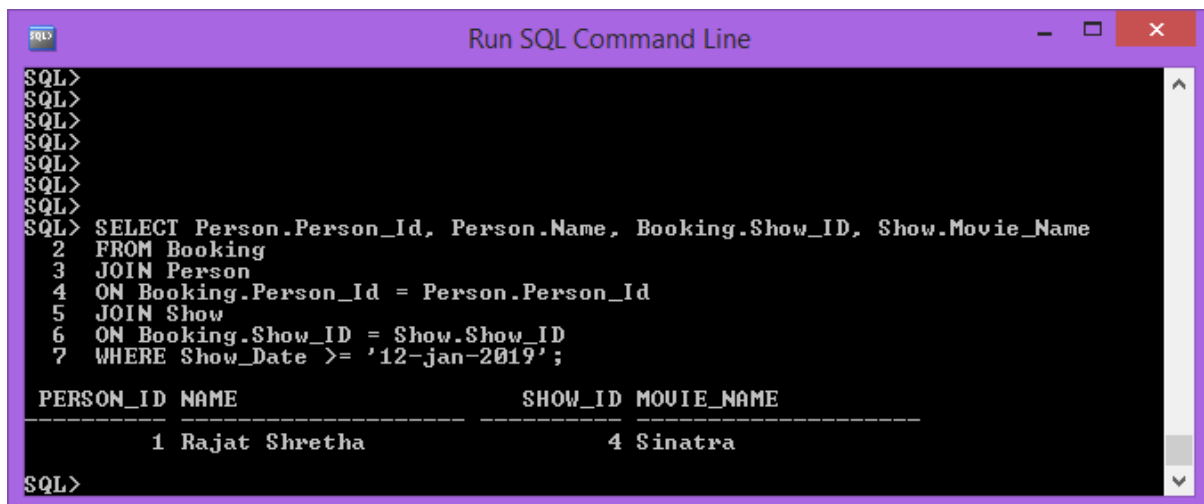
PERSON_ID	JOB	NAME	SHOW_ID
1	Usher	Rajat Shretha	2
2	Usher	Saubhagya Sharma	2
1	Usher	Rajat Shretha	4

The window ends with the prompt 'SQL> _'.

Figure 31: Transaction Query3: Employees working as a usher or booked a show

2.4. List all customers booked for a show starting later or on a given date.

```
SELECT Person.Person_Id, Person.Name, Booking.Show_ID, Show.Movie_Name
FROM Booking
JOIN Person
ON Booking.Person_Id = Person.Person_Id
JOIN Show
ON Booking.Show_ID = Show.Show_ID
WHERE Show_Date >= '12-jan-2019';
```



The screenshot shows a window titled "Run SQL Command Line" with a black background and white text. The SQL query is entered and executed, resulting in a table of data. The table has four columns: PERSON_ID, NAME, SHOW_ID, and MOVIE_NAME. The data row shows PERSON_ID 1, NAME Rajat Shretha, SHOW_ID 4, and MOVIE_NAME Sinatra.

```
SQL>
SQL>
SQL>
SQL>
SQL>
SQL>
SQL>
SQL>
SQL> SELECT Person.Person_Id, Person.Name, Booking.Show_ID, Show.Movie_Name
2  FROM Booking
3  JOIN Person
4  ON Booking.Person_Id = Person.Person_Id
5  JOIN Show
6  ON Booking.Show_ID = Show.Show_ID
7  WHERE Show_Date >= '12-jan-2019';

PERSON_ID NAME                SHOW_ID MOVIE_NAME
-----
1 Rajat Shretha                4 Sinatra
SQL>
```

Figure 32: Transaction Query4: Customer booked shows on a given date

Critical Evaluation

1. Further discussion on Learning Experience

While developing a database model for the given scenario, various methods were used so that the database could be properly explained and created. To do so at first all of the required entities and attributes were listed out and a simple database model was created. This however wasn't the most ideal database model as data redundancy was not minimized. So to minimize the data redundancy and to remove anomalies while Updating, deleting or adding any data in the database, Normalization was done. Normalization is simply the process which will help in reducing data redundancy. In Un-normalized form all of the attributes required for the database was listed out and the repeating groups were identified. All of the repeating group was removed to create new tables and referenced the primary key from the main entity. The super type and sub type was also separated in this step. Now to be in the Second normal form, The entities must satisfy all the rules of the first normal form and all the partial functional dependencies was removed. After that the entities were again checked for any transitive functional dependencies and the attributes were separated into another table. Finally all of the entities in the database model was normalized to third normal form.

After normalization, the relationship between the entities were presented in an ER-Diagram and all of the attributes of each entities were described in detail in form of data-dictionaries. Then the data dictionaries for the entities were used to create various tables interlinking them. The tables were then populated with various data and several queries were run on it. Various queries stated by the scenario was tested and each of them gave the desired information as output. All of the steps succeeded which concludes that the implementation of the so created database model was correct and can run in real world environments. So by finalizing the database the dump file and the '.sql' files containing all the necessary commands, queries, and steps were put in the development folder.

2. Critical Assessment of coursework

As database has become more and more useful due to its ability to manage any automatic task of recording various activities and information, It has become very important to understand the mechanics of the databases. As database is very versatile and can be used to store any kind of information it is also quite important to understand the scenario and implement a proper database to store the information provided and to make retrieving data more easy and efficient. In this coursework a database model was designed to store information about every employee, customer, movies and shows and all of the bookings shows how a real life problem of storing complex interconnected information can be easily stored in a database with minimal redundancy and how easily this information can be retrieved when required. All of the mentioned reasons are why databases are swiftly taking over the information handling process and why this module is important to understand the basic methods of designing and understanding the mechanics of a database.

Database Systems module is a very interesting and important module as it deals with designing and implementing databases. This module mostly consists of the theoretical part dealing with the creation of entities and relation of the database in real life scenarios and also provides practical insight on how to solve them. As a right database model can make a huge impact on managing data so designing a database model correctly is crucial for any system. To implement the database in this module, oracle database management system was used which is quite similar to the previous MySQL DBMS. This module teaches various ways to use oracle DBMS such as to create tables, populate the tables, search for specific information stored in the database. This module also deals with most of the datatypes that can be used in oracle DBMS and also various alternative methods for doing tasks so that managing database will be easier in the future. This module and the coursework will greatly increase both the practical and theoretical knowledge on databases so it is quite important for one's carrier.

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Song, I.-Y., Evans, M. & Park, E. K., 1994. A Comparative Analysis of Entity-Relationship Diagrams. *Journal of Computer and Software Engineering*, 3(4), pp. 427-459.

Watt, A., 2012. *Database Design*. 2nd ed. Vancouver: BCcampus Open Textbook.

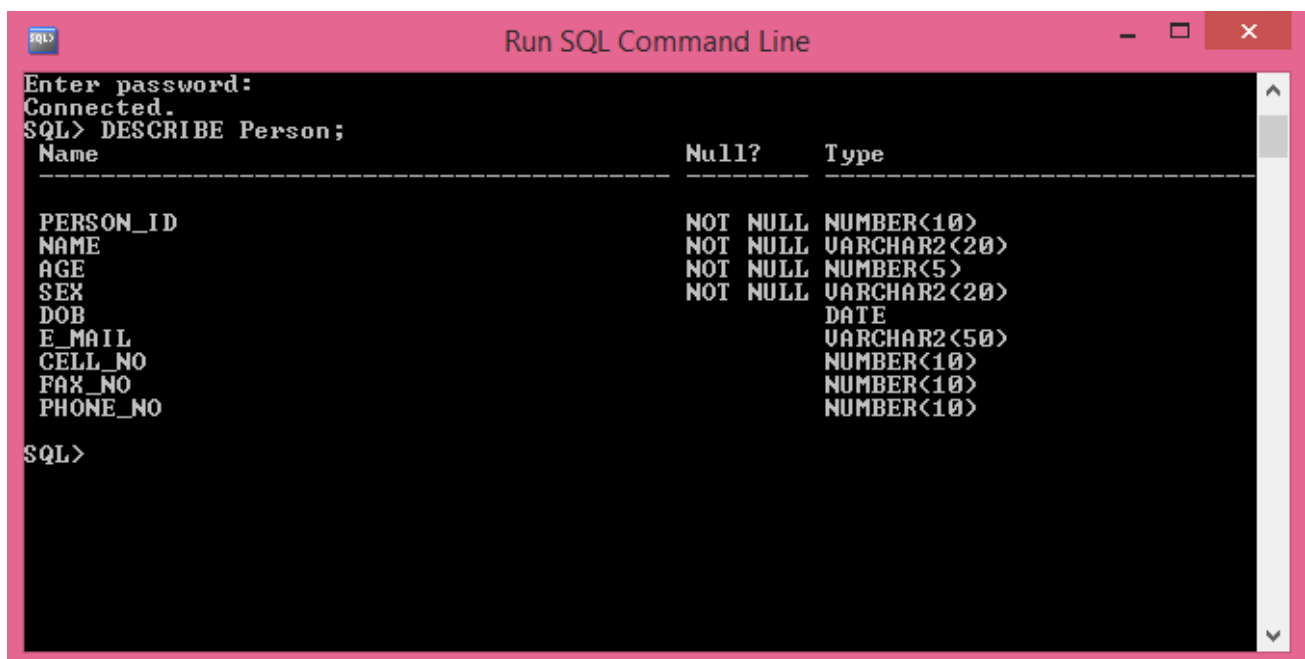
Appendix

User: ShresthaRajat

Password: pwrđ

Detailed Specification of each table:

- Person



The screenshot shows a SQL Command Line window titled "Run SQL Command Line". The window has a pink title bar with standard Windows window controls. The command prompt shows the following text:

```
Enter password:
Connected.
SQL> DESCRIBE Person;
```

Name	Null?	Type
PERSON_ID	NOT NULL	NUMBER(10)
NAME	NOT NULL	VARCHAR2(20)
AGE	NOT NULL	NUMBER(5)
SEX	NOT NULL	VARCHAR2(20)
DOB		DATE
E_MAIL		VARCHAR2(50)
CELL_NO		NUMBER(10)
FAX_NO		NUMBER(10)
PHONE_NO		NUMBER(10)

The command prompt ends with "SQL>".

- Employee, Customer and Address

```

Run SQL Command Line

SQL> DESCRIBE Employee;
Name                               Null?    Type
-----
PERSON_ID                          NOT NULL NUMBER(10)
JOB                                NOT NULL VARCHAR2(20)
SALARY                             NOT NULL NUMBER(10)

SQL> DESCRIBE Customer;
Name                               Null?    Type
-----
PERSON_ID                          NOT NULL NUMBER(10)
TYPE                               NOT NULL VARCHAR2(20)

SQL> describe address;
Name                               Null?    Type
-----
PERSON_ID                          NOT NULL NUMBER(10)
LOCATION_ID                         NOT NULL NUMBER(10)
POB_ADDRESS                        NOT NULL VARCHAR2(1)

SQL> _

```

- Location

```

Run SQL Command Line

LOCATION_ID                          NOT NULL NUMBER(10)
POB_ADDRESS                        NOT NULL VARCHAR2(1)

SQL> describe location
Name                               Null?    Type
-----
LOCATION_ID                         NOT NULL NUMBER(10)
COUNTRY                           NOT NULL VARCHAR2(20)
ZONE                              NOT NULL VARCHAR2(20)
CITY                              NOT NULL VARCHAR2(20)
STREET                            NOT NULL VARCHAR2(20)
STREET_NAME                       NOT NULL VARCHAR2(20)

SQL> _

```


- Show and movie

```

SQL> describe show
Name          Null?      Type
-----
SHOW_ID       NOT NULL  NUMBER(10)
MEAL          NOT NULL  VARCHAR2(20)
USHER         NOT NULL  NUMBER(10)
SHOW_DATE     NOT NULL  DATE
SHOW_TIME     NOT NULL  NUMBER(10)
HALL          NOT NULL  VARCHAR2(20)
MOVIE_NAME    NOT NULL  VARCHAR2(20)

SQL> describe movie
Name          Null?      Type
-----
MOVIE_NAME    NOT NULL  VARCHAR2(20)
RATING        NOT NULL  NUMBER(10)
DURATION      NOT NULL  NUMBER(10)

SQL> _

```

- Accommodation and Booking

```

SQL> describe accommodation
Name          Null?      Type
-----
ACCOMMODATION NOT NULL  VARCHAR2(20)
PRICE         NOT NULL  NUMBER(10)

SQL> describe booking
Name          Null?      Type
-----
PERSON_ID     NOT NULL  NUMBER(10)
SHOW_ID       NOT NULL  NUMBER(10)
NO_TICKETS    NOT NULL  NUMBER(10)
BOOKING_DATE  NOT NULL  DATE
ACCOMMODATION NOT NULL  VARCHAR2(20)

SQL>

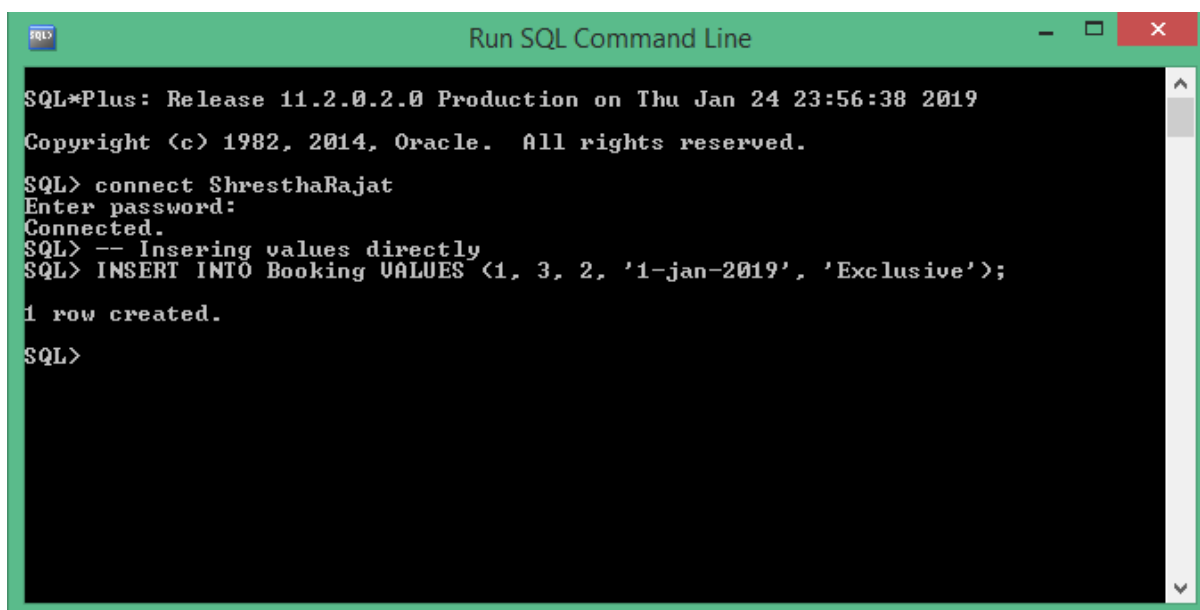
```

Inserting values by different methods:

While entering the data into the tables there are many methods by which we can insert data which are:

- **Directly Inserting values:**

```
INSERT INTO Booking VALUES (1, 3, 2, '1-jan-2019', 'Exclusive');
```



The screenshot shows a window titled "Run SQL Command Line" with a green header bar. The window contains a black terminal area with white text. The text shows the SQL*Plus release information, the user connecting as 'ShresthaRajat', and the successful execution of the INSERT statement. The output indicates that 1 row was created.

```
SQL*Plus: Release 11.2.0.2.0 Production on Thu Jan 24 23:56:38 2019
Copyright (c) 1982, 2014, Oracle. All rights reserved.

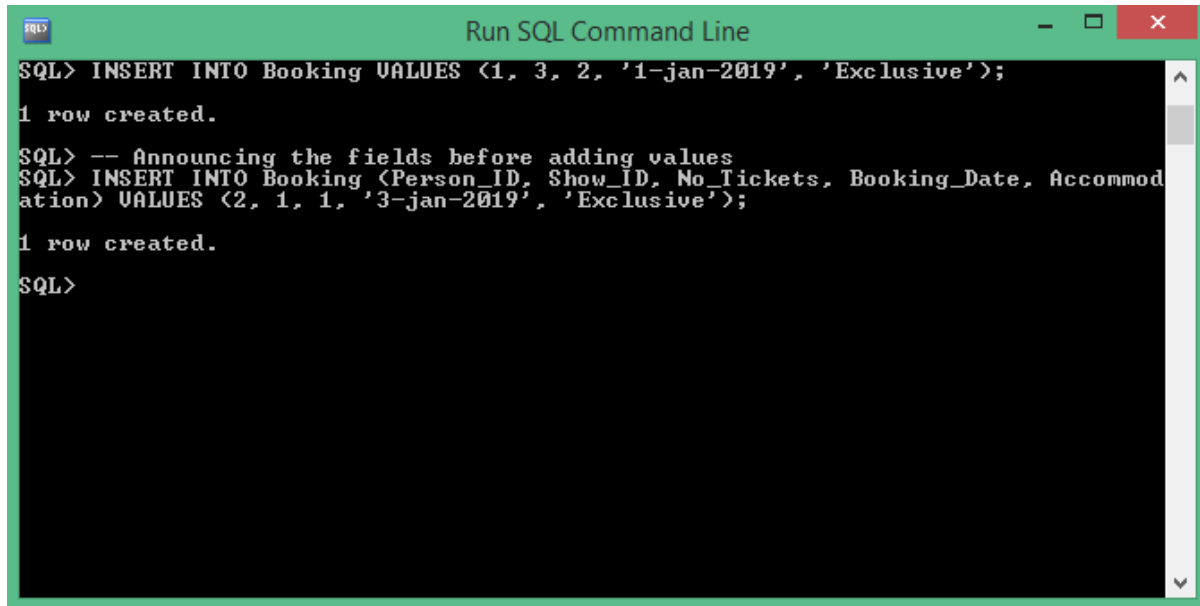
SQL> connect ShresthaRajat
Enter password:
Connected.
SQL> -- Inserting values directly
SQL> INSERT INTO Booking VALUES (1, 3, 2, '1-jan-2019', 'Exclusive');

1 row created.

SQL>
```

- **Announcing the fields before adding values:**

```
INSERT INTO Booking (Person_ID, Show_ID, No_Tickets, Booking_Date, Accommodation) VALUES (2, 1, 1, '3-jan-2019', 'Exclusive');
```



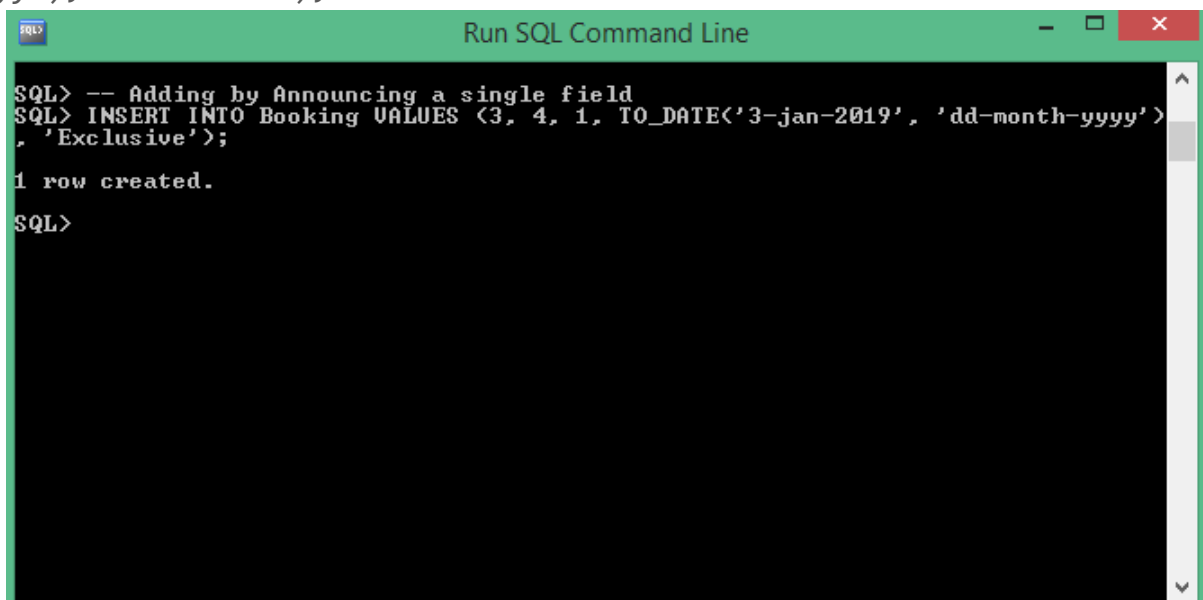
```
SQL> INSERT INTO Booking VALUES (1, 3, 2, '1-jan-2019', 'Exclusive');
1 row created.

SQL> -- Announcing the fields before adding values
SQL> INSERT INTO Booking (Person_ID, Show_ID, No_Tickets, Booking_Date, Accommodation) VALUES (2, 1, 1, '3-jan-2019', 'Exclusive');
1 row created.

SQL>
```

- **Adding by Announcing a single field**

```
INSERT INTO Booking VALUES (3, 4, 1, TO_DATE('3-jan-2019', 'dd-month-yyyy'), 'Exclusive');
```



```
SQL> -- Adding by Announcing a single field
SQL> INSERT INTO Booking VALUES (3, 4, 1, TO_DATE('3-jan-2019', 'dd-month-yyyy'), 'Exclusive');
1 row created.

SQL>
```

- Adding into two separate tables directly

```
INSERT ALL INTO Employee VALUES (6, 'Usher', 20000)
INTO Customer VALUES (6, 'Old Customer') SELECT * FROM DUAL;
```

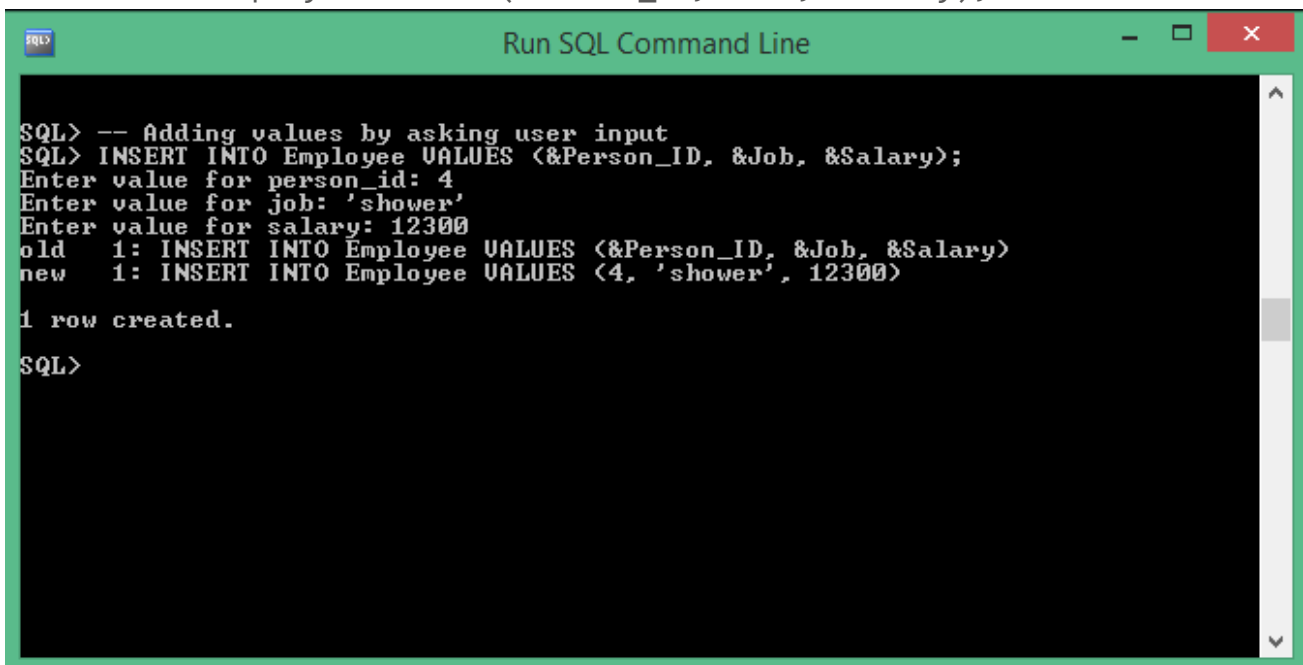


The screenshot shows a window titled "Run SQL Command Line" with a black background and green text. The text displays the execution of an SQL command. It starts with "1 row created." followed by the command: "SQL> INSERT ALL INTO Employee VALUES (6, 'Usher', 20000) INTO Customer VALUES (6, 'Old Customer') SELECT * FROM DUAL;". This is followed by "2 rows created." and the prompt "SQL> _".

```
SQL>
1 row created.
SQL> INSERT ALL INTO Employee VALUES (6, 'Usher', 20000)
      2 INTO Customer VALUES (6, 'Old Customer') SELECT * FROM DUAL;
2 rows created.
SQL> _
```

- Adding values by asking user input:

```
INSERT INTO Employee VALUES (&Person_ID, &Job, &Salary);
```

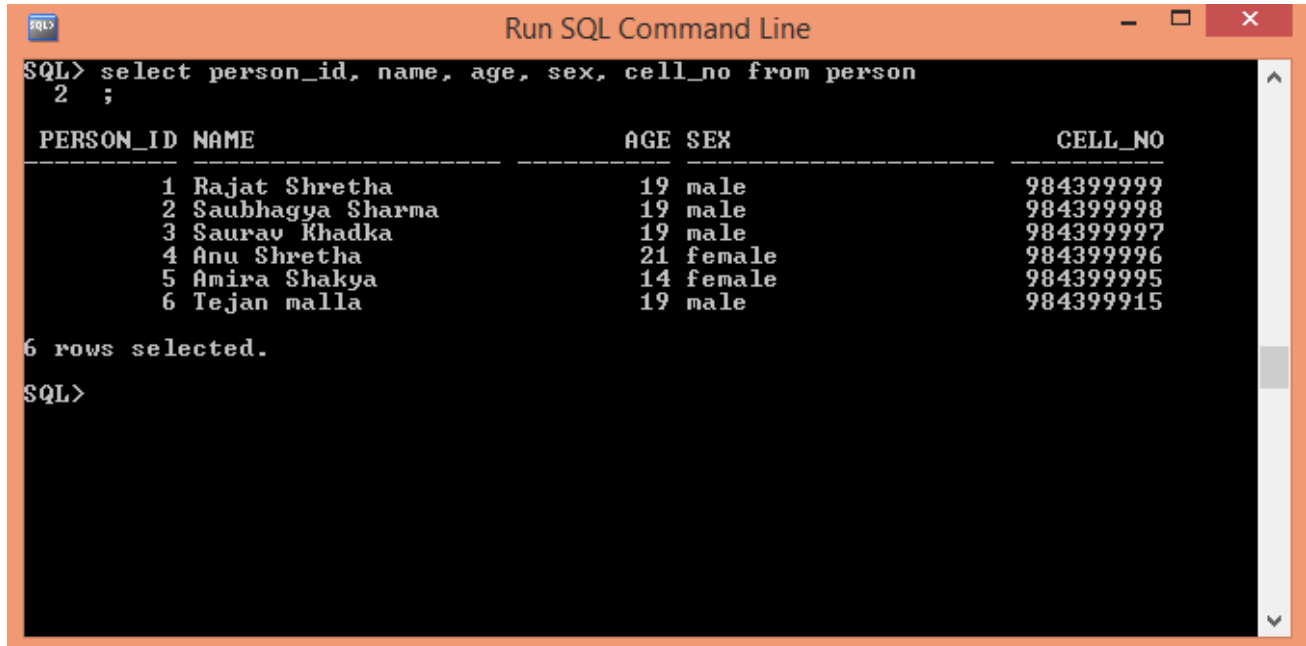


The screenshot shows a window titled "Run SQL Command Line" with a black background and green text. It shows an interactive SQL session. The command is "SQL> -- Adding values by asking user input SQL> INSERT INTO Employee VALUES (&Person_ID, &Job, &Salary);". The prompt "Enter value for person_id:" is followed by the input "4". The prompt "Enter value for job:" is followed by the input "'shower'". The prompt "Enter value for salary:" is followed by the input "12300". The command is then executed, showing "old 1: INSERT INTO Employee VALUES (&Person_ID, &Job, &Salary)" and "new 1: INSERT INTO Employee VALUES (4, 'shower', 12300)". This is followed by "1 row created." and the prompt "SQL>".

```
SQL>
SQL> -- Adding values by asking user input
SQL> INSERT INTO Employee VALUES (&Person_ID, &Job, &Salary);
Enter value for person_id: 4
Enter value for job: 'shower'
Enter value for salary: 12300
old 1: INSERT INTO Employee VALUES (&Person_ID, &Job, &Salary)
new 1: INSERT INTO Employee VALUES (4, 'shower', 12300)
1 row created.
SQL>
```

Contents of the tables after adding values:

- Person

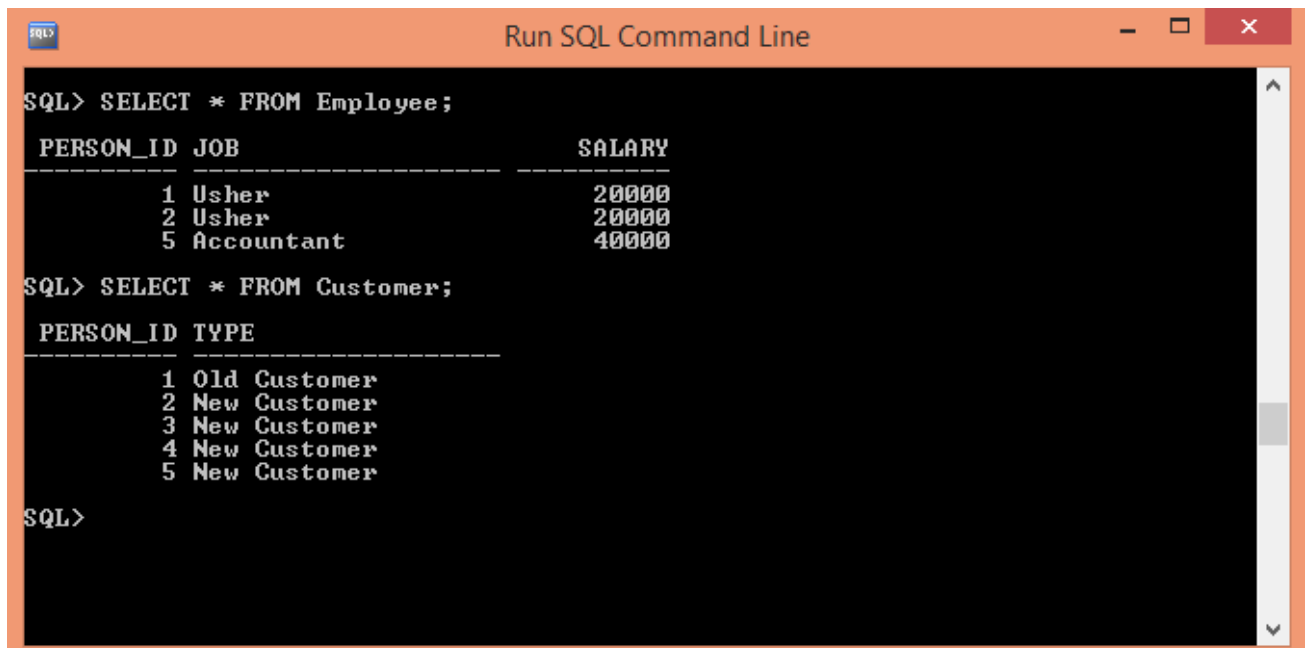


```
SQL> select person_id, name, age, sex, cell_no from person
2 ;
```

PERSON_ID	NAME	AGE	SEX	CELL_NO
1	Rajat Shretha	19	male	984399999
2	Saubhagya Sharma	19	male	984399998
3	Saurav Khadka	19	male	984399997
4	Anu Shretha	21	female	984399996
5	Amira Shakya	14	female	984399995
6	Tejan malla	19	male	984399915

```
6 rows selected.
SQL>
```

- Employee and Customer



```
SQL> SELECT * FROM Employee;
```

PERSON_ID	JOB	SALARY
1	Usher	20000
2	Usher	20000
5	Accountant	40000

```
SQL> SELECT * FROM Customer;
```

PERSON_ID	TYPE
1	Old Customer
2	New Customer
3	New Customer
4	New Customer
5	New Customer

```
SQL>
```

- Address and Location

```

SQL> SELECT * FROM Address;
  PERSON_ID LOCATION_ID P
  -----
        1          1 y
        2          2 y
        3          3 y
        1          4 n
        4          4 y
        5          4 y
6 rows selected.

SQL> SELECT location_id, city, street_name FROM Location;
LOCATION_ID CITY                STREET_NAME
  -----
        1 Kathmandu            Town-planning Rd
        2 Kathmandu            Bhawan
        3 Kathmandu            Kilagal
        4 Kathmandu            Bhagwan Pau
SQL>

```

- Show, Movie and Accommodation

```

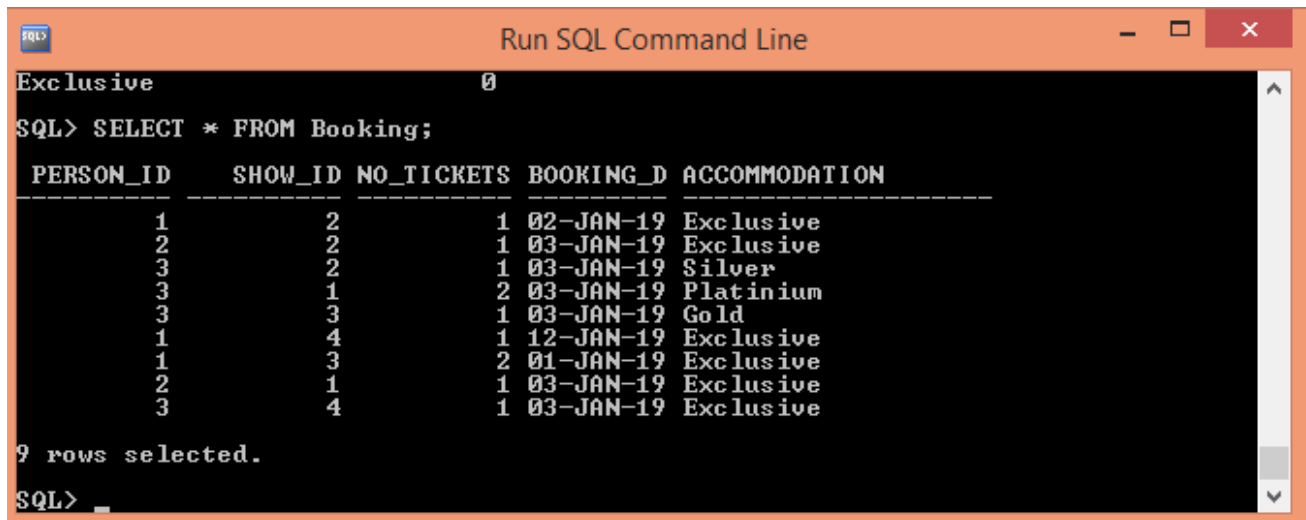
SQL> SELECT show_id, show_date, show_time, movie_name, hall FROM Show;
  SHOW_ID SHOW_DATE  SHOW_TIME MOVIE_NAME  HALL
  -----
        1 11-JAN-19      900 Aquawoman   A
        2 11-JAN-19     2100 Bohemien    B
        3 11-JAN-19     2100 Sinatra    A
        4 12-JAN-19     1200 Sinatra    B

SQL> SELECT * FROM Movie;
MOVIE_NAME          RATING  DURATION
  -----
Aquawoman              9       100
Bohemien              10       130
Sinatra                7       140

SQL> SELECT * FROM accommodation;
ACCOMMODATION      PRICE
  -----
Platinum           500
Gold               400
Silver             300
Exclusive           0

```

- Booking



The screenshot shows a SQL Command Line window titled "Run SQL Command Line". The command entered is `SQL> SELECT * FROM Booking;`. The output displays 9 rows of data from the Booking table. The columns are PERSON_ID, SHOW_ID, NO_TICKETS, BOOKING_D, and ACCOMMODATION. The data is as follows:

PERSON_ID	SHOW_ID	NO_TICKETS	BOOKING_D	ACCOMMODATION
1	2	1	02-JAN-19	Exclusive
2	2	1	03-JAN-19	Exclusive
3	2	1	03-JAN-19	Silver
3	1	2	03-JAN-19	Platinum
3	3	1	03-JAN-19	Gold
1	4	1	12-JAN-19	Exclusive
1	3	2	01-JAN-19	Exclusive
2	1	1	03-JAN-19	Exclusive
3	4	1	03-JAN-19	Exclusive

9 rows selected.
SQL> _

Exporting and importing the dump files

To export:

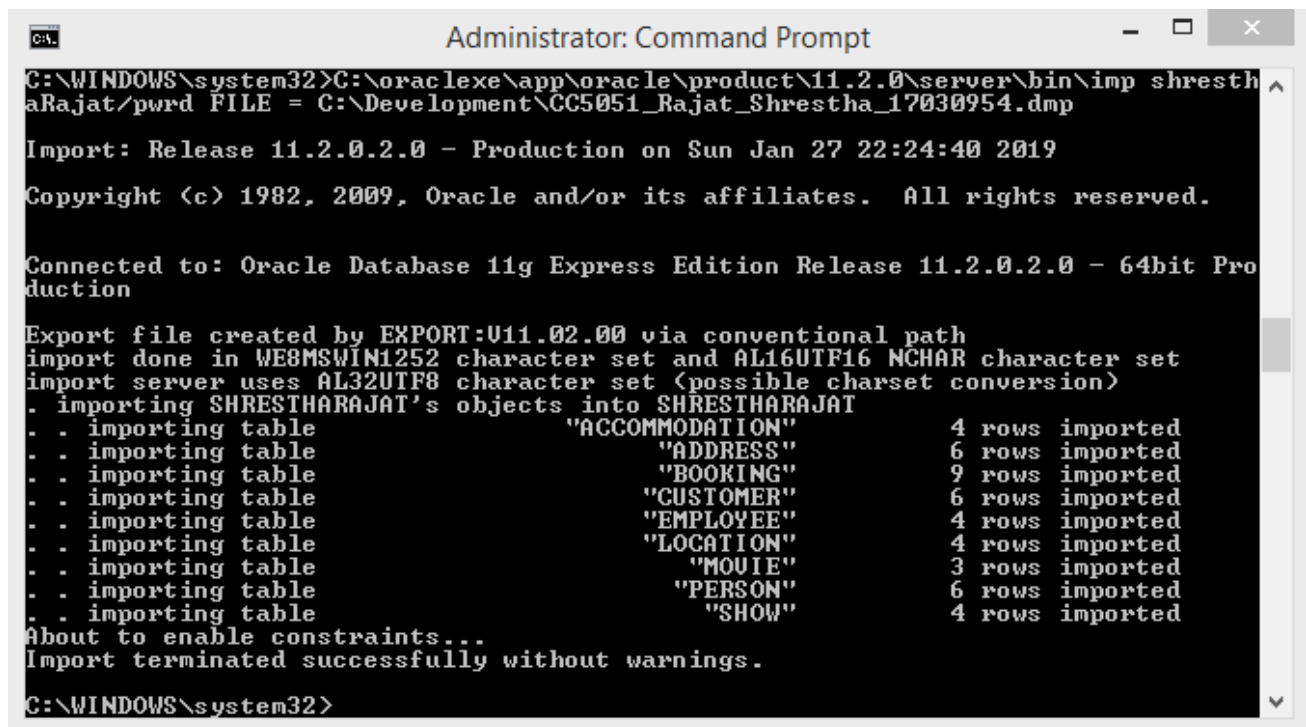
```
C:\oracle\app\oracle\product\11.2.0\server\bin\exp shresthaRajat/pwr
FILE = C:\Development\CC5051_Rajat_Shrestha_17030954.dmp LOG =
C:\Development\CC5051_Rajat_Shrestha_17030954.log
```

```

Connected to: Oracle Database 11g Express Edition Release 11.2.0.2.0 - 64bit Production
Export done in WE8MSWIN1252 character set and AL16UTF16 NCHAR character set
server uses AL32UTF8 character set (possible charset conversion)
. exporting pre-schema procedural objects and actions
. exporting foreign function library names for user SHRESTHARAJAT
. exporting PUBLIC type synonyms
. exporting private type synonyms
. exporting object type definitions for user SHRESTHARAJAT
About to export SHRESTHARAJAT's objects ...
. exporting database links
. exporting sequence numbers
. exporting cluster definitions
. about to export SHRESTHARAJAT's tables via Conventional Path ...
. . exporting table ACCOMMODATION 4 rows exported
. . exporting table ADDRESS 6 rows exported
. . exporting table BOOKING 9 rows exported
. . exporting table CUSTOMER 6 rows exported
. . exporting table EMPLOYEE 4 rows exported
. . exporting table LOCATION 4 rows exported
. . exporting table MOVIE 3 rows exported
. . exporting table PERSON 6 rows exported
. . exporting table SHOW 4 rows exported
. exporting synonyms
. exporting views
. exporting stored procedures
. exporting operators
. exporting referential integrity constraints
. exporting triggers
. exporting indextypes
. exporting bitmap, functional and extensible indexes
. exporting posttables actions
. exporting materialized views
. exporting snapshot logs
. exporting job queues
. exporting refresh groups and children
. exporting dimensions
. exporting post-schema procedural objects and actions
. exporting statistics
Export terminated successfully without warnings.
```


To import:

```
C:\oracle\app\oracle\product\11.2.0\server\bin\imp shresthaRajat/pwd  
FILE = C:\Development\CC5051_Rajat_Shrestha_17030954.dmp
```



```
Administrator: Command Prompt  
C:\WINDOWS\system32>C:\oracle\app\oracle\product\11.2.0\server\bin\imp shresth  
aRajat/pwd FILE = C:\Development\CC5051_Rajat_Shrestha_17030954.dmp  
Import: Release 11.2.0.2.0 - Production on Sun Jan 27 22:24:40 2019  
Copyright (c) 1982, 2009, Oracle and/or its affiliates. All rights reserved.  
  
Connected to: Oracle Database 11g Express Edition Release 11.2.0.2.0 - 64bit Pro  
duction  
Export file created by EXPORT:V11.02.00 via conventional path  
import done in WE8MSWIN1252 character set and AL16UTF16 NCHAR character set  
import server uses AL32UTF8 character set (possible charset conversion)  
. importing SHRESTHARAJAT's objects into SHRESTHARAJAT  
. . importing table "ACCOMMODATION" 4 rows imported  
. . importing table "ADDRESS" 6 rows imported  
. . importing table "BOOKING" 9 rows imported  
. . importing table "CUSTOMER" 6 rows imported  
. . importing table "EMPLOYEE" 4 rows imported  
. . importing table "LOCATION" 4 rows imported  
. . importing table "MOVIE" 3 rows imported  
. . importing table "PERSON" 6 rows imported  
. . importing table "SHOW" 4 rows imported  
About to enable constraints...  
Import terminated successfully without warnings.  
C:\WINDOWS\system32>
```

Development Folder with sql codes, dump files and miscellaneous text files: