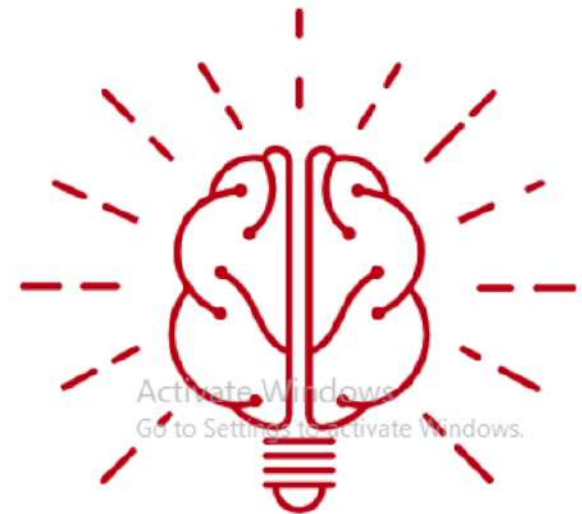


TODAY'S DISCUSSION

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

TOPICS TO COVER



INTRODUCTION

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

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





-  **MySQL** – Data analysis and querying
-  **Excel** – Initial data validation
-  **GitHub** – Project documentation
-  **Canvas** – Making presentation slides



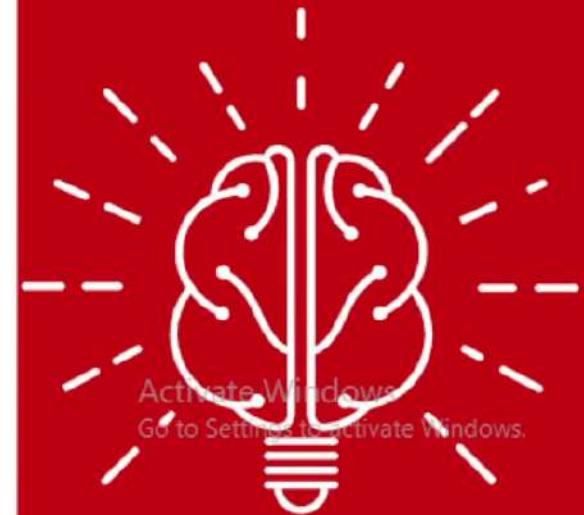
PROBLEM STATEMENT

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.

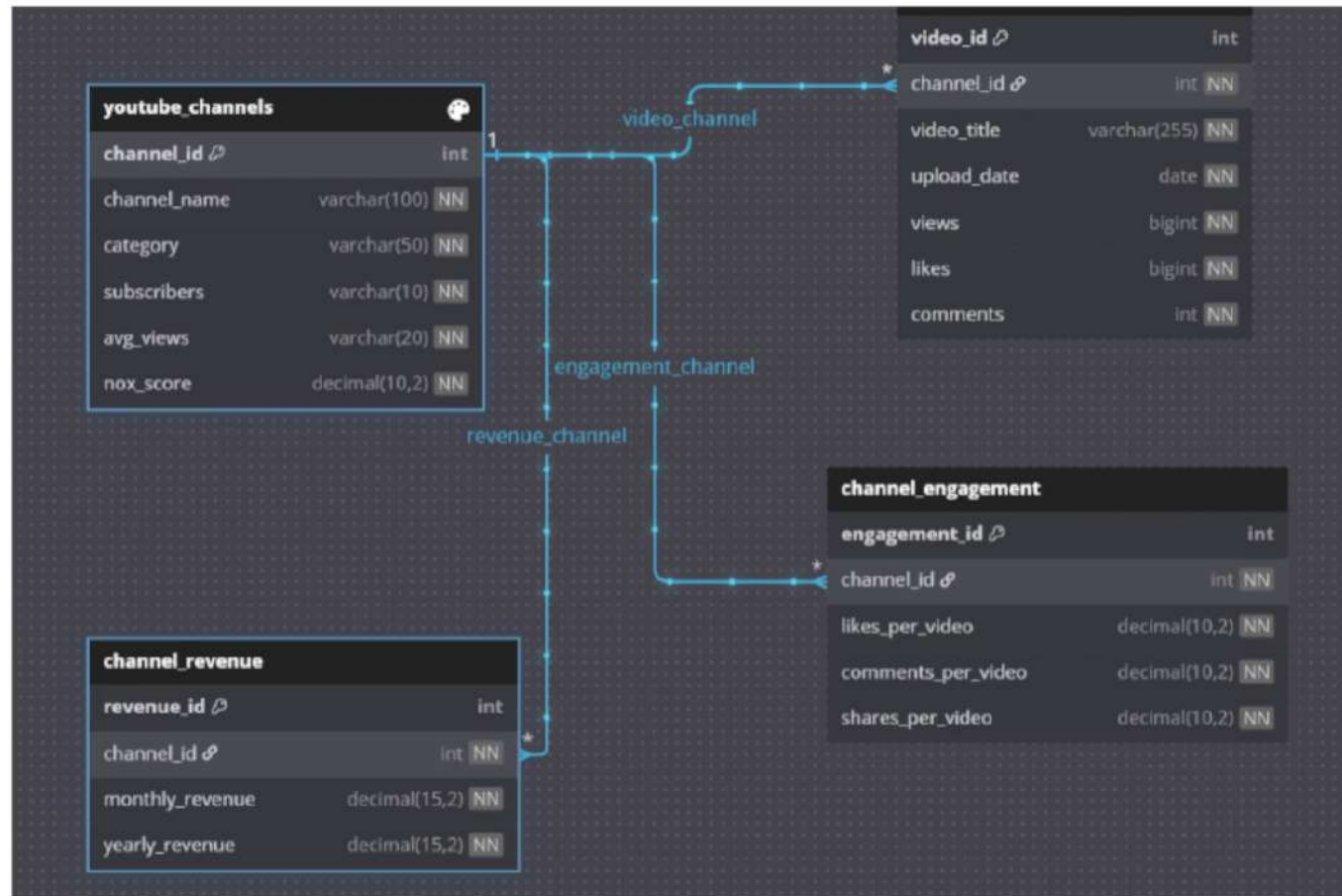
This project aims to analyze YouTube data to:

-  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.

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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

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.