



HUST

ĐẠI HỌC BÁCH KHOA HÀ NỘI
HANOI UNIVERSITY OF SCIENCE AND TECHNOLOGY

ONE LOVE. ONE FUTURE.



ĐẠI HỌC
BÁCH KHOA HÀ NỘI
HANOI UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Youtube Top Trending

DATA VISUALIZATION – IT4023E

CLASS: 157211

GROUP 6

Order 10

ONE LOVE. ONE FUTURE.

Members

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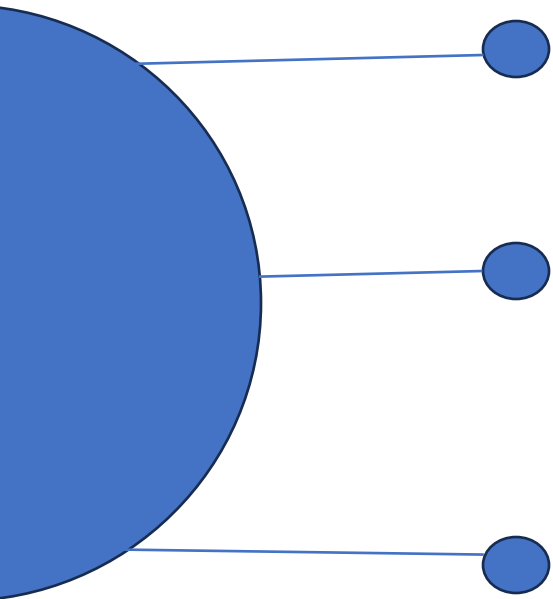
Lecturer: Dr. Trần Việt Trung

1. Introduction
2. Dashboard Features
3. Dashboard Design
4. Discussion
5. Conclusions

Introduction

Goals: Visualize **trending contents** on *Youtube* through a series of **dashboards**

Three main aspects:



Overview: provides a high-level summary of YouTube's overall trending activity

Video trending: Showing the videos are currently on the trending page of Youtube

Content trending: Analyzes what category, topic are currently resonating with the audiences

Data is crawled from **Youtube** platform in **America** with two files **Trending_data**, and **Channel_statistic**. They provide insight on:

- Popular Categories
- Trending contributions
- Video performance
- Top performing channels

	A	B	C	D	E	F	G	H	I	J	K	L	M
	publishedAt	elapsedDays	title	channelTitle	category	topicCategories	duration	licensedContent	viewCount	likeCount	commentCount	avgDailyViews	e
1	04082008 16:36:03	5973.2241	Coldplay - Viva La Vida (Official Video)	Coldplay	Music	['Music', 'Pop music', 'Rock music']	0.0028125	TRUE	949006237	5510561	297987	158876.72	
2	27052011 23:20:57	4946.9429	Coldplay - The Scientist (Official 4K Video)	Coldplay	Music	['Independent music', 'Music', 'Pop music', 'Rock']	0.003078704	TRUE	1244826241	6248958	137355	251635.46	
3	30052011 20:12:47	4944.0736	Coldplay - Yellow (Official Video)	Coldplay	Music	['Electronic music', 'Independent music', 'Music', 'Pop music', 'Rock']	0.003159722	TRUE	1126854983	6007634	155136	227920.35	
4	30052011 20:47:04	4944.0498	Coldplay - Fix You (Official Video)	Coldplay	Music	['Electronic music', 'Independent music', 'Music', 'Pop music']	0.003402778	TRUE	661167619	3394449	126687	133729.97	
5	19102011 09:42:54	4802.511	Coldplay - Paradise (Official Video)	Coldplay	Music	['Electronic music', 'Music', 'Pop music', 'Rock music']	0.003020833	TRUE	1916761655	9440285	360526	399116.56	
6	28052014 04:00:00	3850.7203	Farruko - Passion Whine ft. Sean Paul (Official Video)	FARRUKOVEVO	Music	['Electronic music', 'Hip hop music', 'Music', 'Music of Latin America', 'Pop']	0.002581019	TRUE	629954993	1892291	26936	163594.07	
7	19092014 13:13:08	3828.115	Coldplay - A Sky Full Of Stars (Official Video)	Coldplay	Music	['Electronic music', 'Music', 'Pop music', 'Rock music']	0.002393815	TRUE	956520194	4494531	93206	249867.15	
8	18032014 03:57:35	3737.7508	Warriors (ft. Imagine Dragons) Worlds 2014 - League of Legends	League of Legends	Gaming	['Video game culture']	0.001979167	FALSE	436631048	3660588	117011	116816.52	
9	19092014 13:13:08	3828.115	Coldplay - A Sky Full Of Stars (Official Video)	Coldplay	Music	['Electronic music', 'Music', 'Pop music', 'Rock music']	0.002393815	TRUE	956520194	4494531	93206	249867.15	

Trending_data.csv

Data is crawled from **Youtube** platform in **America** with two files **Trending_data**, and **Channel_statistic**. They provide insight on:

- Popular Categories
- Trending contributions
- Video performance
- Top performing channels

	A	B	C	D	E	F	G	H	I	J	K
	channelTitle	channelCategory	totalViewCount	numLicensedContent	numUnlicensedContent	channelAvgDailyViews	channelAvgViewCount	channelAvgLikeCount	channelAvgCommentCount	channelAvgEngagementRate	numberOfVideosOnTrendingLicensed
1											
2	Al Jazeera English	News & Politics	865417762	281	1	7279.69	3068857.31	61219.91	5986.63	0.03	
3	Alexa Rivera	Howto & Style	3423296512	215	0	20971.15	15922309.36	493987.97	9530.8	0.03	
4	Bad Bunny	Music	4891910365	91	2	43230.28	5260186.72	593478.7	13856.16	0.02	
5	Barstool Sports	Comedy	296892999	160	35	3006.67	1522528.2	38511.49	1005.73	0.02	
6	BeardMeatsFood	People & Blogs	845674890	148	0	13008.11	5714019.53	116520.2	5344.3	0.02	
7	big boss	Entertainment	55966335	16	2	4830.44	3103240.83	107503	7554.06	0.04	
8	Bikes and Beards	Entertainment	475633168	178	0	5479.19	2672433.53	53250.19	2530.96	0.02	
9	BingCrosbyVEVO	Music	69471265	16	0	7515.02	4341954.06	25691.19	1103.38	0.02	
10	Bloodhound Q50	People & Blogs	22638720	0	13	18932.23	1741440	25368.85	1346.77	0.02	
11	Brawl Stars	Gaming	2061963054	166	4	16594.82	12129194.44	356505.62	16567.7	0.04	
12	brewstewfilms	Comedy	1193543753	155	2	4326.48	7602189.51	118573.01	4955.35	0.02	
13	Brown Town Music	Music	1274910146	119	1	10724.93	10624251.22	133230.53	2916.93	0.02	
14	Call of Duty	Gaming	1095133739	175	10	5281.8	5703425.62	82954.96	15025.99	0.03	
15	Cash Marco	Entertainment	71523691	122	1	4753	581493.42	11757.89	2285.13	0.03	
16	CautionBanet	News & Politics	1602701112	146	1	2092.77	10924701.95	21646.9	5451.1	0.04	

Channel_statistic.csv

1. Introduction
- 2. Dashboard Features**
3. Dashboard Design
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Dashboard Features

Our dashboard contains **6** pages:

+) **Overview**: Showing **overall statistics** about the dataset (number of channels, number of trending videos by channel)

+) **Channel General**
+) **Channel Detail**

Provide overall and more detailed information about the **channels** in the dataset

+) **Video General**
+) **Video Detail**

Provide overall and more detailed information about the **videos** in the dataset

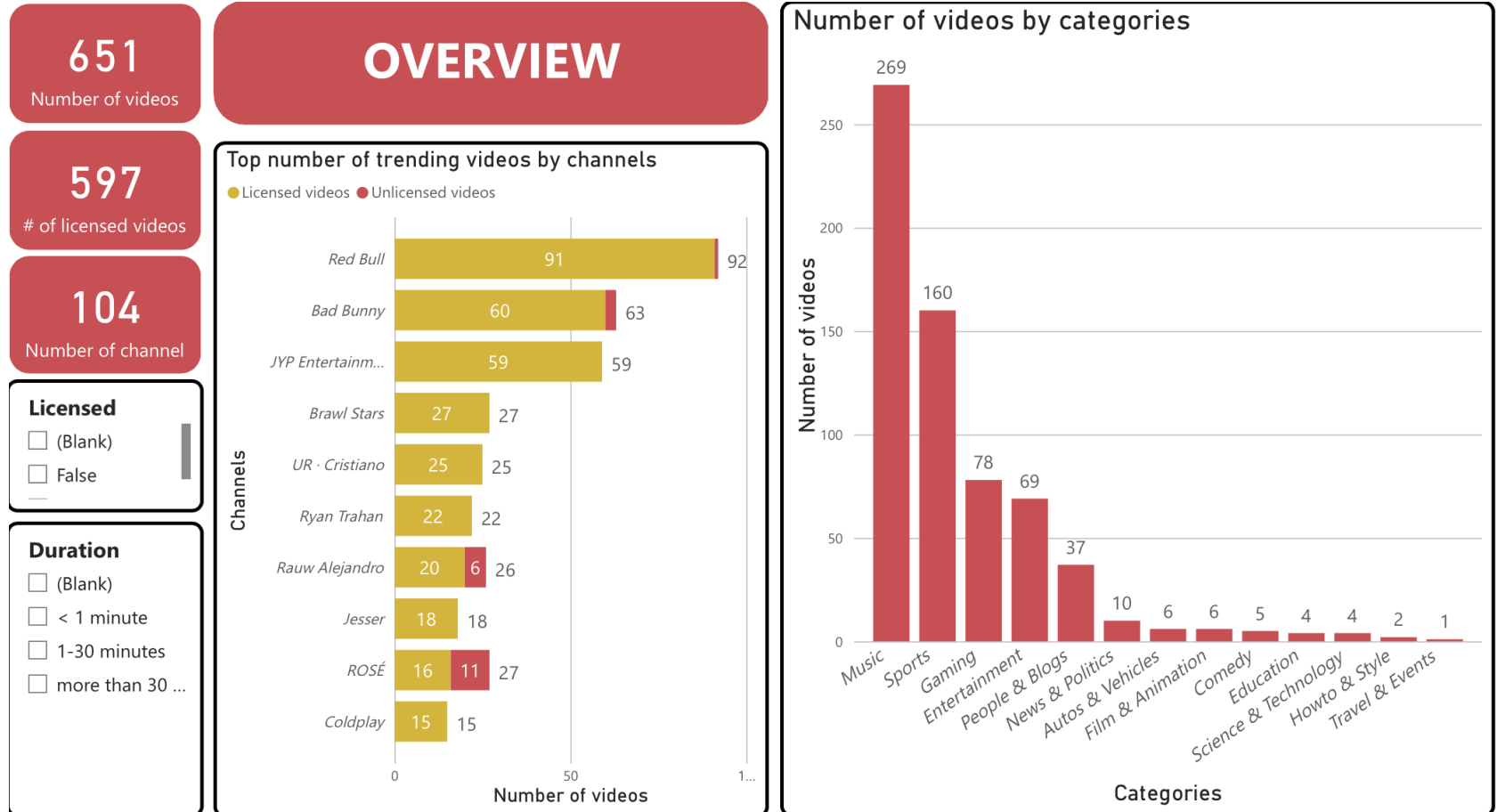
+) **MrBeast**: An **outlier** in the dataset that we want to highlight

Table of Content

1. Introduction
2. Dashboard Features
- 3. Dashboard Design**
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Dashboard Design (Overview)



Dashboard Design (Overview)

- Summarizes the core metrics of the dataset

-> **KPI Cards**



651

Number of videos

597

of licensed videos

104

Number of channel

Licensed

☐ (Blank)

☐ False

—

Duration

☐ (Blank)

☐ < 1 minute

☐ 1-30 minutes

☐ more than 30 ...

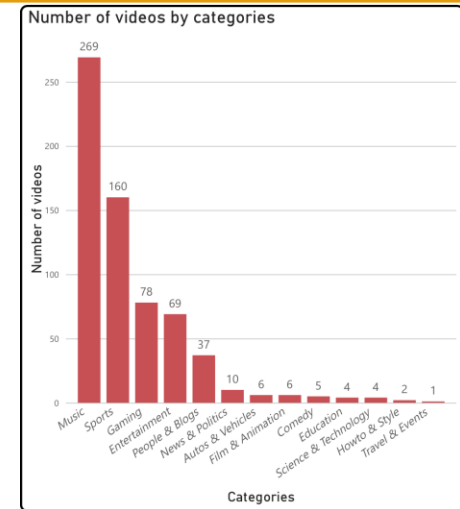


- Interactive filtering** to narrow down the view

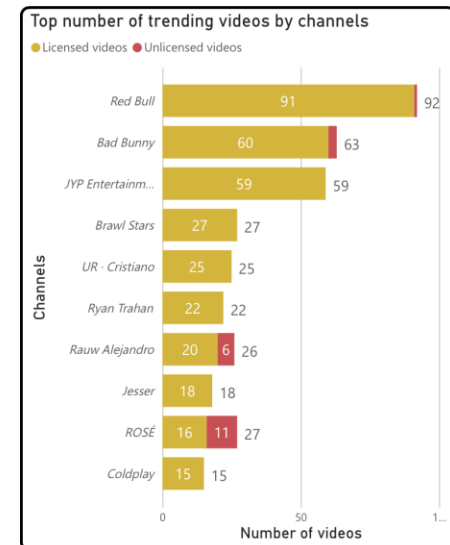
-> **Slicers – Licensed and Duration Filters**

Dashboard Design (Overview)

- Showing **count data**
-> **Vertical Bar Chart**



- Shows the split between licensed and unlicensed videos
- → clear part-to-whole comparison.
- Ranking the number of videos from most to least



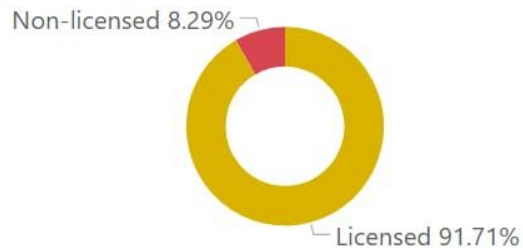
-> **Stacked Bar Chart**

Dashboard Design (Video general)

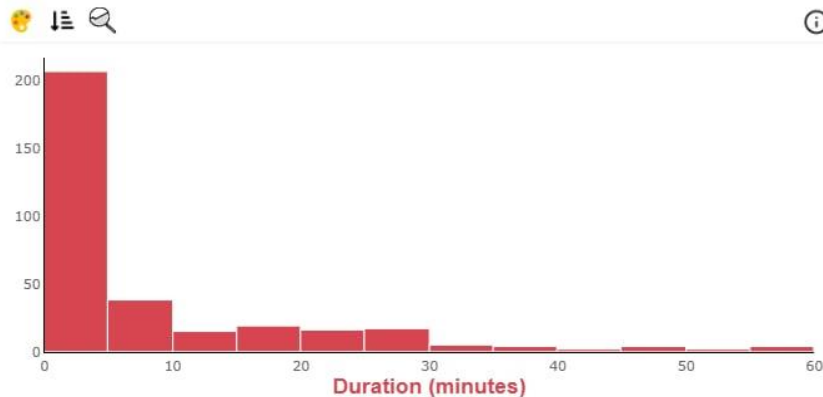


VIDEOS GENERAL

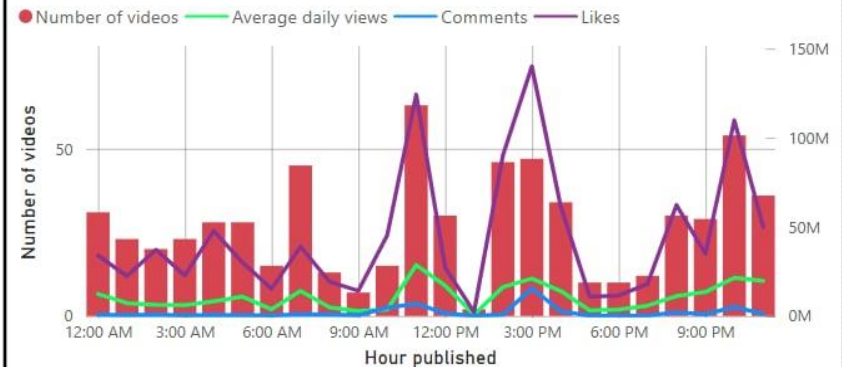
Percentage of licensed and unlicensed videos



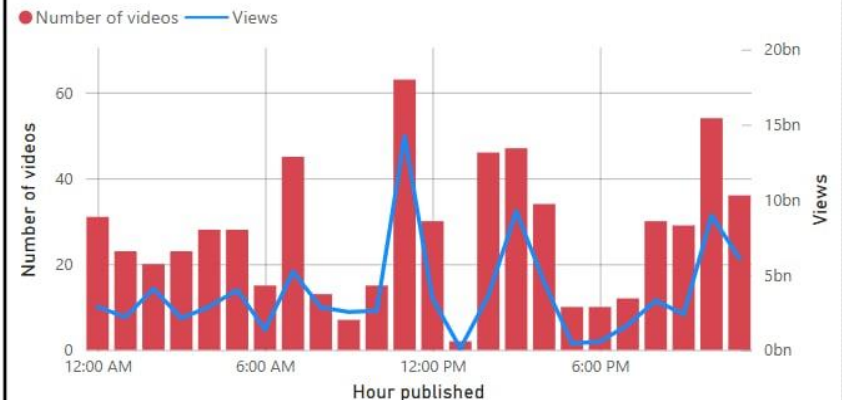
Video duration distribution



Number of videos, average daily views, comment and likes by Hour published in a day



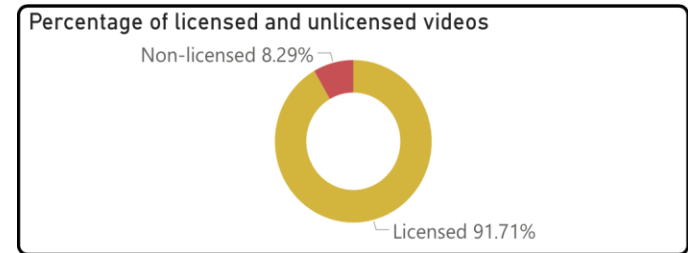
Number of videos and Views by Hour published in a day



Dashboard Design (Video general)

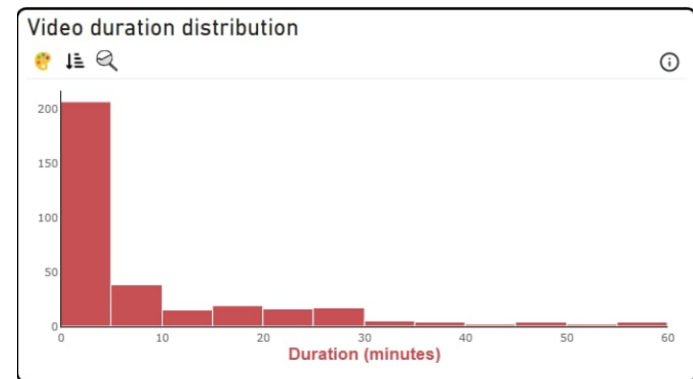
- Showing **part-to-whole** relationships.

-> **Pie Chart**



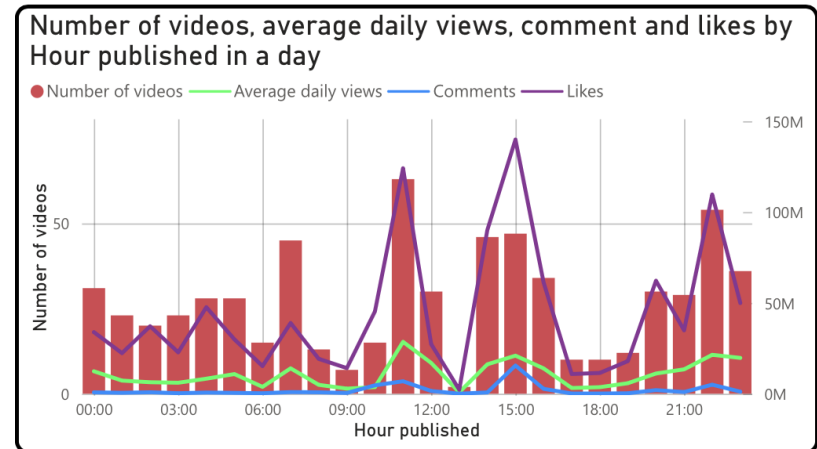
- **Distribution of video durations** (continuous numerical variables)

-> **Histogram**

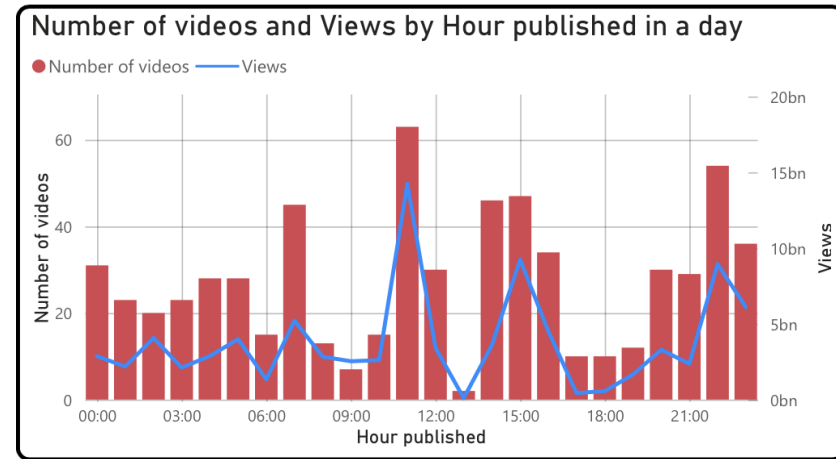


Dashboard Design (Video general)

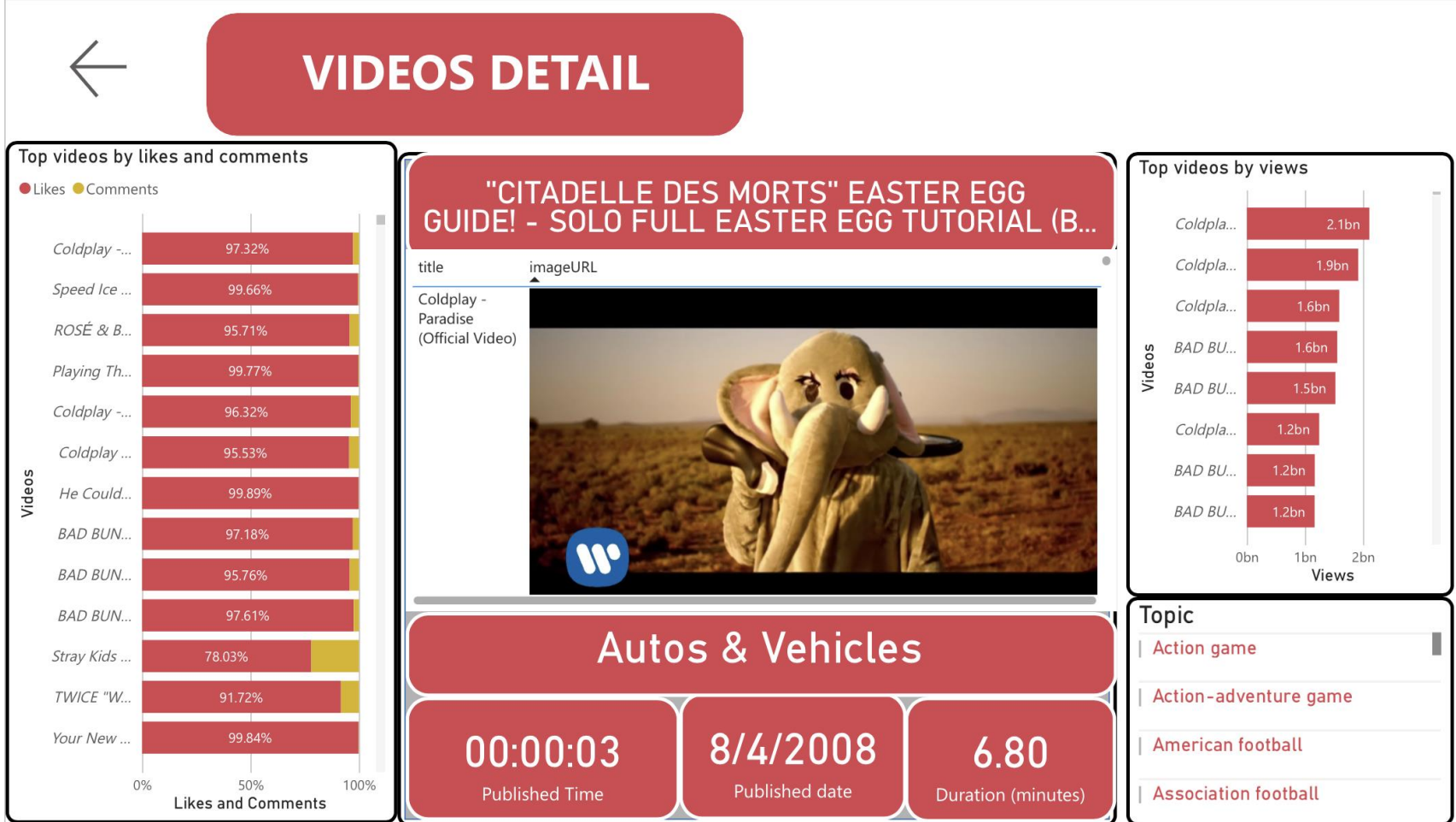
- Show how many videos are published at each hour.
 - Overlay **Likes, Comments, Daily Views** for deeper analysis.
- > **Bar Chart & Line Chart**



- Exploring the relationship between videos (**activity volume**) and view **outcome**
- > **Bar Chart & Line Chart**



Dashboard Design (Video detail)

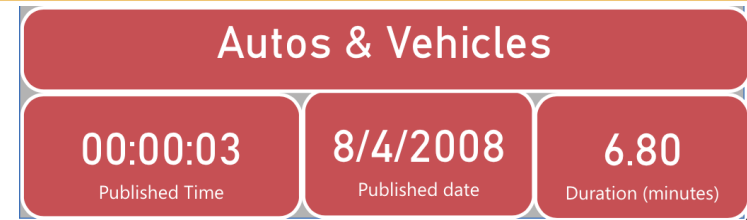


Page 3: Video detail

Dashboard Design (Video detail)

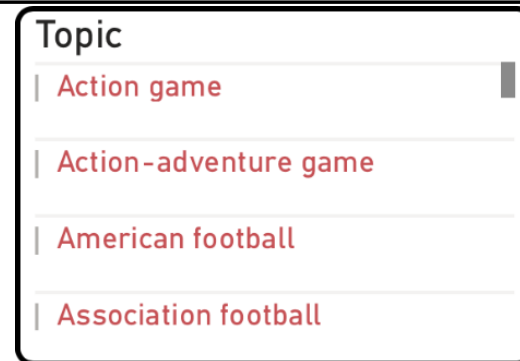
- Highlighting single-value metrics

-> KPI Cards



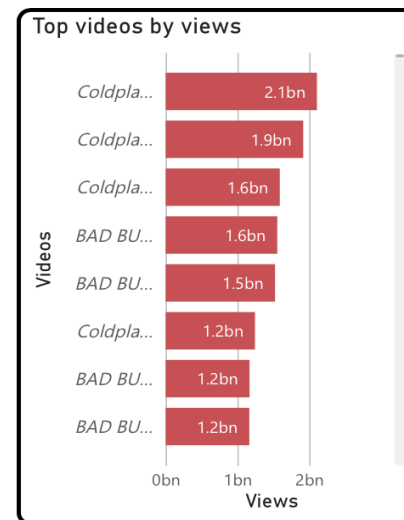
- Categorical data with many distinct values.

-> Topic List



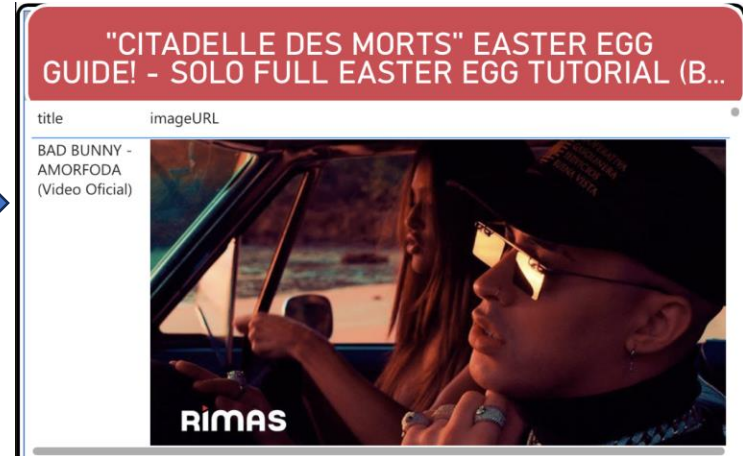
- Top-N analysis

-> Horizontal Bar Chart

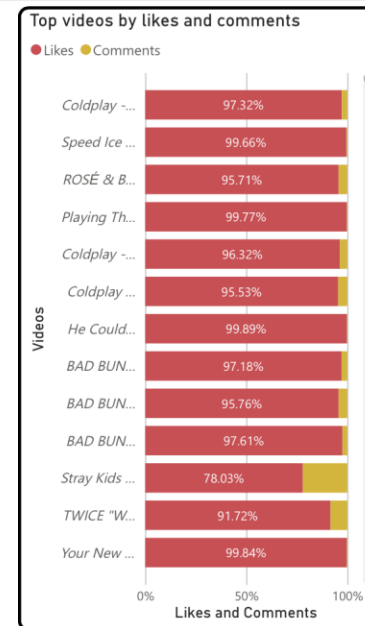


Dashboard Design (Video detail)

- Analyzing individual videos
-> Central Thumbnail and Title

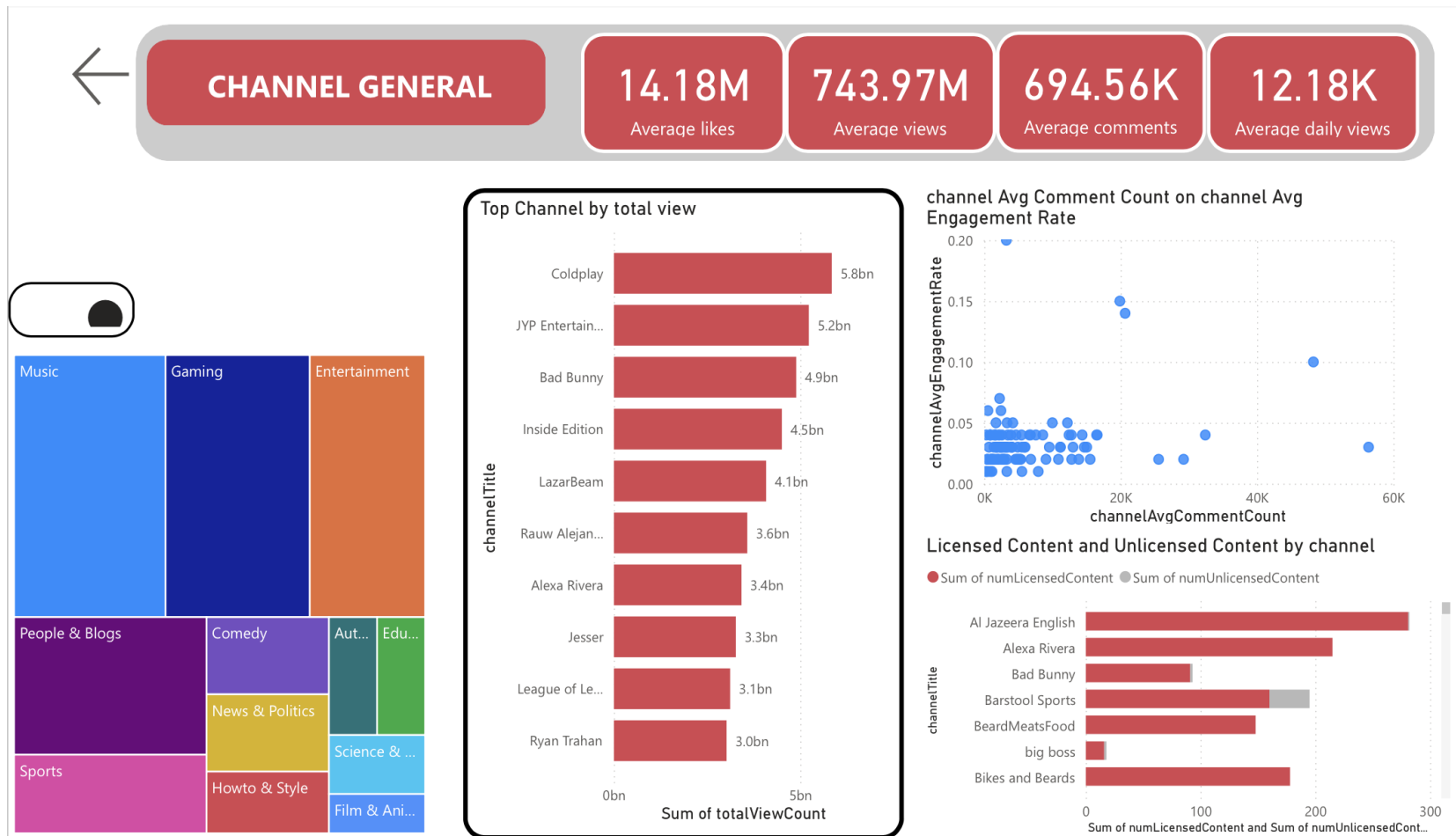


- Comparing the **composition of likes and comments** side-by-side.
-> Stacked Bar Chart



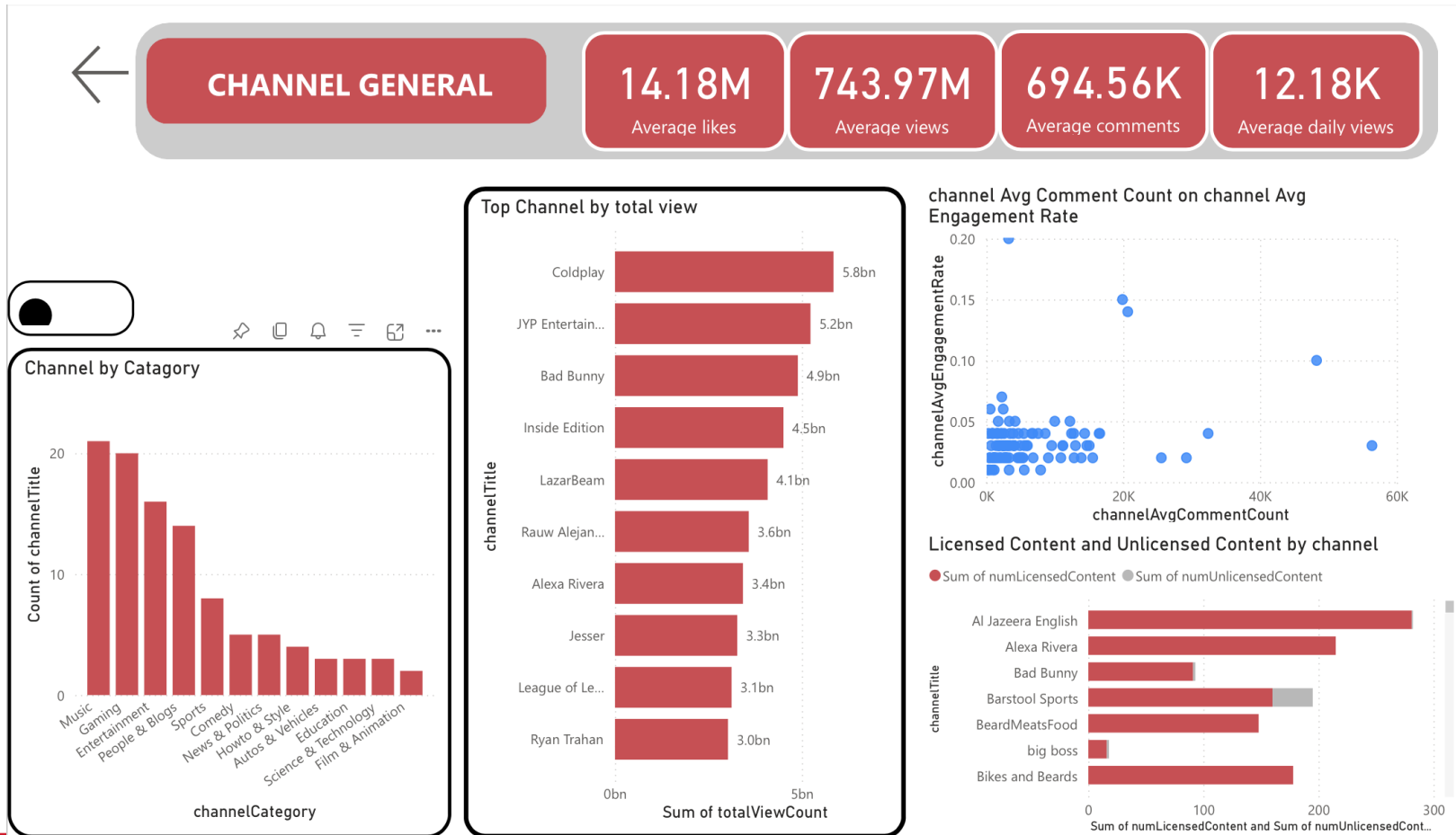
Dashboard Design (Channel General)

Page 3: Channel General provide general information about the channels in the dataset



Dashboard Design (Channel General)

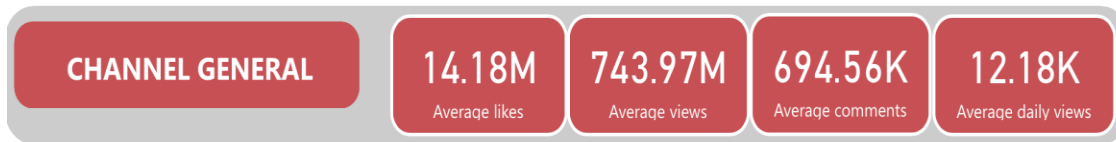
Page 3: Channel General provide general information about the channels in the dataset



Dashboard Design (Channel General)

- Summarizes **key metrics** across all channels

-> **KPI Cards**

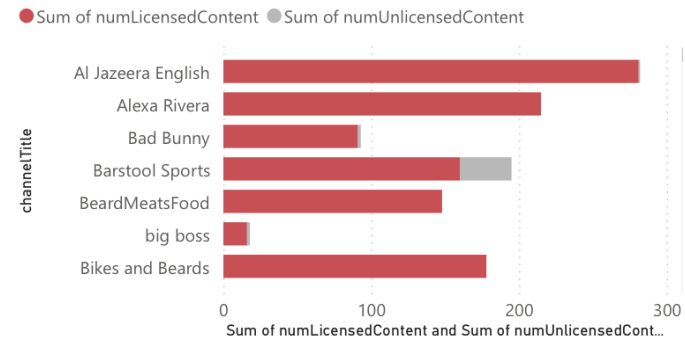


- Shows the **content composition** per channel

-> **Stack Bar**

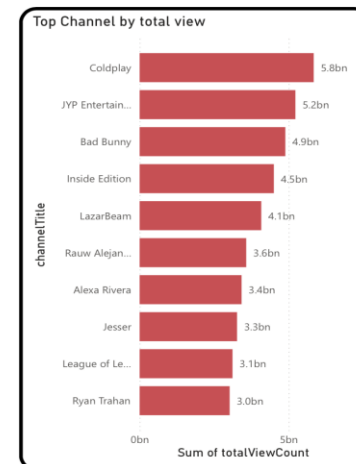


Licensed Content and Unlicensed Content by channel



- Identify the **top-performing** channels

-> **Horizontal Bar**



Dashboard Design (Channel General)

- Showing **proportional distribution** among many among many channels

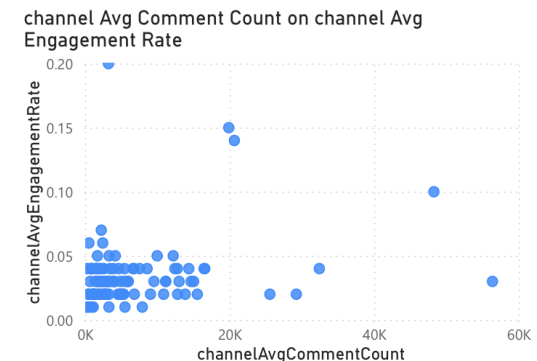
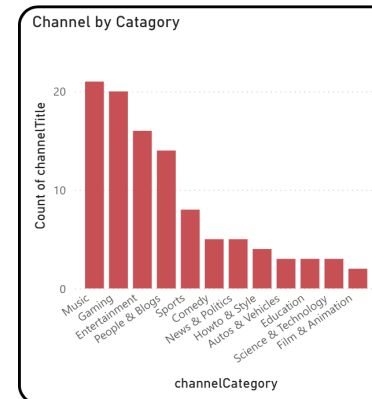
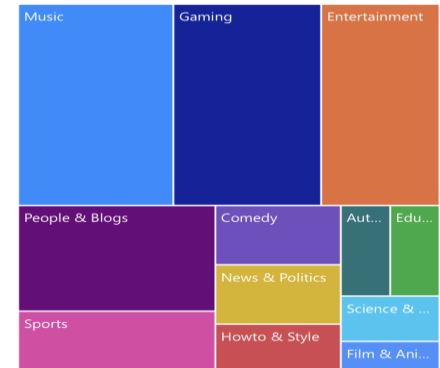
-> **Tree map**

- Offers **precise comparison** between categories with clear axis labels.

-> **Bar chart**

- Showing **relationships** between *channelAvgEngagementRate* and *channelAvgCommmentCount* (two continuous variables.)

-> **Scatter Plot**



Dashboard Design (Channel Detail)



CHANNEL DETAIL

Category x
Entertainment

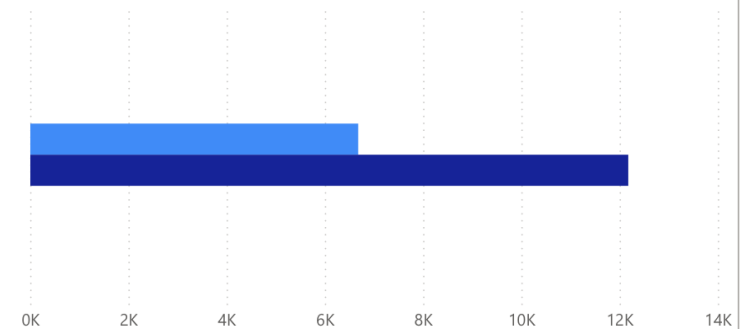
Channel x
Cyberpunk 2077

totalNumberOfVi... x



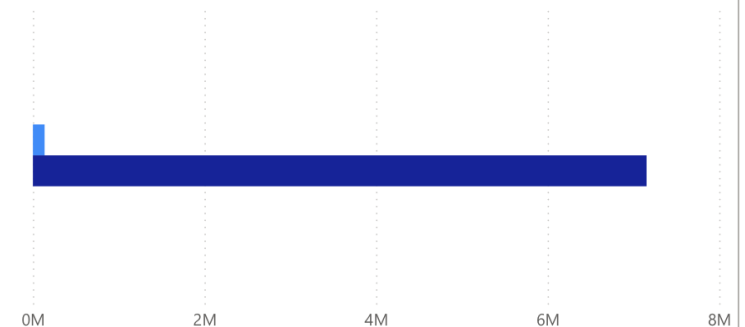
Comment count and Average daily views

● Channel average comments ● Channel average daily views



Average likes and Average views

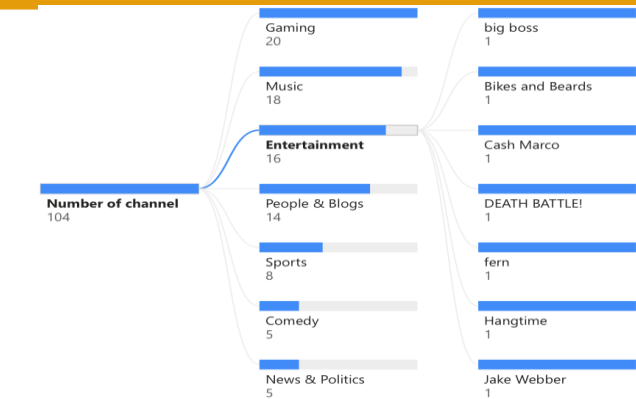
● Channel average likes ● Channel average views



Dashboard Design (Channel Detail)

- Structured data with multiple levels of grouping

-> **Decomposition Tree**



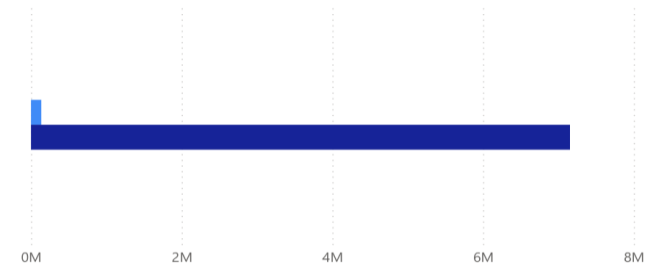
- Compares **audience reach (views)** against **audience response (likes)**.

-> **Horizontal Bar Chart**



Average likes and Average views

● Channel average likes ● Channel average views



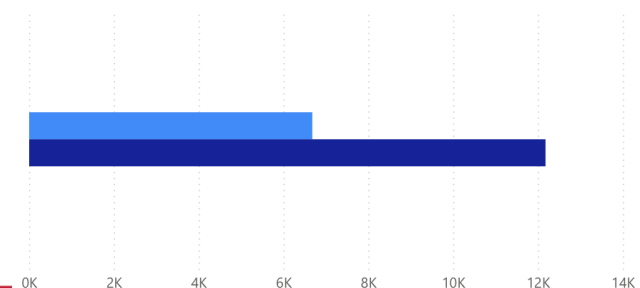
- Distinguish between **comments (light blue)** and **views (dark blue)**.

-> **Horizontal Bar Chart**



Comment count and Average daily views

● Channel average comments ● Channel average daily views



Dashboard Design (MrBeast)

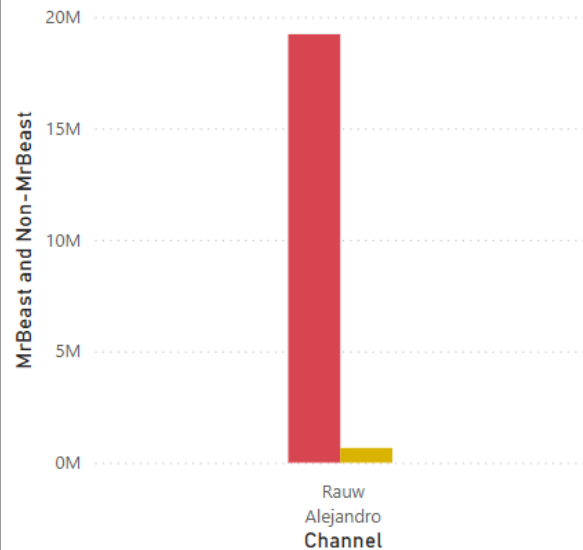
MrBeast

Channel

- ☐ Al Jazeera English
- ☐ Alexa Rivera
- ☐ Bad Bunny
- ☐ Barstool Sports
- ☐ BeardMeatsFood
- ☐ big boss

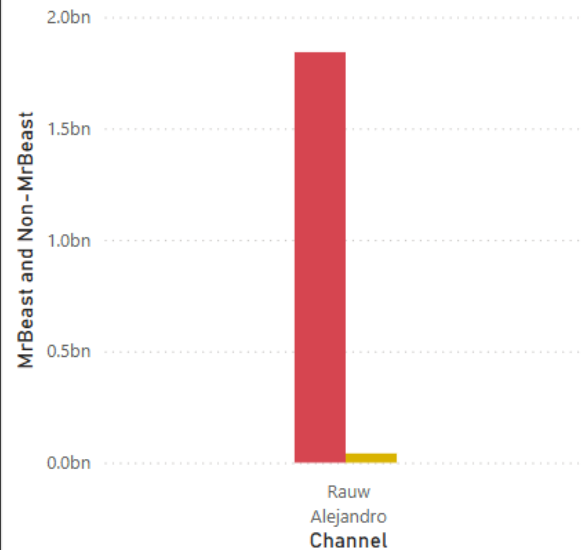
Comment comparison

● MrBeast ● Non-MrBeast



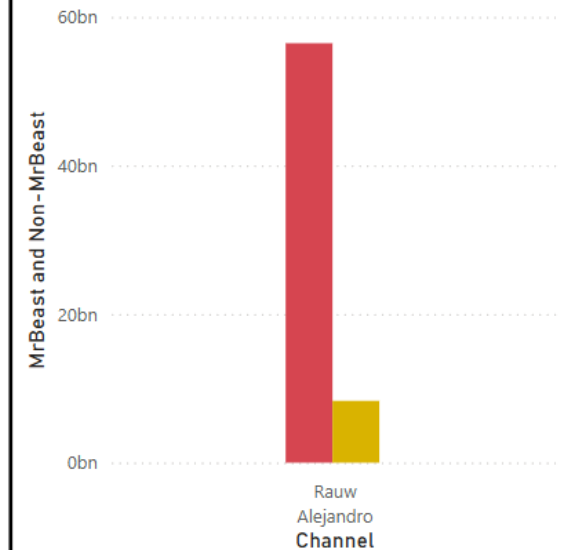
Like comparison

● MrBeast ● Non-MrBeast



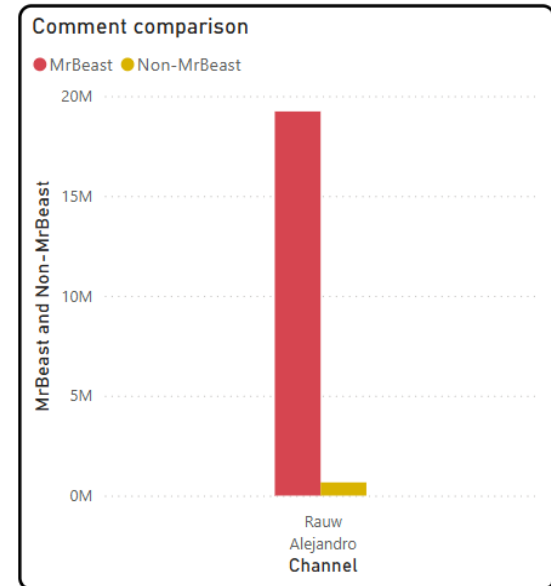
View comparison

● MrBeast ● Non-MrBeast



Dashboard Design (MrBeast)

- Showing **differences** between **comments**, **likes**, **views** of MrBeast and other videos.
- > **Bar charts**
- **Horizontal slicer** to choose a specific channel for **comparison**.



Channel

- ☐ Al Jazeera English
- ☐ Alexa Rivera
- ☐ Bad Bunny
- ☐ Barstool Sports
- ☐ BeardMeatsFood
- ☐ big boss

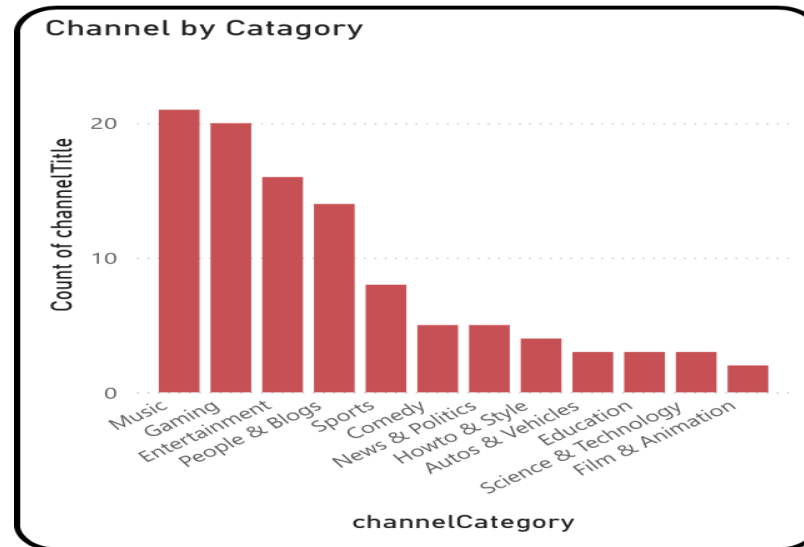
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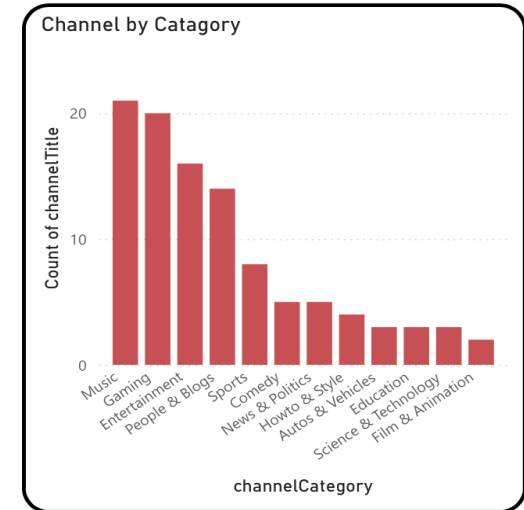
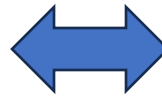
Discussion

In this project, we apply some following guidelines that we have been studied, such as:

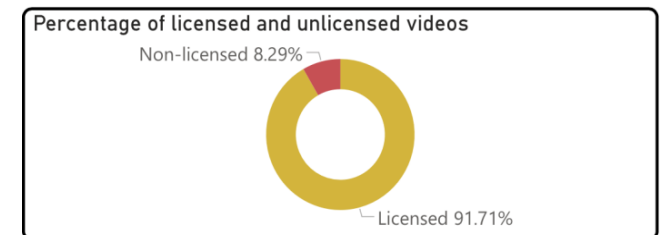
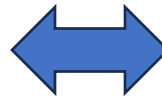
1. **Using color effectively:** We avoid using too many colors (mainly Red, Gray, Yellow)
2. **Balance Data and Context:** We try to maximize data-ink ratio
3. **Avoid Line-Only Charts:**
 - * Solid color fills instead of outlines for bar charts
 - * Bar charts must have a baseline = 0 to avoid misinterpreting height.



4. **Remove Clutter:** We avoid visual noise, try to use appropriate contrast.



5. **Pie chart:** Only **two** categories and Comparing part-to-whole ratios



5. Large and Readable Axis Labels. 6. Write Clear Explanations

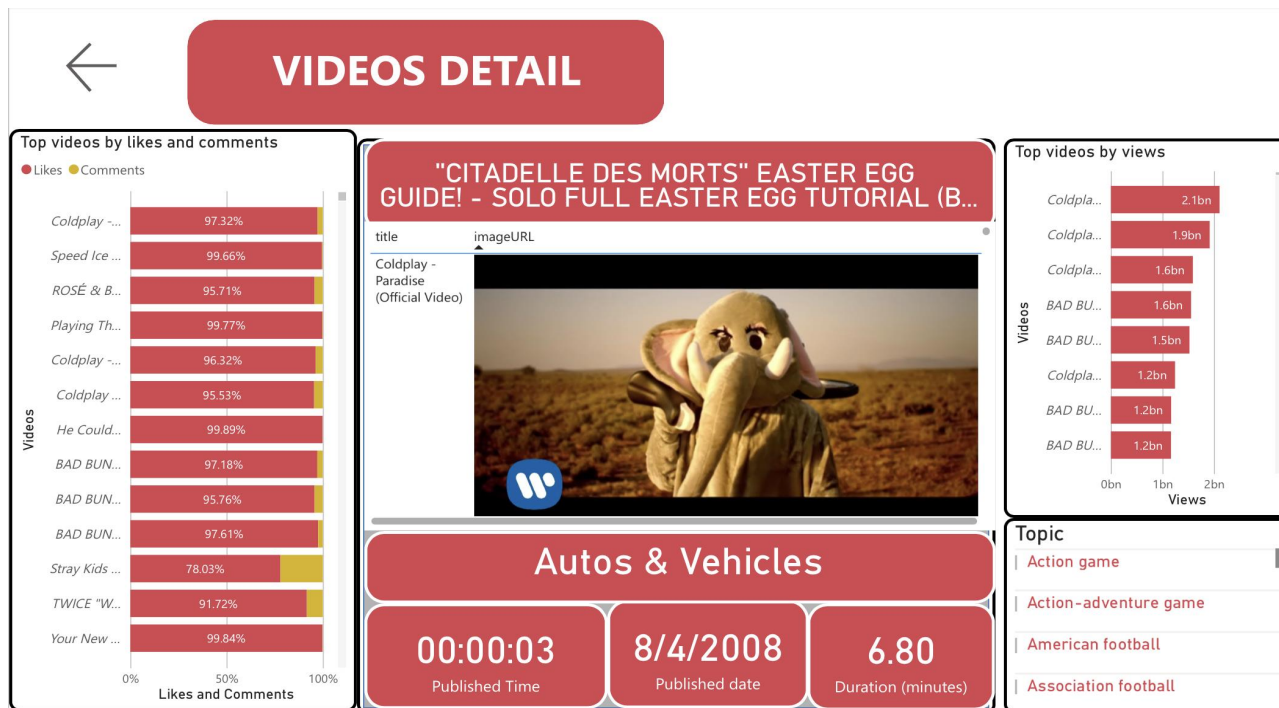



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Conclusion

 **Trending videos** reveal patterns in views, likes, engagement, and optimal posting times

 **Topics** help identify which content themes drive the most attention and interaction

 **Channels** show who consistently performs well and how licensed content impacts reach

 Combining all 3 gives a full picture: *video* → *topic* → *channel*

 Useful for content strategy, audience targeting, and growth optimization

A large, stylized graphic of the HUST logo, composed of concentric circles of dots in a lighter shade of red, set against a solid red background.

HUST

THANK YOU !