**DBMS STUDENT PROJECT REPORT**

**ACADEMIC YEAR 2023-24**

**Project Title:**

| SQL Badlands: Unveiling Breaking Code |
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**Students:**

| **Sr. No.** | **Student Name** | **Enrolment No** | **Sem / Course** |
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**GitHub Project Link:**

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DBMS Database Design Project

1) Overview of the "Breaking Bad" television series:

**"SQL Badlands: Unveiling Breaking Code"**

Introduction - Story-based Narrative:

In the shadowy depths of Albuquerque's underbelly, a clandestine world thrives—one ruled by whispers of elusive characters and the aroma of forbidden ventures. You find yourself thrust into this gripping milieu as an apprentice at Saul Goodman's bustling legal office. Your task? To wield the power of SQL within the enigmatic universe of "Breaking Bad."

The Scenario:

The names Walter White and Jesse Pinkman reverberate through the streets, symbols of a lucrative but perilous methamphetamine empire. However, chaos brews within the criminal underbelly. Law enforcement lurks in the shadows, and rival gangs vie for dominance. Amidst this turbulence, your role emerges: manage the labyrinthine data web supporting this operation.

Your Mission:

As the guardian of crucial databases, you're tasked with maintaining the delicate balance within this tumultuous world. Characters, episodes, locations, and interwoven relationships are encoded within, awaiting your mastery of SQL to unlock their secrets.

The Obstacles:

- Data Discrepancies: Inaccuracies plague the databases—missing airdates, incorrectly associated episodes, and characters without proper occupations.

- Unraveling Relationships: Untangle the web of connections between characters, their affiliations with organizations, and their relationships with each other.

- Inconsistent Information: Locations lack descriptions, drugs have incomplete details, and events aren't properly linked to characters and episodes.

Your Journey Begins:

Each query you execute, each update you make, shapes the fate of these characters. Will you unravel the intricacies of this underground empire or succumb to the labyrinth of data discrepancies and relational challenges?

2)Database Design:

Here's an extended version of the database design for the "Breaking Bad" series:

Entities:

1. Characters:

- CharacterID (Primary Key)

- First Name

- Last Name

- Date of Birth

- Gender

- Occupation

- Description

2. Episodes:

- EpisodeID (Primary Key)

- Title

- Season

- Airdate

- Description

3. Locations:

- LocationID (Primary Key)

- Name

- Type

- Description

4. Drugs:

- DrugID (Primary Key)

- Name

- Chemical Formula

- Description

5. Events:

- EventID (Primary Key)

- Date

- Description

Relationships:

1. Character - Appears In - Episode

- AppearanceID (Primary Key)

- CharacterID (Foreign Key)

- EpisodeID (Foreign Key)

- Role (e.g., main character, guest appearance)

2. Character - Has Occupation:

- CharacterID (Foreign Key)

- Occupation

3. Character - Associated With Location:

- AssociationID (Primary Key)

- CharacterID (Foreign Key)

- LocationID (Foreign Key)

4. Character - Involved With Drug:

- InvolvementID (Primary Key)

- CharacterID (Foreign Key)

- DrugID (Foreign Key)

- Role (e.g., user, manufacturer)

5. Events - Associated With Characters and Episodes:

- EventAssociationID (Primary Key)

- EventID (Foreign Key)

- CharacterID (Foreign Key)

- EpisodeID (Foreign Key)

4)Tables with Dummy Data:

Excel file:<https://docs.google.com/spreadsheets/d/1ZTwxf4Pj9xVB6YLjV4pmqEEn9B2paDXh/edit?usp=sharing&ouid=105449202744850971489&rtpof=true&sd=true>

5)SQL commands:

Text file: <https://drive.google.com/file/d/1pfxNrRGZIUPS4Izf9b9Uzaijng23qKyA/view?usp=sharing>

6)SQL queries(question answer):

**SQL Query 1: Retrieve the details of all characters in the database.**

Ans : SELECT \* FROM Characters;

**SQL Query 2: List all episodes from season 1.**

SELECT \* FROM Episodes WHERE Season = 1;

**SQL Query 3: Find all characters associated with the "White Residence" location.**

Ans: SELECT c.FirstName, c.LastName

FROM Characters c

JOIN CharacterLocation cl ON c.CharacterID = cl.CharacterID

JOIN Locations l ON cl.LocationID = l.LocationID

WHERE l.Name = 'White Residence';

**SQL Query 4: Retrieve a list of all events with their associated characters.**

Ans: SELECT e.Date, e.Description, c.FirstName, c.LastName

FROM Events e

LEFT JOIN EventAssociation ea ON e.EventID = ea.EventID

LEFT JOIN Characters c ON ea.CharacterID = c.CharacterID;

**SQL Query 5: List all characters and their respective occupations.**

Ans: SELECT FirstName, LastName, Occupation

FROM Characters;

**SQL Query 6: Retrieve the episodes in which Walter White appears.**

Ans: SELECT e.Title, e.Season

FROM Episodes e

JOIN CharacterEpisode ce ON e.EpisodeID = ce.EpisodeID

JOIN Characters c ON ce.CharacterID = c.CharacterID

WHERE c.FirstName = 'Walter' AND c.LastName = 'White';

**7)Retrieve details of Walter White's character, including his date of birth, occupation, and description.**

Ans: SELECT DateOfBirth, Occupation, Description

FROM Characters

WHERE FirstName = 'Walter' AND LastName = 'White';

**8)List all episodes from season 1, focusing on the pivotal moments in Walter's transformation.**

Ans: SELECT Title, Airdate, Description

FROM Episodes

WHERE Season = 1;

**9) Find locations associated with Walter White's character throughout his journey.**

Ans: SELECT l.Name, l.Type, l.Description

FROM Locations l

JOIN CharacterLocation cl ON l.LocationID = cl.LocationID

JOIN Characters c ON cl.CharacterID = c.CharacterID

WHERE c.FirstName = 'Walter' AND c.LastName = 'White';

**10)Retrieve a list of characters involved with the "Blue Meth" drug and their roles.**

Ans: SELECT c.FirstName, c.LastName, cd.Role

FROM Characters c

JOIN CharacterDrug cd ON c.CharacterID = cd.CharacterID

JOIN Drugs d ON cd.DrugID = d.DrugID

WHERE d.Name = 'Blue Meth';

**11)Get a count of episodes for each season to understand the progression of the story.**

Ans: SELECT Season, COUNT(\*) AS EpisodeCount

FROM Episodes

GROUP BY Season;

**12) Find all characters involved in Walter White's criminal activities.**

Ans: SELECT c.FirstName, c.LastName, c.Occupation

FROM Characters c

WHERE EXISTS (

SELECT 1

FROM CharacterEpisode ce

WHERE c.CharacterID = ce.CharacterID

);

**13)Retrieve a list of events and their descriptions where Walter White's actions had a significant impact.**

Ans: SELECT e.Date, e.Description

FROM Events e

WHERE EXISTS (

SELECT 1

FROM EventAssociation ea

JOIN Characters c ON ea.CharacterID = c.CharacterID

WHERE e.EventID = ea.EventID

AND c.FirstName = 'Walter' AND c.LastName = 'White'

);

**14)Retrieve a list of events and their descriptions where Walter White's actions had a significant impact.**

Ans: SELECT e.Date, e.Description

FROM Events e

WHERE EXISTS (

SELECT 1

FROM EventAssociation ea

JOIN Characters c ON ea.CharacterID = c.CharacterID

WHERE e.EventID = ea.EventID

AND c.FirstName = 'Walter' AND c.LastName = 'White'

);

**15) List all characters and their associated occupations, focusing on the diversity of backgrounds within the drug trade.**

SELECT c.FirstName, c.LastName, co.Occupation

FROM Characters c

LEFT JOIN CharacterOccupation co ON c.CharacterID = co.CharacterID;

**16)Find episodes from the final season that mark the culmination of Walter White's transformation.**

Ans: SELECT Title, Airdate, Description

FROM Episodes

WHERE Season = (SELECT MAX(Season) FROM Episodes);

**17)Retrieve events in chronological order to understand the timeline of the story's key moments.**

Ans: SELECT Date, Description

FROM Events

ORDER BY Date;

**Flow of the game**

In the pulse of Albuquerque's clandestine underworld, a curious apprentice, guided by Saul Goodman's whispered lore, steps into the enigmatic realm of data, connecting the threads of the "Breaking Bad" saga through intricate SQL queries.

**Episode 1: Unveiling the Characters**

In the dimly lit office of Goodman, your initiation commences. With a single query, you unfold the roster of players within this intricate drama—each character a vessel of secrets, from the tortured genius Walter White to the brash spirit of Jesse Pinkman. But your path to mastery is fraught with complexities.

**Episode 2: A Glimpse into Seasonal Secrets**

As the journey progresses, your SQL prowess deepens. Season by season, you navigate the labyrinth of data, extracting pivotal moments from Walter White's transformation. Season 1 becomes a canvas of evolution, each episode a brushstroke shaping his descent into the clandestine.

**Episode 3: Tangled Relationships and Locations**

Diving deeper, you unravel the tapestry of relationships and locations. Query after query, the White Residence emerges as a focal point, anchoring Walter White's story in this seedy landscape. The database's interconnected nodes whisper of clandestine meetings and crucial encounters.

**Episode 4: The Nexus of Criminal Activities**

Your queries lead you to the nexus of criminal dealings—Blue Meth, a drug entwined with destinies. Characters dance in and out of its narrative, each with a unique role shaping the chaotic symphony of the drug trade.

**Episode 5: Pivotal Events and Culmination**

As your SQL journey progresses, events tied to Walter White's actions come to light. Each entry in the timeline reveals the impact of his choices, some moments etched as pivotal in the annals of this clandestine tale.

**Episode 6: Culminating Transformations and the Journey's End**

The final queries unfold the curtain on the culmination of Walter White's transformation. In the throes of the final season, episodes stand as monuments, marking the zenith of his metamorphosis from chemistry teacher to drug kingpin.

**Episode 7: Chronological Chronicles**

Chronological queries unveil the tapestry of events, weaving a timeline of key moments in this gripping narrative. From the inception of clandestine endeavors to the crescendo of chaos, each date whispers a chapter in this complex saga.

In the realm of SQL, each query unlocks a new chapter, piecing together the tapestry of "Breaking Bad." With each answered query, you chart the evolution of characters, locations, and events, venturing deeper into the secrets of this dark and gripping tale.