PROJECT FOR SQL MODULE

RENTAL MOVIES MANAGEMENT

INSTITUTE NAME :- I.T VEDANT EDUCATION PVT LTD

COURSE NAME :- MASTER IN DATA SCIENCE & DATA ANALYTICS WITH ARTIFICIAL INTELLIGENCE

STUDENT NAME :- ROHAN DINESH RAJBHAR

EMAIL ID :- ROHANRAJBHAR2020@GMAIL.COM

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PROJECT ENDDATE :- 27-07-2024

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PROJECT AIMS :-

The aim of this Rental Movie Management project is to create a comprehensive database system for managing customer information, movie inventory, and rental transactions. This project focuses on designing and implementing a relational database with three main tables: Customers, Movies, and Rentals.

1. **Efficient Data Management:**
    - To create a structured database that efficiently stores and manages customer, movie, and rental data.
    - Ensure data integrity through the use of primary and foreign keys.
2. **Customer Management:**
    - To maintain a detailed record of customers, including personal information and contact details.
    - Facilitate easy retrieval and update of customer information.

3. **Movie Catalog Management:**
    - To maintain an extensive catalog of movies, including details like movie name, genre, release year, rating, and available copies.
    - Enable efficient tracking of movie inventory and availability.
4. **Rental Transactions:**
    - To record and manage rental transactions, including rental date, return date, due date, rental amount, and payment details.
    - Facilitate accurate tracking of overdue rentals and pending payments.
5. **Reporting and Analytics:**
    - To generate reports and analytics for better decision-making and business insights.
    - Track popular movies, frequent customers, and rental trends.
6. **User-Friendly Interface:**
    - To develop a user-friendly interface for customers and staff to interact with the database.

- Simplify tasks like searching for movies, renting movies, and updating customer information.

7. **Security and Access Control:**
   - To implement security measures to protect sensitive customer data.
   - Ensure that only authorized personnel can access or modify the database.
8. **Customer Satisfaction:**
   - To enhance customer satisfaction by providing a seamless rental experience.
   - Enable efficient handling of customer queries and issues.

These aims collectively contribute to the development of a comprehensive and robust movie rental database that supports the operational needs of the business while ensuring data integrity, security, and scalability.

PROJECT OBJECTIVES :-

The Objectives Of Rental Movies Management are as follows:

1. **Design and Development:**

- **Objective:** Create a relational database schema and develop it using a robust and scalable DBMS.
- **Information:** This involves defining tables for customers, movies, and rentals, establishing relationships and constraints, and ensuring data integrity. The choice of DBMS should support scalability and performance.

2. **User Interface:**

- **Objective:** Develop a user-friendly interface for database interaction, including forms for adding, updating, and deleting records, and search functionality.
- **Information:** The interface should be intuitive and accessible, allowing users to easily navigate and perform tasks. Features like form validation and search filters enhance usability and efficiency.

3. **Rental Process Management:**

- **Objective:** Implement features for managing the rental process, including checkouts, returns, and due date calculations.
- **Information:** This includes tracking rental status, calculating due dates, and handling returns. Automated notifications for overdue rentals and managing outstanding payments are essential for smooth operations.

4. **Payment Processing:**

- **Objective:** Integrate secure payment methods such as credit cards, debit cards, cash, and UPI for processing rental transactions.
- **Information:** Payment processing should be secure and reliable, with support for various payment methods. Ensuring compliance with payment security standards (e.g., PCI-DSS) is crucial.

5. **Reporting and Analytics:**

- **Objective:** Develop tools for generating insights and detailed reports on rental activity, inventory status, and financial performance.
- **Information:** Reporting tools should provide valuable insights into business performance, such as popular movies, customer behavior, and financial metrics. This helps in decision-making and strategic planning.

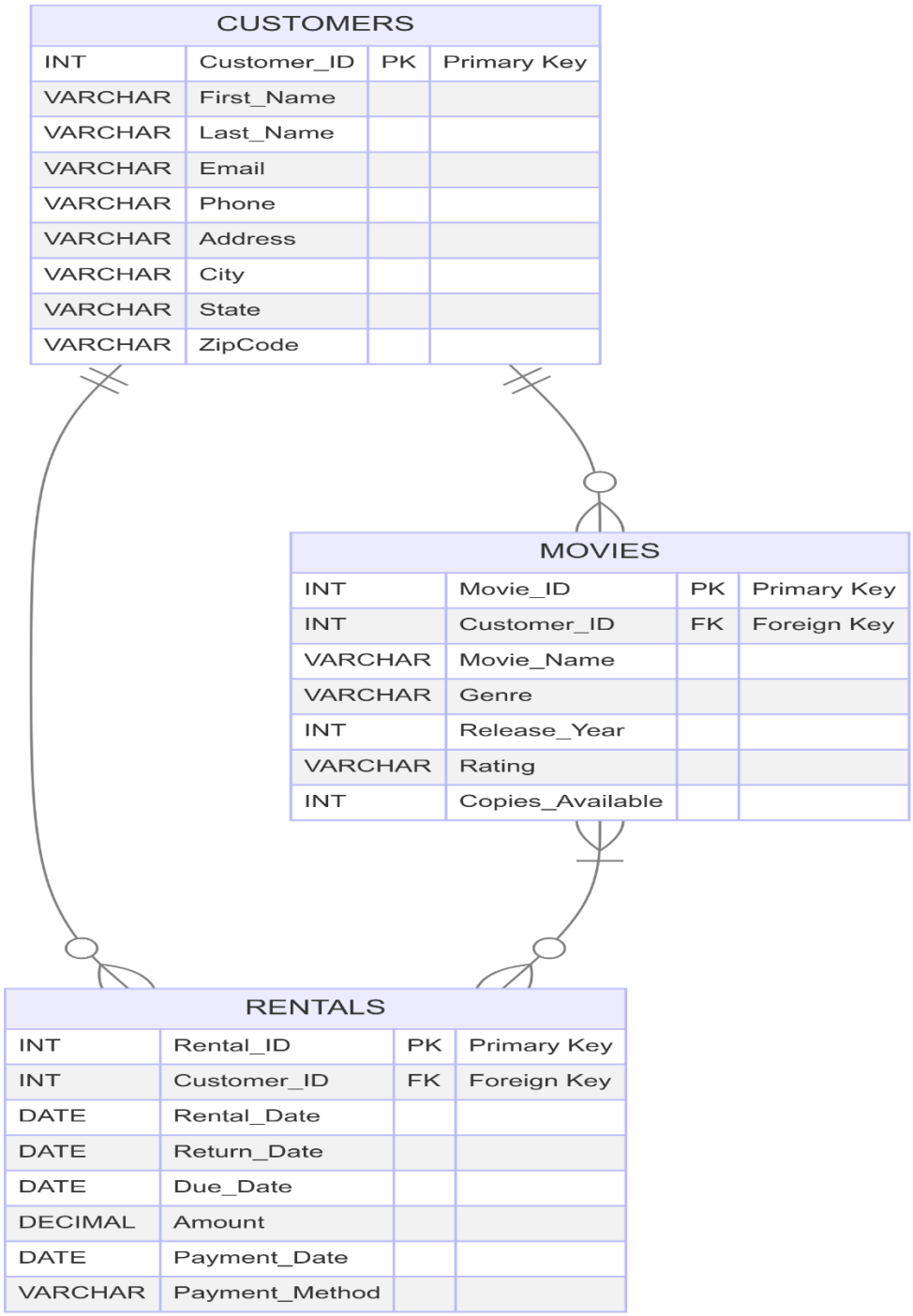
6. **Security and Access Control:**

- **Objective:** Implement role-based access control, data encryption, and secure handling of customer and payment information to ensure data security and compliance.
- **Information:** Security measures include controlling access to sensitive data, encrypting data both in transit and at rest, and ensuring compliance with data protection regulations. Regular security audits and updates are necessary to maintain a secure environment.

Diagrams

❖Entity Relationship Diagram :-

- This ER diagram represents a movie rental system with three entities:- Customers, Movies, and Rentals.



❖Table Description :-

1.Table Name :- Customers

Field	Type	Null	Key	Default	Extra
Customer_ID	int(11)	NO	PRI	NULL	
First_Name	varchar(50)	YES		NULL	
Last_Name	varchar(50)	YES		NULL	
Email	varchar(100)	YES		NULL	
Phone	varchar(20)	YES		NULL	
Address	varchar(255)	YES		NULL	
City	varchar(50)	YES		NULL	
State	varchar(50)	YES		NULL	
ZipCode	varchar(10)	YES		NULL	

2. Table Name :- Movies

Field	Type	Null	Key	Default	Extra
Rental_ID	int(11)	NO	PRI	NULL	
Customer_ID	int(11)	YES	MUL	NULL	
Rental_Date	date	YES		NULL	
Return_Date	date	YES		NULL	
Due_Date	date	YES		NULL	
Amount	decimal(10,2)	YES		NULL	
Payment_Date	date	YES		NULL	
Payment_Method	varchar(50)	YES		NULL	

3. Table Name :- Rentals

Field	Type	Null	Key	Default	Extra
Movie_ID	int(11)	NO	PRI	NULL	
Customer_ID	int(11)	YES	MUL	NULL	
Movie_Name	varchar(100)	YES		NULL	
Genre	varchar(50)	YES		NULL	
Release_Year	int(11)	YES		NULL	
Rating	varchar(10)	YES		NULL	
Copies_Available	int(11)	YES		NULL	

❖ Commands :-

➢ Table_1 :-

```
CREATE TABLE Customers (

Customer_ID INT PRIMARY KEY not null,

First_Name VARCHAR(50),

Last_Name VARCHAR(50),

Email VARCHAR(100),

Phone VARCHAR(20),

Address VARCHAR(255),

City VARCHAR(50),

State VARCHAR(50),

ZipCode VARCHAR(10)

);

INSERT INTO Customers (Customer_ID, First_Name,
Last_Name, Email, Phone, Address, City, State, ZipCode)
VALUES
```

(1, 'Amit', 'Sharma', 'amit.sharma@example.com', '9123456789', '123 Street Name', 'Delhi', 'Delhi', '110001'),

(2, 'Neha', 'Verma', 'neha.verma@example.com', '9123456790', '456 Lane Name', 'Mumbai', 'Maharashtra', '400001'),

(3, 'Rajesh', 'Kumar', 'rajesh.kumar@example.com', '9123456791', '789 Boulevard', 'Kolkata', 'West Bengal', '700001'),

(4, 'Priya', 'Singh', 'priya.singh@example.com', '9123456792', '1011 Avenue', 'Chennai', 'Tamil Nadu', '600001'),

(5, 'Vikram', 'Joshi', 'vikram.joshi@example.com', '9123456793', '1213 Main Street', 'Bangalore', 'Karnataka', '560001'),

(6, 'Ravi', 'Patel', 'ravi.patel@example.com', '9123456794', '1415 Circle Drive', 'Ahmedabad', 'Gujarat', '380001'),

(7, 'Sunita', 'Desai', 'sunita.desai@example.com', '9123456795', '1617 Lake View', 'Pune', 'Maharashtra', '411001'),

(8, 'Arjun', 'Reddy', 'arjun.reddy@example.com', '9123456796', '1819 Hillside Road', 'Hyderabad', 'Telangana', '500001'),

(9, 'Anita', 'Menon', 'anita.menon@example.com', '9123456797', '2021 River Path', 'Kochi', 'Kerala', '682001'),

(10, 'Gaurav', 'Saxena', 'gaurav.saxena@example.com', '9123456798', '2223 Pine Street', 'Jaipur', 'Rajasthan', '302001'),

(11, 'Kavita', 'Nair', 'kavita.nair@example.com', '9123456799', '2425 Maple Avenue', 'Thiruvananthapuram', 'Kerala', '695001'),

(12, 'Manoj', 'Gupta', 'manoj.gupta@example.com', '9123456800', '2627 Oak Road', 'Lucknow', 'Uttar Pradesh', '226001'),

(13, 'Ramesh', 'Yadav', 'ramesh.yadav@example.com', '9123456801', '2829 Palm Street', 'Patna', 'Bihar', '800001'),

(14, 'Sonal', 'Kapoor', 'sonal.kapoor@example.com', '9123456802', '3031 Cedar Drive', 'Indore', 'Madhya Pradesh', '452001'),

(15, 'Anil', 'Aggarwal', 'anil.aggarwal@example.com', '9123456803', '3233 Elm Lane', 'Bhopal', 'Madhya Pradesh', '462001'),

(16, 'Preeti', 'Bajaj', 'preeti.bajaj@example.com', '9123456804', '3435 Birch Blvd', 'Kanpur', 'Uttar Pradesh', '208001'),

(17, 'Deepak', 'Rana', 'deepak.rana@example.com', '9123456805', '3637 Fir Street', 'Nagpur', 'Maharashtra', '440001'),

(18, 'Meena', 'Soni', 'meena.soni@example.com', '9123456806', '3839 Spruce Avenue', 'Vadodara', 'Gujarat', '390001'),

(19, 'Ajay', 'Jain', 'ajay.jain@example.com', '9123456807', '4041 Ash Lane', 'Ludhiana', 'Punjab', '141001'),

(20, 'Pooja', 'Chopra', 'pooja.chopra@example.com', '9123456808', '4243 Pine Road', 'Coimbatore', 'Tamil Nadu', '641001'),

(21, 'Suresh', 'Mishra', 'suresh.mishra@example.com', '9123456809', '4445 Redwood Drive', 'Visakhapatnam', 'Andhra Pradesh', '530001'),

(22, 'Rita', 'Kaur', 'rita.kaur@example.com', '9123456810', '4647 Willow Street', 'Vijayawada', 'Andhra Pradesh', '520001'),

(23, 'Mukesh', 'Arora', 'mukesh.arora@example.com', '9123456811', '4849 Chestnut Blvd', 'Guwahati', 'Assam', '781001'),

(24, 'Kiran', 'Joshi', 'kiran.joshi@example.com', '9123456812', '5051 Linden Avenue', 'Nashik', 'Maharashtra', '422001'),

(25, 'Alok', 'Mehta', 'alok.mehta@example.com', '9123456813', '5253 Aspen Road', 'Agra', 'Uttar Pradesh', '282001'),

(26, 'Smita', 'Rao', 'smita.rao@example.com', '9123456814', '5455 Magnolia Lane', 'Varanasi', 'Uttar Pradesh', '221001'),

(27, 'Vivek', 'Bansal', 'vivek.bansal@example.com', '9123456815', '5657 Poplar Street', 'Amritsar', 'Punjab', '143001'),

(28, 'Shalini', 'Roy', 'shalini.roy@example.com', '9123456816', '5859 Cypress Drive', 'Rajkot', 'Gujarat', '360001'),

(29, 'Rahul', 'Shah', 'rahul.shah@example.com', '9123456817', '6061 Acacia Road', 'Faridabad', 'Haryana', '121001'),

(30, 'Geeta', 'Patel', 'geeta.patel@example.com', '9123456818', '6263 Bamboo Blvd', 'Ghaziabad', 'Uttar Pradesh', '201001'),

(31, 'Nitin', 'Singh', 'nitin.singh@example.com', '9123456819', '6465 Maple Avenue', 'Meerut', 'Uttar Pradesh', '250001'),

(32, 'Lakshmi', 'Nadkarni', 'lakshmi.nadkarni@example.com', '9123456820', '6667 Oak Road', 'Aurangabad', 'Maharashtra', '431001'),

(33, 'Sanjay', 'Kumar', 'sanjay.kumar@example.com', '9123456821', '6869 Palm Street', 'Solapur', 'Maharashtra', '413001'),

(34, 'Priya', 'Reddy', 'priya.reddy@example.com', '9123456822', '7071 Cedar Drive', 'Tiruchirappalli', 'Tamil Nadu', '620001'),

(35, 'Rohit', 'Gupta', 'rohit.gupta@example.com', '9123456823', '7273 Elm Lane', 'Bareilly', 'Uttar Pradesh', '243001'),

(36, 'Sneha', 'Sinha', 'sneha.sinha@example.com', '9123456824', '7475 Birch Blvd', 'Jabalpur', 'Madhya Pradesh', '482001'),

(37, 'Aakash', 'Verma', 'aakash.verma@example.com', '9123456825', '7677 Fir Street', 'Jamshedpur', 'Jharkhand', '831001'),

(38, 'Swati', 'Deshmukh', 'swati.deshmukh@example.com', '9123456826', '7879 Spruce Avenue', 'Dehradun', 'Uttarakhand', '248001'),

(39, 'Pankaj', 'Jain', 'pankaj.jain@example.com', '9123456827', '8081 Ash Lane', 'Kota', 'Rajasthan', '324001'),

(40, 'Mona', 'Arora', 'mona.arora@example.com', '9123456828', '8283 Pine Road', 'Gwalior', 'Madhya Pradesh', '474001');

Table_2 :-

```
CREATE TABLE Movies (

Movie_ID INT PRIMARY KEY not null,

Customer_ID INT,

Movie_Name VARCHAR(100),

Genre VARCHAR(50),

Release_Year INT,

Rating VARCHAR(10),

Copies_Available INT,

FOREIGN KEY (Customer_ID) REFERENCES
Customers(Customer_ID));
```

```
INSERT INTO Movies (Movie_ID, Customer_ID, Movie_Name,
Genre, Release_Year, Rating, Copies_Available) VALUES

(1, 1, '3 Idiots', 'Comedy', 2009, '8.5', 120),

(2, 2, 'Dangal', 'Drama', 2016, '8.4', 135),

(3, 3, 'Baahubali: The Beginning', 'Action', 2015, '8.1', 140),

(4, 4, 'Kabir Singh', 'Romance', 2019, '7.0', 95),

(5, 5, 'PK', 'Comedy', 2014, '8.2', 130),

(6, 6, 'Tumbbad', 'Horror', 2018, '8.3', 85),

(7, 7, 'Queen', 'Drama', 2013, '8.1', 145),

(8, 8, 'Chhichhore', 'Comedy', 2019, '8.0', 110),

(9, 9, 'Andhadhun', 'Thriller', 2018, '8.3', 90),

(10, 10, 'Gully Boy', 'Musical', 2019, '8.2', 115),

(11, 11, 'Lagaan', 'Drama', 2001, '8.1', 120),

(12, 12, 'Swades', 'Drama', 2004, '8.2', 130),

(13, 13, 'Barfi!', 'Romance', 2012, '8.1', 140),

(14, 14, 'Paan Singh Tomar', 'Biography', 2012, '8.2', 85),

(15, 15, 'Special 26', 'Thriller', 2013, '8.0', 125),
```

(16, 16, 'Pink', 'Drama', 2016, '8.3', 105),

(17, 17, 'Drishyam', 'Thriller', 2015, '8.2', 110),

(18, 18, 'M.S. Dhoni: The Untold Story', 'Biography', 2016, '7.8', 115),

(19, 19, 'Uri: The Surgical Strike', 'Action', 2019, '8.4', 145),

(20, 20, 'Article 15', 'Crime', 2019, '8.1', 120),

(21, 21, 'Padmaavat', 'Drama', 2018, '7.9', 130),

(22, 22, 'Sanju', 'Biography', 2018, '7.8', 110),

(23, 23, 'Bajrangi Bhaijaan', 'Drama', 2015, '8.0', 145),

(24, 24, 'Sultan', 'Drama', 2016, '7.8', 135),

(25, 25, 'Badhaai Ho', 'Comedy', 2018, '8.1', 95),

(26, 26, 'Raazi', 'Thriller', 2018, '8.0', 100),

(27, 27, 'Stree', 'Horror', 2018, '7.8', 115),

(28, 28, 'Dangal', 'Drama', 2016, '8.4', 140),

(29, 29, 'Dear Zindagi', 'Drama', 2016, '7.6', 120),

(30, 30, 'Piku', 'Comedy', 2015, '7.8', 110),

(31, 31, 'Badla', 'Thriller', 2019, '7.9', 125),

(32, 32, 'Newton', 'Drama', 2017, '8.0', 95),

(33, 33, 'Tanu Weds Manu', 'Romance', 2011, '7.5', 130),

(34, 34, 'Bhaag Milkha Bhaag', 'Biography', 2013, '8.2', 115),

(35, 35, 'Rang De Basanti', 'Drama', 2006, '8.4', 135),

(36, 36, 'Zindagi Na Milegi Dobara', 'Adventure', 2011, '8.1', 145),

(37, 37, 'Andhadhun', 'Thriller', 2018, '8.3', 125),

(38, 38, 'Gully Boy', 'Musical', 2019, '8.0', 90),

(39, 39, 'Chhichhore', 'Comedy', 2019, '8.0', 115),

(40, 40, 'Kabir Singh', 'Romance', 2019, '7.0', 85);

➢ Table_3 :-

```
CREATE TABLE Rentals (

Rental_ID INT PRIMARY KEY NOT NULL,

Customer_ID INT,

Rental_Date DATE,

Return_Date DATE,

Due_Date DATE,
```

```
Amount DECIMAL(10, 2),

Payment_Date DATE,

Payment_Method VARCHAR(50),

FOREIGN KEY (Customer_ID) REFERENCES
Customers(Customer_ID)

);

INSERT INTO Rentals (Rental_ID, Customer_ID, Rental_Date,
Return_Date, Due_Date, Amount, Payment_Date, Payment_Method)
VALUES

(1, 1, '2024-01-05', NULL, '2024-01-10', 250.00, '2024-01-05', 'Credit
Card'),

(2, 2, '2024-02-08', '2024-02-12', '2024-02-14', 180.00, '2024-02-08',
'Debit Card'),

(3, 3, '2024-03-12', NULL, '2024-03-17', 300.00, '2024-03-12',
'Cash'),

(4, 4, '2024-04-15', '2024-04-20', '2024-04-25', 230.00, '2024-04-15',
'UPI'),

(5, 5, '2024-05-19', '2024-05-23', '2024-05-30', 270.00, '2024-05-19',
'Credit Card'),
```

(6, 6, '2024-06-21', '2024-06-26', '2024-07-02', 150.00, '2024-06-21', 'Debit Card'),

(7, 7, '2024-07-10', NULL, '2024-07-15', 190.00, '2024-07-10', 'Cash'),

(8, 8, '2024-08-02', '2024-08-07', '2024-08-12', 320.00, '2024-08-02', 'UPI'),

(9, 9, '2024-09-18', '2024-09-23', '2024-09-28', 250.00, '2024-09-18', 'Credit Card'),

(10, 10, '2024-10-14', NULL, '2024-10-19', 350.00, '2024-10-14', 'Debit Card'),

(11, 11, '2024-01-15', '2024-01-20', '2024-01-25', 200.00, '2024-01-15', 'Credit Card'),

(12, 12, '2024-02-10', '2024-02-15', '2024-02-20', 220.00, '2024-02-10', 'Debit Card'),

(13, 13, '2024-03-18', NULL, '2024-03-23', 270.00, '2024-03-18', 'Cash'),

(14, 14, '2024-04-12', '2024-04-17', '2024-04-22', 300.00, '2024-04-12', 'UPI'),

(15, 15, '2024-05-15', '2024-05-20', '2024-05-25', 320.00, '2024-05-15', 'Credit Card'),

(16, 16, '2024-06-12', '2024-06-18', '2024-06-23', 350.00, '2024-06-12', 'Debit Card'),

(17, 17, '2024-07-14', NULL, '2024-07-19', 190.00, '2024-07-14', 'Cash'),

(18, 18, '2024-08-25', '2024-08-30', '2024-09-04', 300.00, '2024-08-25', 'UPI'),

(19, 19, '2024-09-12', '2024-09-17', '2024-09-22', 280.00, '2024-09-12', 'Credit Card'),

(20, 20, '2024-10-22', '2024-10-27', '2024-11-01', 320.00, '2024-10-22', 'Debit Card'),

(21, 21, '2024-11-15', '2024-11-20', '2024-11-25', 220.00, '2024-11-15', 'Credit Card'),

(22, 22, '2024-12-05', '2024-12-10', '2024-12-15', 250.00, '2024-12-05', 'Debit Card'),

(23, 23, '2024-01-23', '2024-01-28', '2024-02-02', 300.00, '2024-01-23', 'Cash'),

(24, 24, '2024-02-11', NULL, '2024-02-16', 320.00, '2024-02-11', 'UPI'),

(25, 25, '2024-03-17', '2024-03-22', '2024-03-27', 350.00, '2024-03-17', 'Credit Card'),

(26, 26, '2024-04-14', '2024-04-19', '2024-04-24', 270.00, '2024-04-14', 'Debit Card'),

(27, 27, '2024-05-20', NULL, '2024-05-25', 290.00, '2024-05-20', 'Cash'),

(28, 28, '2024-06-23', '2024-06-28', '2024-07-03', 310.00, '2024-06-23', 'UPI'),

(29, 29, '2024-07-16', '2024-07-21', '2024-07-26', 340.00, '2024-07-16', 'Credit Card'),

(30, 30, '2024-08-29', NULL, '2024-09-03', 350.00, '2024-08-29', 'Debit Card'),

(31, 31, '2024-09-18', '2024-09-23', '2024-09-28', 210.00, '2024-09-18', 'Credit Card'),

(32, 32, '2024-10-12', '2024-10-17', '2024-10-22', 220.00, '2024-10-12', 'Debit Card'),

(33, 33, '2024-11-07', NULL, '2024-11-12', 240.00, '2024-11-07', 'Cash'),

(34, 34, '2024-12-08', '2024-12-13', '2024-12-18', 250.00, '2024-12-08', 'UPI'),

(35, 35, '2024-01-27', '2024-02-01', '2024-02-06', 260.00, '2024-01-27', 'Credit Card'),

(36, 36, '2024-02-20', NULL, '2024-02-25', 280.00, '2024-02-20', 'Debit Card'),

(37, 37, '2024-03-14', '2024-03-19', '2024-03-24', 290.00, '2024-03-14', 'Cash'),

(38, 38, '2024-04-18', '2024-04-23', '2024-04-28', 300.00, '2024-04-18', 'UPI'),

(39, 39, '2024-05-12', '2024-05-17', '2024-05-22', 320.00, '2024-05-12', 'Credit Card'),

(40, 40, '2024-06-25', NULL, '2024-07-01', 350.00, '2024-06-25', 'Debit Card');

Queries And Output:-

1.Update the movies table to set customer_id to null where the customer_id is in (6, 11, 13, 20, 24, 38, 27, 21).

update movies set customer_id = null where customer_id in (6,11,13,20,24,38,27,21);

Movie_ID	Customer_ID	Movie_Name	Genre	Release_Year	Rating	Copies_Available
1	1	3 Idiots	Comedy	2009	8.5	120
2	2	Dangal	Drama	2016	8.4	135
3	3	Baahubali: The Beginning	Action	2015	8.1	140
4	4	Kabir Singh	Romance	2019	7	95
5	5	PK	Comedy	2014	8.2	130
6	NULL	Tumbbad	Horror	2018	8.3	85
7	7	Queen	Drama	2013	8.1	145
8	8	Chhichhore	Comedy	2019	8	110
9	9	Andhadhun	Thriller	2018	8.3	90
10	10	Gully Boy	Musical	2019	8.2	115
11	NULL	Lagaan	Drama	2001	8.1	120
12	12	Swades	Drama	2004	8.2	130
13	NULL	Barfi!	Romance	2012	8.1	140
14	14	Paan Singh Tomar	Biography	2012	8.2	85
15	15	Special 26	Thriller	2013	8	125
16	16	Pink	Drama	2016	8.3	105
17	17	Drishyam	Thriller	2015	8.2	110
18	18	M.S. Dhoni: The Untold Story	Biography	2016	7.8	115
19	19	Uri: The Surgical Strike	Action	2019	8.4	145
20	20	Article 15	Crime	2019	8.1	120
21	NULL	Padmaavat	Drama	2018	7.9	130
22	22	Sanju	Biography	2018	7.8	110
23	23	Bajrangi Bhaijaan	Drama	2015	8	145
24	NULL	Sultan	Drama	2016	7.8	135
25	25	Badhaai Ho	Comedy	2018	8.1	95
26	26	Raazi	Thriller	2018	8	100
27	NULL	Stree	Horror	2018	7.8	115

28	28	Dangal	Drama	2016	8.4	140
29	29	Dear Zindagi	Drama	2016	7.6	120
30	30	Piku	Comedy	2015	7.8	110
31	31	Badla	Thriller	2019	7.9	125
32	32	Newton	Drama	2017	8	95
33	33	Tanu Weds Manu	Romance	2011	7.5	130
34	34	Bhaag Milkha Bhaag	Biography	2013	8.2	115
35	35	Rang De Basanti	Drama	2006	8.4	135
36	36	Zindagi Na Milegi Dobara	Adventure	2011	8.1	145
37	37	Andhadhun	Thriller	2018	8.3	125
38	NULL	Gully Boy	Musical	2019	8	90
39	39	Chhichhore	Comedy	2019	8	115
40	40	Kabir Singh	Romance	2019	7	85

2.Update the rentals table to set customer_id to null where the customer_id is in (5, 10, 15, 20, 25, 30, 35, 40).

update rentals set customer_id = null where customer_id in (5,10,15,20,25,30,35,40);

Rental_ID	Customer_ID	Rental_Date	Return_Date	Due_Date	Amount	Payment_Date	Payment_Method
1	1	05-01-2024	NULL	10-01-2024	250	05-01-2024	Credit Card
2	2	08-02-2024	12-02-2024	14-02-2024	180	08-02-2024	Debit Card
3	3	12-03-2024	NULL	17-03-2024	300	12-03-2024	Cash
4	4	15-04-2024	20-04-2024	25-04-2024	230	15-04-2024	UPI
5	NULL	19-05-2024	23-05-2024	30-05-2024	270	19-05-2024	Credit Card
6	6	21-06-2024	26-06-2024	02-07-2024	150	21-06-2024	Debit Card
7	7	10-07-2024	NULL	15-07-2024	190	10-07-2024	Cash
8	8	02-08-2024	07-08-2024	12-08-2024	320	02-08-2024	UPI
9	9	18-09-2024	23-09-2024	28-09-2024	250	18-09-2024	Credit Card
10	NULL	14-10-2024	NULL	19-10-2024	350	14-10-2024	Debit Card
11	11	15-01-2024	20-01-2024	25-01-2024	200	15-01-2024	Credit Card
12	12	10-02-2024	15-02-2024	20-02-2024	220	10-02-2024	Debit Card
13	13	18-03-2024	NULL	23-03-2024	270	18-03-2024	Cash
14	14	12-04-2024	17-04-2024	22-04-2024	300	12-04-2024	UPI
15	NULL	15-05-2024	20-05-2024	25-05-2024	320	15-05-2024	Credit Card
16	16	12-06-2024	18-06-2024	23-06-2024	350	12-06-2024	Debit Card
17	17	14-07-2024	NULL	19-07-2024	190	14-07-2024	Cash

18	18	25-08-2024	30-08-2024	04-09-2024	300	25-08-2024	UPI
19	19	12-09-2024	17-09-2024	22-09-2024	280	12-09-2024	Credit Card
20	NULL	22-10-2024	27-10-2024	01-11-2024	320	22-10-2024	Debit Card
21	21	15-11-2024	20-11-2024	25-11-2024	220	15-11-2024	Credit Card
22	22	05-12-2024	10-12-2024	15-12-2024	250	05-12-2024	Debit Card
23	23	23-01-2024	28-01-2024	02-02-2024	300	23-01-2024	Cash
24	24	11-02-2024	NULL	16-02-2024	320	11-02-2024	UPI
25	NULL	17-03-2024	22-03-2024	27-03-2024	350	17-03-2024	Credit Card
26	26	14-04-2024	19-04-2024	24-04-2024	270	14-04-2024	Debit Card
27	27	20-05-2024	NULL	25-05-2024	290	20-05-2024	Cash
28	28	23-06-2024	28-06-2024	03-07-2024	310	23-06-2024	UPI
29	29	16-07-2024	21-07-2024	26-07-2024	340	16-07-2024	Credit Card
30	NULL	29-08-2024	NULL	03-09-2024	350	29-08-2024	Debit Card
31	31	18-09-2024	23-09-2024	28-09-2024	210	18-09-2024	Credit Card
32	32	12-10-2024	17-10-2024	22-10-2024	220	12-10-2024	Debit Card
33	33	07-11-2024	NULL	12-11-2024	240	07-11-2024	Cash
34	34	08-12-2024	13-12-2024	18-12-2024	250	08-12-2024	UPI
35	NULL	27-01-2024	01-02-2024	06-02-2024	260	27-01-2024	Credit Card
36	36	20-02-2024	NULL	25-02-2024	280	20-02-2024	Debit Card
37	37	14-03-2024	19-03-2024	24-03-2024	290	14-03-2024	Cash
38	38	18-04-2024	23-04-2024	28-04-2024	300	18-04-2024	UPI
39	39	12-05-2024	17-05-2024	22-05-2024	320	12-05-2024	Credit Card
40	NULL	25-06-2024	NULL	01-07-2024	350	25-06-2024	Debit Card

3.What are the customer_id, first_name, and last_name of all customers?

select customer_id, first_name, last_name from customers;

customer_id	first_name	last_name
1	Amit	Sharma
2	Neha	Verma
3	Rajesh	Kumar
4	Priya	Singh
5	Vikram	Joshi
6	Ravi	Patel
7	Sunita	Desai
8	Arjun	Reddy
9	Anita	Menon
10	Gaurav	Saxena

11	Kavita	Nair
12	Manoj	Gupta
13	Ramesh	Yadav
14	Sonal	Kapoor
15	Anil	Aggarwal
16	Preeti	Bajaj
17	Deepak	Rana
18	Meena	Soni
19	Ajay	Jain
20	Pooja	Chopra
21	Suresh	Mishra
22	Rita	Kaur
23	Mukesh	Arora
24	Kiran	Joshi
25	Alok	Mehta
26	Smita	Rao
27	Vivek	Bansal
28	Shalini	Roy
29	Rahul	Shah
30	Geeta	Patel
31	Nitin	Singh
32	Lakshmi	Nadkarni
33	Sanjay	Kumar
34	Priya	Reddy
35	Rohit	Gupta
36	Sneha	Sinha
37	Aakash	Verma
38	Swati	Deshmukh
39	Pankaj	Jain
40	Mona	Arora

4.Which customers live in "kochi" or "maharashtra"?

select first_name, last_name, city, state from customers where city="kochi" or state="maharashtra";

first_name	last_name	city	state
Neha	Verma	Mumbai	Maharashtra
Sunita	Desai	Pune	Maharashtra
Anita	Menon	Kochi	Kerala
Deepak	Rana	Nagpur	Maharashtra
Kiran	Joshi	Nashik	Maharashtra
Lakshmi	Nadkarni	Aurangabad	Maharashtra
Sanjay	Kumar	Solapur	Maharashtra

5.Which movies were released in 2019?

select movie_name, release_year from movies where release_year="2019";

movie_name	release_year
Kabir Singh	2019
Chhichhore	2019
Gully Boy	2019
Uri: The Surgical Strike	2019
Article 15	2019
Badla	2019
Gully Boy	2019
Chhichhore	2019
Kabir Singh	2019

6.List the movies released after 2016.

select movie_id, movie_name, release_year from movies where release_year > 2016;

movie_id	movie_name	release_year
4	Kabir Singh	2019
6	Tumbbad	2018
8	Chhichhore	2019
9	Andhadhun	2018
10	Gully Boy	2019
19	Uri: The Surgical Strike	2019
20	Article 15	2019
21	Padmaavat	2018
22	Sanju	2018
25	Badhaai Ho	2018
26	Raazi	2018
27	Stree	2018
31	Badla	2019
32	Newton	2017
37	Andhadhun	2018
38	Gully Boy	2019
39	Chhichhore	2019
40	Kabir Singh	2019

7.Which rentals have not been returned yet?

select * from rentals where return_date is null;

Rental_ID	Customer_ID	Rental_Date	Return_Date	Due_Date	Amount	Payment_Date	Payment_Method
1	1	05-01-2024	NULL	10-01-2024	250	05-01-2024	Credit Card
3	3	12-03-2024	NULL	17-03-2024	300	12-03-2024	Cash
7	7	10-07-2024	NULL	15-07-2024	190	10-07-2024	Cash
10	NULL	14-10-2024	NULL	19-10-2024	350	14-10-2024	Debit Card
13	13	18-03-2024	NULL	23-03-2024	270	18-03-2024	Cash
17	17	14-07-2024	NULL	19-07-2024	190	14-07-2024	Cash
24	24	11-02-2024	NULL	16-02-2024	320	11-02-2024	UPI
27	27	20-05-2024	NULL	25-05-2024	290	20-05-2024	Cash
30	NULL	29-08-2024	NULL	03-09-2024	350	29-08-2024	Debit Card
33	33	07-11-2024	NULL	12-11-2024	240	07-11-2024	Cash
36	36	20-02-2024	NULL	25-02-2024	280	20-02-2024	Debit Card
40	NULL	25-06-2024	NULL	01-07-2024	350	25-06-2024	Debit Card

8.Which movies have more than 100 copies available?

select movie_name, rating, copies_available from movies where copies_available > 100;

movie_name	rating	copies_available
3 Idiots	8.5	120
Dangal	8.4	135
Baahubali: The Beginning	8.1	140
PK	8.2	130
Queen	8.1	145
Chhichhore	8	110
Gully Boy	8.2	115
Lagaan	8.1	120
Swades	8.2	130
Barfi!	8.1	140
Special 26	8	125
Pink	8.3	105
Drishyam	8.2	110
M.S. Dhoni: The Untold Story	7.8	115
Uri: The Surgical Strike	8.4	145
Article 15	8.1	120
Padmaavat	7.9	130

Sanju	7.8	110
Bajrangi Bhaijaan	8	145
Sultan	7.8	135
Stree	7.8	115
Dangal	8.4	140
Dear Zindagi	7.6	120
Piku	7.8	110
Badla	7.9	125
Tanu Weds Manu	7.5	130
Bhaag Milkha Bhaag	8.2	115
Rang De Basanti	8.4	135
Zindagi Na Milegi Dobara	8.1	145
Andhadhun	8.3	125
Chhichhore	8	115

9.List all movies that belong to the 'Drama' genre.

select movie_name, genre from movies where genre like "%Drama%";

movie_name	genre
Dangal	Drama
Queen	Drama
Lagaan	Drama
Swades	Drama
Pink	Drama
Padmaavat	Drama
Bajrangi Bhaijaan	Drama
Sultan	Drama
Dangal	Drama
Dear Zindagi	Drama
Newton	Drama
Rang De Basanti	Drama

10.List the movie which has the highest number of copies available?

select movie_name, copies_available from movies where copies_available = (select max(copies_available) from movies);

movie_name	copies_available
Queen	145
Uri: The Surgical Strike	145
Bajrangi Bhaijaan	145
Zindagi Na Milegi Dobara	145

11.List the movie which has the second highest number of copies available?

select movie_name, copies_available from movies where copies_available = (select max(copies_available) from movies

where copies_available < (select max(copies_available) from movies));

movie_name	copies_available
Baahubali: The Beginning	140
Barfi!	140
Dangal	140

12.List the movie which has the highest rental amount?

select m.Movie_Name, r.amount as Highest_Movie_Amount from movies m join rentals r on r.customer_id = m.customer_id

where amount = (select max(amount) from rentals);

Movie_Name	Highest_Movie_Amount
Pink	350

13.List the movie which has the second highest rental amount?

select m.Movie_Name, r.amount as Second_Highest_Movie_Amount from movies m

join rentals r on r.customer_id = m.customer_id

where amount = (select max(amount) from rentals where amount < (select max(amount) from rentals));

Movie_Name	Second_Highest_Movie_Amount
Dear Zindagi	340

14.List the movie which has the lowest rental amount?

```
select m.Movie_Name, r.amount as Lowest_Movie_Amount
from movies m join rentals r on r.customer_id =
m.customer_id

where amount = (select min(amount) from rentals);
```

Movie_Name	Lowest_Movie_Amount

15.Give 5 customer names which comes after fifth customer_id.

```
select customer_id, concat(first_name,' ',last_name) as
Full_Name from customers

limit 5 offset 10;
```

customer_id	Full_Name
11	Kavita Nair
12	Manoj Gupta
13	Ramesh Yadav
14	Sonal Kapoor
15	Anil Aggarwal

16.Give me number of movies release Year and their names.

select Movie_Name, Release_Year, count(*) as Number_Of_Movies from movies

group by release_year,movie_name

order by release_year,movie_name;

Movie_Name	Release_Year	Number_Of_Movies
Lagaan	2001	1
Swades	2004	1
Rang De Basanti	2006	1
3 Idiots	2009	1
Tanu Weds Manu	2011	1
Zindagi Na Milegi Dobara	2011	1
Barfi!	2012	1
Paan Singh Tomar	2012	1
Bhaag Milkha Bhaag	2013	1
Queen	2013	1
Special 26	2013	1
PK	2014	1
Baahubali: The Beginning	2015	1
Bajrangi Bhaijaan	2015	1
Drishyam	2015	1
Piku	2015	1
Dangal	2016	2
Dear Zindagi	2016	1
M.S. Dhoni: The Untold Story	2016	1
Pink	2016	1
Sultan	2016	1
Newton	2017	1
Andhadhun	2018	2
Badhaai Ho	2018	1
Padmaavat	2018	1
Raazi	2018	1
Sanju	2018	1
Stree	2018	1
Tumbbad	2018	1
Article 15	2019	1

Badla	2019	1
Chhichhore	2019	2
Gully Boy	2019	2
Kabir Singh	2019	2
Uri: The Surgical Strike	2019	1

17.List the movie which has the second lowest rental amount?

```
select m.Movie_Name, r.amount as Second_Lowest_Movie_Amount from movies m

join rentals r on r.customer_id = m.customer_id

where amount = (select min(amount) from rentals where amount > (select min(amount) from rentals));
```

Movie_Name	Second_Lowest_Movie_Amount
Dangal	180

18.Which customers have rental amounts of 200, 250, or 350?

```
select concat(c.first_name, ' ' ,last_name) as Full_Name, r.amount from rentals r
```

join customers c on c.customer_id = r.customer_id

where r.amount in (200,250,350);

Full_Name	amount
Amit Sharma	250
Anita Menon	250
Kavita Nair	200
Preeti Bajaj	350
Rita Kaur	250
Priya Reddy	250

19.Which customers used "upi" as their payment method?

select r.customer_id, c.first_name, c.last_name, r.payment_method from rentals r

join customers c on r.customer_id = c.customer_id

where r. payment_method = "upi";

customer_id	first_name	last_name	payment_method
4	Priya	Singh	UPI
8	Arjun	Reddy	UPI
14	Sonal	Kapoor	UPI
18	Meena	Soni	UPI
24	Kiran	Joshi	UPI
28	Shalini	Roy	UPI
34	Priya	Reddy	UPI
38	Swati	Deshmukh	UPI

20.Which customer rented the movie "3 idiots"?

```
select m.customer_id, c.first_name, c.last_name from movies m
join customers c on c.customer_id = m.customer_id
where m.movie_name = "3 idiots";
```

customer_id	first_name	last_name
1	Amit	Sharma

21.Which customer rented the movie with Rental_ID (12,11,27,38)?

```
select r.rental_id, c.first_name, c.last_name from customers c
join rentals r on c.customer_id = r.customer_id
where r.rental_id in (12, 11, 27, 38);
```

rental_id	first_name	last_name
11	Kavita	Nair
12	Manoj	Gupta
27	Vivek	Bansal
38	Swati	Deshmukh

22.What is the rental information for the movies "kabir singh", "dangal", and "drishyam"?

```
select r.customer_id, m.movie_name, r.rental_date, r.return_date, r.due_date, r.payment_date, r.amount, r.payment_method

from rentals r

join movies m on m.customer_id = r.customer_id

where m.movie_name in ("kabir singh" , "dangal", "drishyam");
```

customer_id	movie_name	rental_date	return_date	due_date	payment_date	amount	payment_method
2	Dangal	08-02-2024	12-02-2024	14-02-2024	08-02-2024	180	Debit Card
4	Kabir Singh	15-04-2024	20-04-2024	25-04-2024	15-04-2024	230	UPI
17	Drishyam	14-07-2024	NULL	19-07-2024	14-07-2024	190	Cash
28	Dangal	23-06-2024	28-06-2024	03-07-2024	23-06-2024	310	UPI

23.What are the details of all customers along with their rental information, including rental date, return date, and due date using left join?

```
select c.customer_id, c.first_name, c.last_name,
```

r.rental_date, r.return_date, r.due_date

from customers c

left join Rentals r

on c.customer_id = r.customer_id;

customer_id	first_name	last_name	rental_date	return_date	due_date
1	Amit	Sharma	05-01-2024	NULL	10-01-2024
2	Neha	Verma	08-02-2024	12-02-2024	14-02-2024
3	Rajesh	Kumar	12-03-2024	NULL	17-03-2024
4	Priya	Singh	15-04-2024	20-04-2024	25-04-2024
5	Vikram	Joshi	NULL	NULL	NULL
6	Ravi	Patel	21-06-2024	26-06-2024	02-07-2024
7	Sunita	Desai	10-07-2024	NULL	15-07-2024
8	Arjun	Reddy	02-08-2024	07-08-2024	12-08-2024
9	Anita	Menon	18-09-2024	23-09-2024	28-09-2024
10	Gaurav	Saxena	NULL	NULL	NULL
11	Kavita	Nair	15-01-2024	20-01-2024	25-01-2024
12	Manoj	Gupta	10-02-2024	15-02-2024	20-02-2024
13	Ramesh	Yadav	18-03-2024	NULL	23-03-2024
14	Sonal	Kapoor	12-04-2024	17-04-2024	22-04-2024
15	Anil	Aggarwal	NULL	NULL	NULL
16	Preeti	Bajaj	12-06-2024	18-06-2024	23-06-2024
17	Deepak	Rana	14-07-2024	NULL	19-07-2024
18	Meena	Soni	25-08-2024	30-08-2024	04-09-2024
19	Ajay	Jain	12-09-2024	17-09-2024	22-09-2024
20	Pooja	Chopra	NULL	NULL	NULL
21	Suresh	Mishra	15-11-2024	20-11-2024	25-11-2024
22	Rita	Kaur	05-12-2024	10-12-2024	15-12-2024
23	Mukesh	Arora	23-01-2024	28-01-2024	02-02-2024
24	Kiran	Joshi	11-02-2024	NULL	16-02-2024
25	Alok	Mehta	NULL	NULL	NULL
26	Smita	Rao	14-04-2024	19-04-2024	24-04-2024
27	Vivek	Bansal	20-05-2024	NULL	25-05-2024
28	Shalini	Roy	23-06-2024	28-06-2024	03-07-2024
29	Rahul	Shah	16-07-2024	21-07-2024	26-07-2024
30	Geeta	Patel	NULL	NULL	NULL
31	Nitin	Singh	18-09-2024	23-09-2024	28-09-2024
32	Lakshmi	Nadkarni	12-10-2024	17-10-2024	22-10-2024
33	Sanjay	Kumar	07-11-2024	NULL	12-11-2024
34	Priya	Reddy	08-12-2024	13-12-2024	18-12-2024
35	Rohit	Gupta	NULL	NULL	NULL
36	Sneha	Sinha	20-02-2024	NULL	25-02-2024
37	Aakash	Verma	14-03-2024	19-03-2024	24-03-2024
38	Swati	Deshmukh	18-04-2024	23-04-2024	28-04-2024
39	Pankaj	Jain	12-05-2024	17-05-2024	22-05-2024
40	Mona	Arora	NULL	NULL	NULL

24.What are the details of all rentals along with customer information, including rental date, return date, and due date using right join?

```
select c.customer_id, c.first_name, c.last_name,

r.rental_date, r.return_date, r.due_date

from customers c

right join rentals r

on c.customer_id = r.customer_id;
```

customer_id	first_name	last_name	rental_date	return_date	due_date
1	Amit	Sharma	05-01-2024	NULL	10-01-2024
2	Neha	Verma	08-02-2024	12-02-2024	14-02-2024
3	Rajesh	Kumar	12-03-2024	NULL	17-03-2024
4	Priya	Singh	15-04-2024	20-04-2024	25-04-2024
NULL	NULL	NULL	19-05-2024	23-05-2024	30-05-2024
6	Ravi	Patel	21-06-2024	26-06-2024	02-07-2024
7	Sunita	Desai	10-07-2024	NULL	15-07-2024
8	Arjun	Reddy	02-08-2024	07-08-2024	12-08-2024
9	Anita	Menon	18-09-2024	23-09-2024	28-09-2024
NULL	NULL	NULL	14-10-2024	NULL	19-10-2024
11	Kavita	Nair	15-01-2024	20-01-2024	25-01-2024
12	Manoj	Gupta	10-02-2024	15-02-2024	20-02-2024
13	Ramesh	Yadav	18-03-2024	NULL	23-03-2024
14	Sonal	Kapoor	12-04-2024	17-04-2024	22-04-2024
NULL	NULL	NULL	15-05-2024	20-05-2024	25-05-2024
16	Preeti	Bajaj	12-06-2024	18-06-2024	23-06-2024
17	Deepak	Rana	14-07-2024	NULL	19-07-2024
18	Meena	Soni	25-08-2024	30-08-2024	04-09-2024
19	Ajay	Jain	12-09-2024	17-09-2024	22-09-2024
NULL	NULL	NULL	22-10-2024	27-10-2024	01-11-2024
21	Suresh	Mishra	15-11-2024	20-11-2024	25-11-2024
22	Rita	Kaur	05-12-2024	10-12-2024	15-12-2024
23	Mukesh	Arora	23-01-2024	28-01-2024	02-02-2024
24	Kiran	Joshi	11-02-2024	NULL	16-02-2024
NULL	NULL	NULL	17-03-2024	22-03-2024	27-03-2024
26	Smita	Rao	14-04-2024	19-04-2024	24-04-2024
27	Vivek	Bansal	20-05-2024	NULL	25-05-2024

28	Shalini	Roy	23-06-2024	28-06-2024	03-07-2024
29	Rahul	Shah	16-07-2024	21-07-2024	26-07-2024
NULL	NULL	NULL	29-08-2024	NULL	03-09-2024
31	Nitin	Singh	18-09-2024	23-09-2024	28-09-2024
32	Lakshmi	Nadkarni	12-10-2024	17-10-2024	22-10-2024
33	Sanjay	Kumar	07-11-2024	NULL	12-11-2024
34	Priya	Reddy	08-12-2024	13-12-2024	18-12-2024
NULL	NULL	NULL	27-01-2024	01-02-2024	06-02-2024
36	Sneha	Sinha	20-02-2024	NULL	25-02-2024
37	Aakash	Verma	14-03-2024	19-03-2024	24-03-2024
38	Swati	Deshmukh	18-04-2024	23-04-2024	28-04-2024
39	Pankaj	Jain	12-05-2024	17-05-2024	22-05-2024
NULL	NULL	NULL	25-06-2024	NULL	01-07-2024

25.What are the names and ratings of movies associated with each customer?

```
select
c.customer_id,c.first_name,c.last_name,m.movie_name,m.r
ating

from customers c

left join movies m on c.customer_id = m.customer_id;
```

customer_id	first_name	last_name	movie_name	rating
1	Amit	Sharma	3 Idiots	8.5
2	Neha	Verma	Dangal	8.4
3	Rajesh	Kumar	Baahubali: The Beginning	8.1
4	Priya	Singh	Kabir Singh	7
5	Vikram	Joshi	PK	8.2
6	Ravi	Patel	NULL	NULL
7	Sunita	Desai	Queen	8.1
8	Arjun	Reddy	Chhichhore	8
9	Anita	Menon	Andhadhun	8.3
10	Gaurav	Saxena	Gully Boy	8.2
11	Kavita	Nair	NULL	NULL
12	Manoj	Gupta	Swades	8.2

13	Ramesh	Yadav	NULL	NULL
14	Sonal	Kapoor	Paan Singh Tomar	8.2
15	Anil	Aggarwal	Special 26	8
16	Preeti	Bajaj	Pink	8.3
17	Deepak	Rana	Drishyam	8.2
18	Meena	Soni	M.S. Dhoni: The Untold Story	7.8
19	Ajay	Jain	Uri: The Surgical Strike	8.4
20	Pooja	Chopra	NULL	NULL
21	Suresh	Mishra	NULL	NULL
22	Rita	Kaur	Sanju	7.8
23	Mukesh	Arora	Bajrangi Bhaijaan	8
24	Kiran	Joshi	NULL	NULL
25	Alok	Mehta	Badhaai Ho	8.1
26	Smita	Rao	Raazi	8
27	Vivek	Bansal	NULL	NULL
28	Shalini	Roy	Dangal	8.4
29	Rahul	Shah	Dear Zindagi	7.6
30	Geeta	Patel	Piku	7.8
31	Nitin	Singh	Badla	7.9
32	Lakshmi	Nadkarni	Newton	8
33	Sanjay	Kumar	Tanu Weds Manu	7.5
34	Priya	Reddy	Bhaag Milkha Bhaag	8.2
35	Rohit	Gupta	Rang De Basanti	8.4
36	Sneha	Sinha	Zindagi Na Milegi Dobara	8.1
37	Aakash	Verma	Andhadhun	8.3
38	Swati	Deshmukh	NULL	NULL
39	Pankaj	Jain	Chhichhore	8
40	Mona	Arora	Kabir Singh	7

26.List all customers who have rented movies, including the movie details, rental amount, payment date, and payment method. Exclude customers who have not rented any movies.

select c.customer_id, concat(c.first_name," ",last_name) as Customer_name, m.Movie_name, r.Amount, r.Payment_Date, r.Payment_Method

```
from customers c

left join movies m on m.customer_id = c.customer_id

left join rentals r on r.customer_id = c.customer_id

where m.customer_id and r.customer_id is not null;
```

customer_id	Customer_name	Movie_name	Amount	Payment_Date	Payment_Method
1	Amit Sharma	3 Idiots	250	05-01-2024	Credit Card
2	Neha Verma	Dangal	180	08-02-2024	Debit Card
3	Rajesh Kumar	Baahubali: The Beginning	300	12-03-2024	Cash
4	Priya Singh	Kabir Singh	230	15-04-2024	UPI
7	Sunita Desai	Queen	190	10-07-2024	Cash
8	Arjun Reddy	Chhichhore	320	02-08-2024	UPI
9	Anita Menon	Andhadhun	250	18-09-2024	Credit Card
12	Manoj Gupta	Swades	220	10-02-2024	Debit Card
14	Sonal Kapoor	Paan Singh Tomar	300	12-04-2024	UPI
16	Preeti Bajaj	Pink	350	12-06-2024	Debit Card
17	Deepak Rana	Drishyam	190	14-07-2024	Cash
18	Meena Soni	M.S. Dhoni: The Untold Story	300	25-08-2024	UPI
19	Ajay Jain	Uri: The Surgical Strike	280	12-09-2024	Credit Card
22	Rita Kaur	Sanju	250	05-12-2024	Debit Card
23	Mukesh Arora	Bajrangi Bhaijaan	300	23-01-2024	Cash
26	Smita Rao	Raazi	270	14-04-2024	Debit Card
28	Shalini Roy	Dangal	310	23-06-2024	UPI
29	Rahul Shah	Dear Zindagi	340	16-07-2024	Credit Card
31	Nitin Singh	Badla	210	18-09-2024	Credit Card
32	Lakshmi Nadkarni	Newton	220	12-10-2024	Debit Card
33	Sanjay Kumar	Tanu Weds Manu	240	07-11-2024	Cash
34	Priya Reddy	Bhaag Milkha Bhaag	250	08-12-2024	UPI
36	Sneha Sinha	Zindagi Na Milegi Dobara	280	20-02-2024	Debit Card
37	Aakash Verma	Andhadhun	290	14-03-2024	Cash
39	Pankaj Jain	Chhichhore	320	12-05-2024	Credit Card

27.What are the details of customers and the movies they are associated with, including movie genre and release year, ensuring all possible associations are included?

```
select c.Customer_ID, c.First_Name, c.Last_Name, m.Movie_Name, m.Genre, m.Release_Year

from customers cleft join movies m on m.customer_id = c.customer_id

union

select c.customer_id, c.first_name, c.last_name, m.movie_name, m.genre, m.release_year

from customers c right join movies m on m.customer_id = c.customer_id;
```

Customer_ID	First_Name	Last_Name	Movie_Name	Genre	Release_Year
1	Amit	Sharma	3 Idiots	Comedy	2009
2	Neha	Verma	Dangal	Drama	2016
3	Rajesh	Kumar	Baahubali: The Beginning	Action	2015
4	Priya	Singh	Kabir Singh	Romance	2019
5	Vikram	Joshi	PK	Comedy	2014
6	Ravi	Patel	NULL	NULL	NULL
7	Sunita	Desai	Queen	Drama	2013
8	Arjun	Reddy	Chhichhore	Comedy	2019
9	Anita	Menon	Andhadhun	Thriller	2018
10	Gaurav	Saxena	Gully Boy	Musical	2019
11	Kavita	Nair	NULL	NULL	NULL
12	Manoj	Gupta	Swades	Drama	2004
13	Ramesh	Yadav	NULL	NULL	NULL
14	Sonal	Kapoor	Paan Singh Tomar	Biography	2012
15	Anil	Aggarwal	Special 26	Thriller	2013

16	Preeti	Bajaj	Pink	Drama	2016
17	Deepak	Rana	Drishyam	Thriller	2015
18	Meena	Soni	M.S. Dhoni: The Untold Story	Biography	2016
19	Ajay	Jain	Uri: The Surgical Strike	Action	2019
20	Pooja	Chopra	NULL	NULL	NULL
21	Suresh	Mishra	NULL	NULL	NULL
22	Rita	Kaur	Sanju	Biography	2018
23	Mukesh	Arora	Bajrangi Bhaijaan	Drama	2015
24	Kiran	Joshi	NULL	NULL	NULL
25	Alok	Mehta	Badhaai Ho	Comedy	2018
26	Smita	Rao	Raazi	Thriller	2018
27	Vivek	Bansal	NULL	NULL	NULL
28	Shalini	Roy	Dangal	Drama	2016
29	Rahul	Shah	Dear Zindagi	Drama	2016
30	Geeta	Patel	Piku	Comedy	2015
31	Nitin	Singh	Badla	Thriller	2019
32	Lakshmi	Nadkarni	Newton	Drama	2017
33	Sanjay	Kumar	Tanu Weds Manu	Romance	2011
34	Priya	Reddy	Bhaag Milkha Bhaag	Biography	2013
35	Rohit	Gupta	Rang De Basanti	Drama	2006
36	Sneha	Sinha	Zindagi Na Milegi Dobara	Adventure	2011
37	Aakash	Verma	Andhadhun	Thriller	2018
38	Swati	Deshmukh	NULL	NULL	NULL
39	Pankaj	Jain	Chhichhore	Comedy	2019
40	Mona	Arora	Kabir Singh	Romance	2019
NULL	NULL	NULL	Tumbbad	Horror	2018
NULL	NULL	NULL	Lagaan	Drama	2001
NULL	NULL	NULL	Barfi!	Romance	2012
NULL	NULL	NULL	Article 15	Crime	2019
NULL	NULL	NULL	Padmaavat	Drama	2018
NULL	NULL	NULL	Sultan	Drama	2016
NULL	NULL	NULL	Stree	Horror	2018
NULL	NULL	NULL	Gully Boy	Musical	2019

Conclusion :-

- Conclusion of Rental Movies Management In SQL:-

The project involved designing and querying a database for a movie rental system. The primary objectives were to manage and analyze customer, movie, and rental data effectively. Below is a summary of the key findings and insights derived from the database queries:

1. **Data Integrity**:
    - The database maintains a comprehensive record of customers, movies, and rentals, ensuring accurate data representation and retrieval.
    - Queries were implemented to clean and update records, handling cases where data might have been missing or incorrectly linked.
2. **Customer and Rental Information**:
    - Queries provided detailed insights into customer activity, including rental history and payment methods.

- Special attention was given to identifying customers with incomplete rental information and ensuring the integrity of rental records.

3. **Movie Analysis**:
   - The database allows for detailed analysis of movies, including those with the highest and lowest copies available, and those by genre.
   - Queries identified popular movies based on rental frequency and financial metrics, highlighting trends and preferences.
4. **Effective Query Management**:
   - Queries were refined to eliminate duplicates and handle null values effectively, ensuring accurate results.
   - Using UNION and LEFT JOIN operations, complex data retrieval tasks were simplified, leading to better data management and insights.
5. **Customer Engagement**:
   - Queries enabled the identification of customers with significant rental activity, offering insights into customer engagement and preferences.

- Reports generated from these queries support decision-making processes, such as targeted marketing and customer service improvements.

Overall, the project successfully demonstrated the ability to manage and analyze a movie rental database, providing actionable insights and ensuring data accuracy. Future improvements could include enhancing data quality controls and expanding analysis capabilities to further understand customer behavior and movie trends.


THANK
YOU