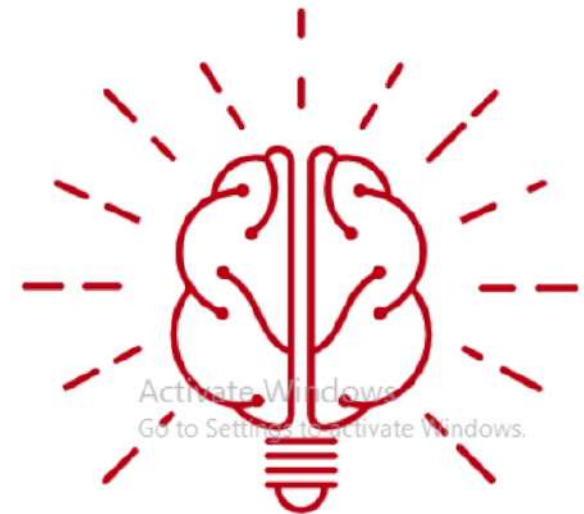


# TODAY'S DISCUSSION

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- Introduction
- My Role
- Tools Used
- Problem Statement
- Entity Relationship Diagram
- Dataset Explanation
- Queries, Insights and Recommendation
- Further Analysis
- Conclusion

## TOPICS TO COVER



# INTRODUCTION

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YouTube is a leading platform for creators and brands to share content, build audiences, and generate revenue.

With millions of videos uploaded daily, it's crucial to understand:

- 📊 Channel performance
- 👤 Viewer engagement
- 🎯 Content strategy impact
- 💰 Revenue trends

This project uses SQL to analyze YouTube data and answer real business questions—empowering smarter decisions in content planning, audience targeting, and monetization.



# MY ROLE

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## AS THE DATA ANALYST, I WAS RESPONSIBLE FOR:

- Wrote SQL queries to solve key business questions
- Connected and analyzed data using joins, CTEs & subqueries
- Applied aggregations and logic for deeper insights
- Interpreted results to deliver actionable recommendations
- Documented and presented insights through structured analysis

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# TOOLS USED

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-  **MySQL** – Data analysis and querying
-  **Excel** – Initial data validation
-  **GitHub** – Project documentation
-  **Canvas** – Making presentation slides
-  **OBS Studio** – Recording walkthrough video







# PROBLEM STATEMENT

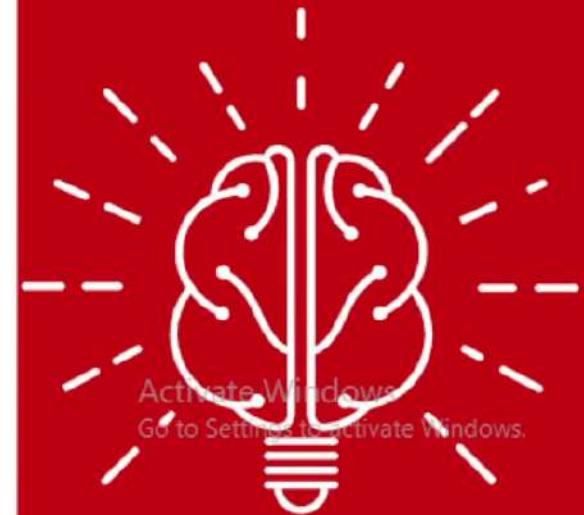
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With millions of channels and videos on YouTube, tracking key performance metrics—like engagement, views, and revenue—is a major challenge for creators, brands, and marketers.

This project aims to analyze YouTube data to:

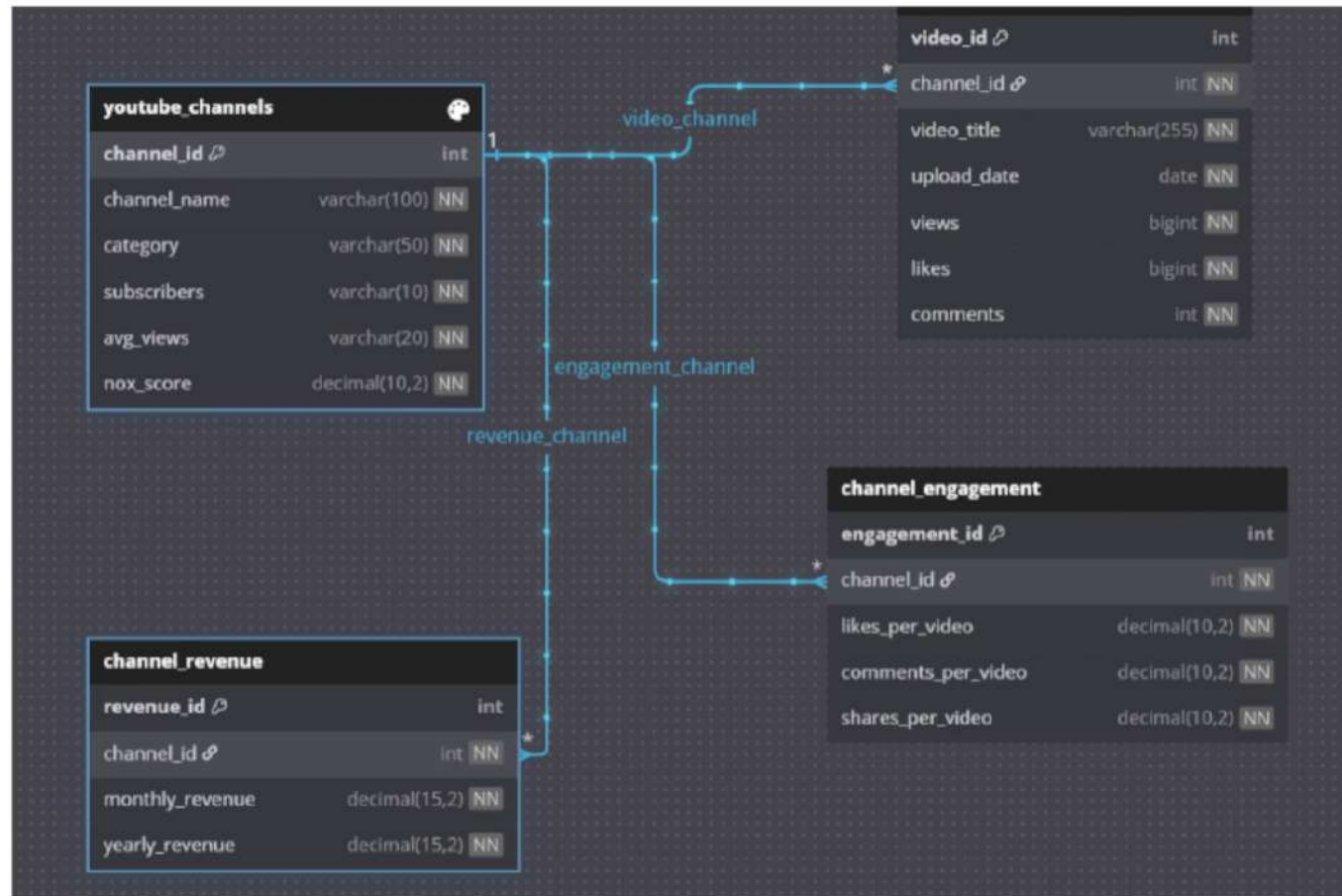
-  Identify top-performing channels and videos
-  Track engagement via likes, comments, and shares
-  Understand revenue trends across categories
-  Detect underperforming content and areas for improvement

By writing optimized SQL queries, the goal is to uncover actionable insights that support smarter decisions in content strategy, influencer partnerships, and monetization.





# DATASET EXPLANATION



## youtube\_channels

This table contains basic details about each YouTube channel.

## channel\_revenue

This table contains monetary data related to each channel's earnings.

## channel\_videos

This table holds data about individual videos uploaded by each channel.

## channel\_engagement

This table tracks overall engagement trends per video on a channel.

# QUERIES, INSIGHTS AND RECOMMENDATION

FROM DATA TO DECISIONS

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## 1.GET THE TOP 5 MOST SUBSCRIBED YOUTUBE CHANNELS?

```
SELECT
    channel_name, subscribers
FROM
    youtube_channels
ORDER BY subscribers DESC
LIMIT 5;
```

channel_name	subscribers
MrBeast	370M
T-Series	288M
Cocomelon - Nursery Rhymes	190M
SET India	182M
Vlad and Niki	135M

**Insights:** These channels have a huge audience base, with MrBeast leading the way with 370 million subscribers.

**Recommendations:** Brands looking for influencer collaborations should prioritize these high-subscriber channels.



## 2. FIND THE TOTAL YEARLY REVENUE OF ALL CHANNELS?

```
WITH revenue_cte AS (  
    SELECT  
        yc.channel_name,  
        SUM(cr.yearly_revenue) AS total_revenue  
    FROM  
        youtube_channels yc JOIN  
        channel_revenue cr ON yc.channel_id = cr.channel_id  
    GROUP BY  
        yc.channel_name )  
SELECT  
    channel_name,  
    CONCAT(ROUND(total_revenue / 1000000, 1), ' M') AS total_year_revenue  
FROM  
    revenue_cte  
ORDER BY  
    total_revenue DESC;
```

channel_name	total_year_revenue
MrBeast	60.0 M
T-Series	54.0 M
Cocomelon - Nursery Rhymes	18.0 M
SET India	14.4 M
Vlad and Niki	10.8 M
Kids Diana Show	10.2 M
Like Nastya	9.6 M
Stokes Twins	9.4 M
Zee Music Company	9.0 M
PewDiePie	8.4 M

**Insights:** MrBeast generates the highest revenue at 60 M, followed closely by T-Series with 54 M.

**Recommendations:** Zee Music Company and PewDiePie have the lowest yearly revenue (\$9M and \$8.4M). They should focus on increasing engagement and monetization

### 3. FIND THE VIDEO UPLOADED BY 'MRBEAST' ?

```
SELECT
    yc.channel_name, cv.video_title
FROM
    youtube_channels yc JOIN
    channel_videos cv ON yc.channel_id = cv.channel_id
WHERE
    channel_name = 'MrBeast';
```

channel_name	video_title
MrBeast	Epic Challenge Video

**Insights:** This type of content aligns with MrBeast's signature style and attracts massive engagement.

**Recommendations:** Challenge based content is highly engaging and performs well with MrBeast's audience.

## 4. GET THE AVERAGE ENGAGEMENT (LIKES & COMMENTS) PER VIDEO FOR EACH CHANNEL ?

```
SELECT
  yc.channel_name,
  CASE
    WHEN AVG(ce.likes_per_video + ce.comments_per_video) >= 1000000 THEN
      CONCAT(ROUND(AVG(ce.likes_per_video + ce.comments_per_video) / 1000000, 2), ' M')
    WHEN AVG(ce.likes_per_video + ce.comments_per_video) >= 1000 THEN
      CONCAT(ROUND(AVG(ce.likes_per_video + ce.comments_per_video) / 1000, 2), ' K')
    ELSE
      ROUND(AVG(ce.likes_per_video + ce.comments_per_video), 2)
  END AS avg_engagement
FROM
  youtube_channels yc JOIN
  channel_engagement ce ON yc.channel_id = ce.channel_id
GROUP BY
  yc.channel_name
ORDER BY
  AVG(ce.likes_per_video + ce.comments_per_video) DESC;
```

channel_name	avg_engagement
MrBeast	462.00 K
T-Series	310.00 K
Stokes Twins	217.00 K
Cocomelon - Nursery Rhymes	208.00 K
Like Nastya	194.50 K
Vlad and Niki	184.00 K
Kids Diana Show	178.50 K
SET India	155.00 K
PewDiePie	126.00 K
Zee Music Company	52.00 K

### Insights:

- MrBeast tops engagement with 462K avg likes & comments per video.
- T-Series, Stokes Twins, Cocomelon also show strong interaction.
- Zee Music Company and PewDiePie have lower engagement.

### Recommendations:

- High performers should keep posting interactive, engaging content.
- Low-engagement channels can add polls, or audience-focused content to boost interaction.

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## 5. LIST CHANNELS THAT HAVE A NOX SCORE HIGHER THAN 10 ?

```
SELECT
    channel_name, nox_score
FROM
    youtube_channels
WHERE
    nox_score > 10
ORDER BY nox_score DESC;
```

channel_name	nox_score
Zee Music Company	467.10
T-Series	48.20
Vlad and Niki	24.30

### Insights:

- These channels have high NOX scores, indicating strong channel health and potential brand value.
- Zee Music Company leads significantly, showing consistent performance.

### Recommendations:

- Maintain quality, regular uploads, and community engagement.
- Leverage high NOX for brand deals and collaborations.
- Analyze what drives high NOX and apply it to other content areas.

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## 6. FIND THE MOST COMMENTED VIDEO ?

```
SELECT
    video_title,
    comments
FROM
    channel_videos
WHERE
    comments = (
        SELECT
            MAX(comments)
        FROM
            channel_videos    );
```

video_title	comments
Epic Challenge Video	10000

### Insights:

- High number of comments reflects strong audience interaction and content virality.

### Recommendations:

- Create more challenge-based or interactive content to maintain engagement.
- Encourage comment-driven actions like polls, Q&As, or fan participation for future videos.

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## 7. COUNT THE TOTAL NUMBER OF CHANNELS IN EACH CATEGORY ?

```
SELECT
    category, COUNT(DISTINCT channel_name) AS total_channels
FROM
    youtube_channels
GROUP BY category
ORDER BY total_channels DESC;
```

category	total_channels
Entertainment	5
Music	2
Education	1
Gaming	1
People & Blogs	1

### Insights:

- Entertainment dominates the dataset, showing it's the most competitive category.

### Recommendations:

- Channels in less crowded categories like Education or People & Blogs can stand out by creating specialized, focused content tailored to specific audiences.

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## 8. SEARCH FOR CHANNEL NAMES THAT START WITH "M" AND END WITH "T" ?

```
SELECT
    channel_name
FROM
    youtube_channels
WHERE
    channel_name LIKE 'M%'
    AND channel_name LIKE '%t';
```

channel_name
MrBeast

### Insights:

Only one channel matches the pattern — MrBeast. Such queries help filter specific naming patterns for reporting or segmentation.

## 9. FIND VIDEOS UPLOADED BETWEEN '2024-03-01' AND '2024-08-01' ?

```
SELECT
    video_title
FROM
    channel_videos
WHERE
    upload_date BETWEEN '2024-03-01' AND '2024-08-01';
```

video_title
Epic Challenge Video
Comedy Skit Compilation
Crazy Stunts Compilation

### Insights:

- Only 3 videos are uploaded within the period

### Recommendations:

- Focus promotional efforts and audience engagement strategies around these recent uploads to maximize visibility and retention.

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## 10. FIND THE TOP 3 MOST LIKED VIDEOS ON YOUTUBE ?

```
SELECT
    cv.video_title,
    CONCAT(ROUND(cv.likes / 1000, 0), ' K') AS video_likes
FROM
    channel_videos cv
ORDER BY
    cv.likes DESC
LIMIT 3;
```

video_title	video_likes
Epic Challenge Video	500 K
Best Bollywood Songs	250 K
Crazy Stunts Compilation	210 K

### Insights:

- Epic Challenge Video leads with 500K likes, showing strong viewer approval and engagement.
- Best Bollywood Songs and Crazy Stunts Compilation also perform well, reflecting audience interest in music and thrill-based content.

### Recommendations:

- Encourage viewers to like and share to maintain high engagement momentum. and retention.

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# FURTHER ANALYSIS

EXPLORING DEEPER POSSIBILITIES

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## WHICH YOUTUBE CHANNEL SHOWS THE LOWEST OVERALL ENGAGEMENT ACROSS LIKES, COMMENTS, AND SHARES PER VIDEO?

```
SELECT
  yc.channel_name,
  CONCAT(ROUND((ce.likes_per_video + ce.comments_per_video + ce.shares_per_video) / 1000,
              0),
         ' K') AS total_engagement
FROM
  youtube_channels yc JOIN
  channel_engagement ce ON yc.channel_id = ce.channel_id
ORDER BY (ce.likes_per_video + ce.comments_per_video + ce.shares_per_video) ASC
LIMIT 1;
```

channel_name	total_engagement
Zee Music Company	57 K

### Insights:

- Zee Music Company has the lowest engagement at 57K per video, showing weaker audience interaction

### Recommendations:

- Increase audience interaction through polls, comments, and CTAs (call-to-actions).
- Collaborate with trending artists or influencers to boost visibility and engagement.
- Experiment with interactive or behind-the-scenes content to spark more viewer interest.

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## WHICH VIDEOS HAVE OUTPERFORMED THEIR RESPECTIVE CHANNEL'S AVERAGE VIEW COUNT?

```
WITH converted_views AS (  
  SELECT  
    yc.channel_id,  
    yc.channel_name,  
    cv.views,  
    CASE  
      WHEN yc.avg_views LIKE '%M' THEN REPLACE(yc.avg_views, 'M', '') * 1000000  
      WHEN yc.avg_views LIKE '%K' THEN REPLACE(yc.avg_views, 'K', '') * 1000  
      ELSE yc.avg_views  
    END AS avg_views_numeric  
  FROM  
    youtube_channels yc JOIN  
    channel_videos cv ON yc.channel_id = cv.channel_id  
)  
  
SELECT DISTINCT  
  channel_name  
FROM  
  converted_views  
WHERE  
  views > avg_views_numeric;
```

channel_name
T-Series
Cocomelon - Nursery Rhymes
SET India
Vlad and Niki

### Insights:

- Videos from T-Series, Cocomelon – Nursery Rhymes, SET India, and Vlad and Niki have outperformed their respective channel's average view count, showing stronger-than-usual viewer interest.

### Recommendations:

- Analyze the content style, title, and timing of these successful videos to replicate what worked.
- Promote similar formats or themes in future uploads.

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# WHAT IS THE AVERAGE ENGAGEMENT (LIKES, COMMENTS, AND SHARES PER VIDEO) ACROSS DIFFERENT YOUTUBE CONTENT CATEGORIES?

```
SELECT
  yc.category,
  CONCAT(ROUND(AVG(ce.likes_per_video) / 1000, 2), ' K') AS avg_likes,
  CONCAT(ROUND(AVG(ce.comments_per_video) / 1000, 2), ' K') AS avg_comments,
  CONCAT(ROUND(AVG(ce.shares_per_video) / 1000, 2), ' K') AS avg_shares
FROM
  youtube_channels yc JOIN
  channel_engagement ce ON yc.channel_id = ce.channel_id
GROUP BY
  yc.category
ORDER BY
  AVG(ce.likes_per_video) DESC;
```

category	avg_likes	avg_comments	avg_shares
Entertainment	229.00 K	5.80 K	18.80 K
People & Blogs	210.00 K	7.00 K	20.00 K
Education	200.00 K	8.00 K	20.00 K
Music	175.00 K	6.00 K	15.00 K
Gaming	120.00 K	6.00 K	9.00 K

## Insights:

- Entertainment leads with the highest average likes (229K), reflecting its broad appeal.
- People & Blogs and Education have strong comments and shares, showing active audience interaction.
- Gaming has the lowest engagement across all metrics.

## Recommendations:

- Channels in Entertainment should continue leveraging viral and relatable content.
- People & Blogs and Education creators can boost visibility by promoting community engagement and feedback loops.
- Gaming channels should experiment with interactive content (e.g., live Q&A, polls) to improve viewer interaction.

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WHICH CONTENT CATEGORY GENERATES THE HIGHEST AVERAGE YEARLY REVENUE PER CHANNEL?

```
SELECT
  yc.category,
  CONCAT(ROUND(SUM(cr.yearly_revenue) / COUNT(DISTINCT yc.channel_id) / 1000000, 2), ' M') AS avg_revenue_per_channel
FROM
  youtube_channels yc JOIN
  channel_revenue cr ON yc.channel_id = cr.channel_id
GROUP BY
  yc.category
ORDER BY
  SUM(cr.yearly_revenue) / COUNT(DISTINCT yc.channel_id) DESC;
```

category	avg_revenue_per_channel
Music	31.50 M
Entertainment	21.00 M
Education	18.00 M
People & Blogs	9.36 M
Gaming	8.40 M

Insights:

- Music channels generate the highest average revenue (31.5M) per channel.
- Entertainment and Education follow with 21M and 18M respectively.
- People & Blogs and Gaming are at the lower end, under 10M.

Recommendations:

- Music creators should capitalize on their high revenue potential through sponsorships and licensing deals.
- Gaming and Blogs channels can explore additional revenue streams like merchandise, memberships, or brand collaborations to boost earnings.

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# WHICH YOUTUBE CHANNELS HAVE HIGH TOTAL ENGAGEMENT BUT A LOW NOX SCORE?

```
SELECT
  yc.channel_name,
  CONCAT(ROUND((ce.likes_per_video + ce.comments_per_video + ce.shares_per_video) / 1000, 2), ' K') AS total_engagement,
  yc.nox_score
FROM
  youtube_channels yc JOIN
  channel_engagement ce ON yc.channel_id = ce.channel_id
WHERE
  yc.nox_score < 10
ORDER BY
  (ce.likes_per_video + ce.comments_per_video + ce.shares_per_video) DESC;
```

channel_name	total_engagement	nox_score
MrBeast	492.00 K	0.50
Stokes Twins	237.00 K	5.40
Cocomelon - Nursery Rhymes	228.00 K	0.80
Like Nastya	211.50 K	4.80
Kids Diana Show	192.50 K	8.50
SET India	173.00 K	4.30
PewDiePie	135.00 K	0.90

## Insights:

- Channels like MrBeast, Cocomelon, and PewDiePie show high total engagement but have a low NOX score (<1).
- This indicates strong viewer interaction but lower brand value or monetization potential as per NOX metrics.

## Recommendations:

- These creators can optimize brand collaborations and enhance monetization strategies to align with their audience engagement.
- They should focus on audience targeting, brand storytelling, and sponsorship pitches to improve their NOX rating.

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# CONCLUSION

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## IN-DEPTH SQL ANALYSIS

Explored YouTube metrics including views, engagement, and revenue.

## REVENUE DRIVERS UNCOVERED

Analyzed content types that generate better monetization and interaction.

## TOP PERFORMERS IDENTIFIED

Highlighted channels and content with high impact across categories.

## ACTIONABLE RECOMMENDATIONS

Support better content planning, audience engagement, and revenue growth.

