

Analyzing TED Talks Data

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DATA 604: Data Management

Prof. Hang Yue, May 17th 2022

1. INTRODUCTION:

TED is a global community that welcomes people from all disciplines and cultures who want to learn and spread ideas to the world in the form of short powerful talks (18 minutes or less). We are convinced that ideas have the ability to alter people's minds, lives, and, ultimately, the world. TED originated in 1984 as a conference where Technology, Entertainment, and Design converged, and has since expanded to embrace nearly every topic imaginable, from science to business to global challenges, in over 100 languages. So, we have chosen this data to analyze more about the ted talk shows.

2. OVERVIEW OF THE DATASET:

We have collected this data from the Kaggle to drive data analysis on the Ted Talks. Here the data has been recorded from Feb 1984 to Feb 2022. The data set consists of Show title, Author/ Speaker of the show, number of authors for the show, Occupation of the author, date at which Show was conducted, Number of views, Number of likes, link to the Ted talk. This data set can be divided into two tables namely; the main table & the Author table. In the main table, the title of the show serves as a primary key while in the Author Table, Author_id serves as a unique identifier. In ted shows table it describes about the various shows conducted and ted author table describes about author details. There is a possibility that one author could perform one or more shows and each show could be performed by one or more authors. Therefore, we have created an Entity- Relationship Diagram to create a Relational Database table.

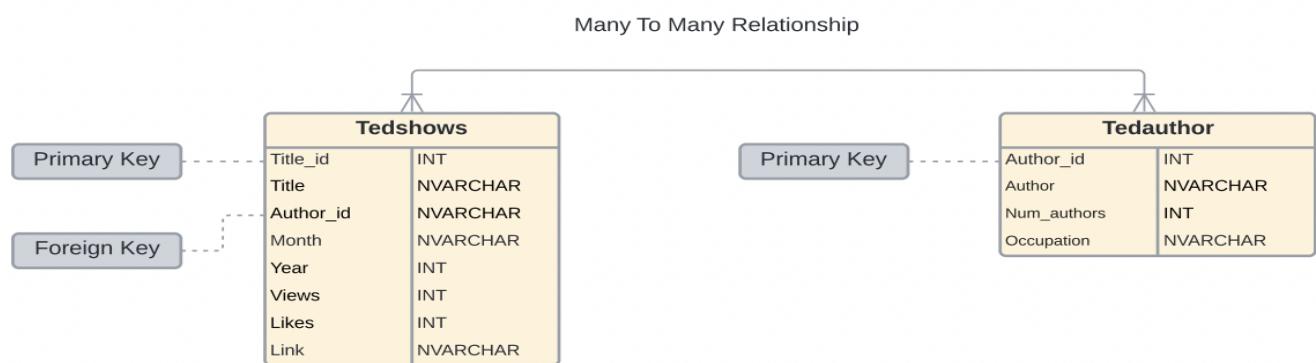


Fig 1

3. EXTRACTION, TRANSFORMATION AND LOADING:

AWS Glue is a fully managed ETL (Extraction, transformation and loading) service as it makes it simple and cost-effective to store the data, clean it, enrich it and move it reliably between various data sources. Advantages of AWS Glue include:

- To build a data warehouse to organize, cleanse, validate and format data.
- To run serverless queries against Amazon s3 data lake.
- To create event driven ETL properties.
- To understand your data source.

Steps Followed:

1. Collected data and divided the big data into two tables (tedshows, tedaauthor).
2. Figured out relationships among data tables via Entity-Relationship diagram.
3. Loaded data files into AWS S3 bucket, later created database with S3 location in AWS Glue.
4. Created and run the crawler to extract the tables from the data files.
5. SQL codes will be written to query the data to check the popular shows based on the views & likes, to find most popular Ted talk speaker, Month & Year-wise Ted shows frequency using SQL Joins via Athena.
6. We have also created an AWS RDS, and connected it with MySQL workbench for querying the data from the tables.
7. Using this cleaned data, we have connected to Tableau to perform the data analysis and display the important information using graphs.

4. TOOLS USED:

AWS S3 Bucket:
To load the csv files into the cloud storage and to store all the output files

AWS Glue:
To access the data and create table definitions

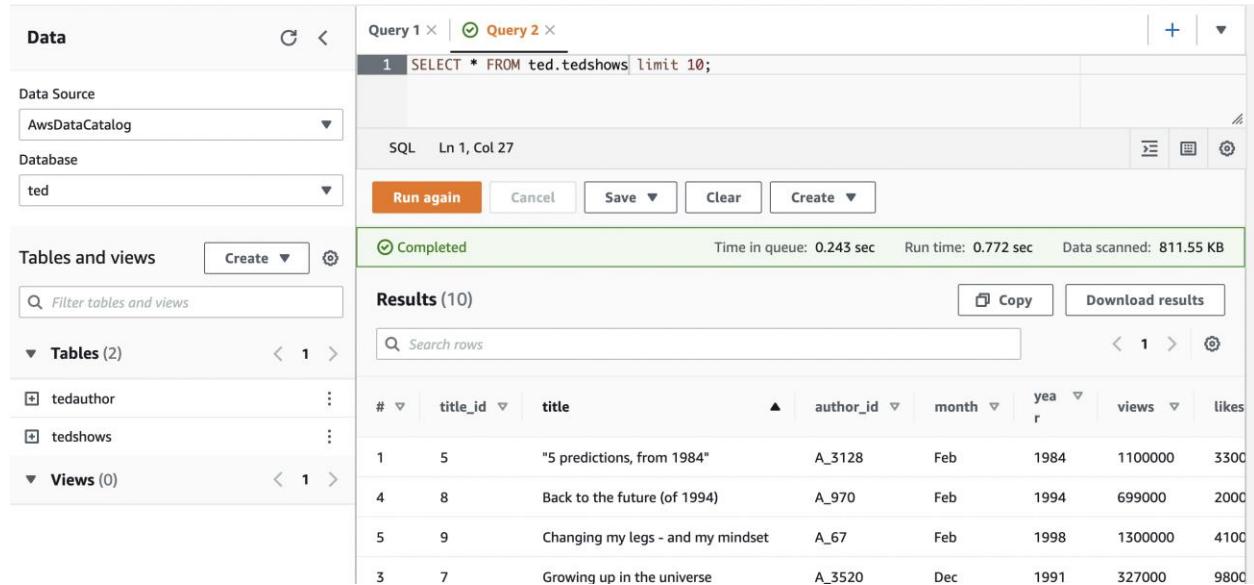
AWS Athena:
To analyze data in Amazon S3 using standard SQL

AWS RDS: To host the MySQL for Data Analysis

Tableau:
For Visualization and Analysis

5. DATA TABLES:

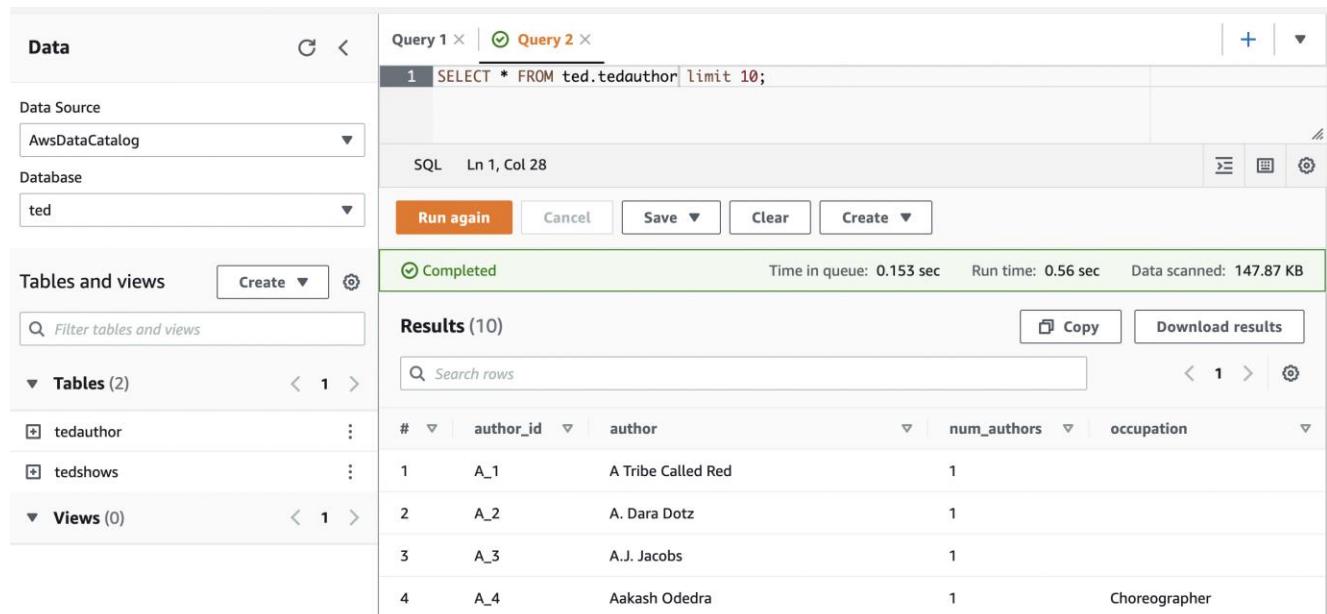
- Tedshows: Title_id, Title, author_id, Month, Year, views, likes, link are columns.



The screenshot shows the AWS Glue Data Catalog interface. On the left, the sidebar displays the Data Source (AwsDataCatalog) and Database (ted). Under Tables and views, there are two tables: tedauthor and tedshows. The tedshows table has 10 rows of data. The results table has columns: #, title_id, title, author_id, month, year, views, and likes. The data is as follows:

#	title_id	title	author_id	month	year	views	likes
1	5	"5 predictions, from 1984"	A_3128	Feb	1984	1100000	3300
4	8	Back to the future (of 1994)	A_970	Feb	1994	699000	2000
5	9	Changing my legs - and my mindset	A_67	Feb	1998	1300000	4100
3	7	Growing up in the universe	A_3520	Dec	1991	327000	9800

- Tedaauthor: Author_id, author, Num_authors, Occupation are columns.

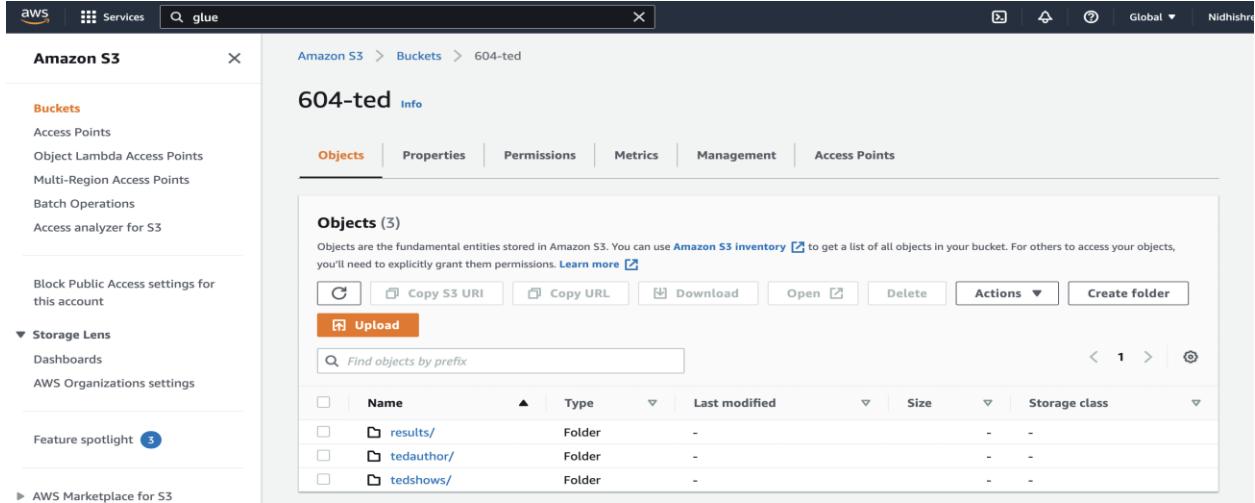


The screenshot shows the AWS Glue Data Catalog interface. On the left, the sidebar displays the Data Source (AwsDataCatalog) and Database (ted). Under Tables and views, there are two tables: tedaauthor and tedshows. The tedaauthor table has 10 rows of data. The results table has columns: #, author_id, author, num_authors, and occupation. The data is as follows:

#	author_id	author	num_authors	occupation
1	A_1	A Tribe Called Red	1	
2	A_2	A. Dara Dotz	1	
3	A_3	A.J. Jacobs	1	
4	A_4	Aakash Odedra	1	Choreographer

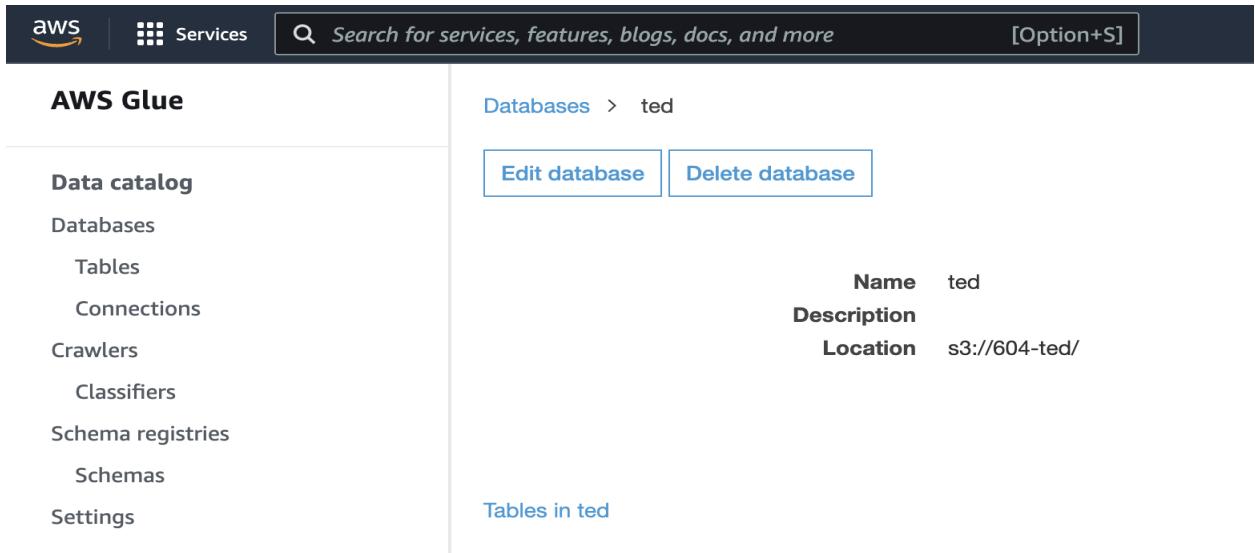
6. AWS S3 BUCKET, AWS GLUE & AWS ATHENA:

Created S3 bucket → Three folders have been created, 2 for datasets and 1 for the results.



The screenshot shows the AWS S3 console interface. On the left, there's a sidebar with options like Buckets, Storage Lens, and Feature spotlight. The main area shows the '604-ted' bucket. At the top, there are tabs for Objects, Properties, Permissions, Metrics, Management, and Access Points. Below that, a section titled 'Objects (3)' lists three items: 'results/' (Folder), 'tedauthor/' (Folder), and 'tedshows/' (Folder). There are also buttons for Upload, Copy S3 URI, Copy URL, Download, Open, Delete, Actions, and Create folder.

Created a database in AWS Glue.



The screenshot shows the AWS Glue console. On the left, there's a sidebar with Data catalog, Databases, Tables, Connections, Crawlers, Classifiers, Schema registries, Schemas, and Settings. The main area shows the 'ted' database under 'Databases'. It has buttons for Edit database and Delete database. To the right, there are details for the database: Name (ted), Description (empty), and Location (s3://604-ted/). Below the database details, it says 'Tables in ted'.

Created Crawler.

The screenshot shows the 'Crawlers > ted' page. At the top, there are two buttons: 'Run crawler' and 'Edit'. The 'Edit' button is highlighted with a blue border. Below the buttons, the crawler configuration is listed in a table:

Name	ted
Description	false
Create a single schema for each S3 path	-
Security configuration	-
Tags	-
State	Stopping
Schedule	Mon May 16 22:02:15 GMT-400 2022
Last updated	Mon May 16 22:02:15 GMT-400 2022
Date created	Mon May 16 22:02:15 GMT-400 2022
Database	ted
Table level	service-role/AWSGlueServiceRole-Ted
Service role	s3
Selected classifiers	s3://604-ted
Data store	Include path
Connection	Exclude patterns

Run Crawler to create uploaded files as tables.

Tables A table is the metadata definition that represents your data, including its schema. A table can be used as a source or target in a job definition.

The screenshot shows the 'Tables' list page. At the top, there are buttons for 'Add tables', 'Action', a search bar, and a 'Save view' button. The table has the following columns: Name, Database, Location, Classification, Last updated, and Deprecated. There are two entries:

Name	Database	Location	Classification	Last updated	Deprecated
tedshows	ted	s3://604-ted/tedshows/	csv	16 May 2022 10:04 AM U...	
tedauthor	ted	s3://604-ted/tedauthor/	csv	16 May 2022 10:04 AM U...	

Connected to Athena for querying.

The screenshot shows the 'Editor' tab of the Athena Query Editor. The interface includes tabs for 'Recent queries', 'Saved queries', 'Settings', and 'Workgroup primary'. The main area has two tabs: 'Query 1' and 'Query 2'. The 'Query 1' tab contains the following SQL query:

```
1 SELECT b.author, count(*) as shows_count
2 FROM ted.tedshows a left join ted.tedauthor b
3 on a.Author_id= b.Author_id
4 where b.author= 'Alex Gendler'
5 group by b.author;
```

The results of the query are displayed in the 'Results (1)' section:

#	author	shows_count
1	Alex Gendler	45

7. AWS RDS:

The screenshot shows the AWS RDS console. On the left, there's a sidebar with links like Dashboard, Databases (which is selected), Query Editor, Performance insights, Snapshots, Automated backups, Reserved instances, and Proxies. The main area is titled 'Databases' and shows a table with one row. The row details are: DB identifier 'ted-db', Instance 'MySQL Community', Region & AZ 'us-east-1b', Size 'db.t2.micro', and Status 'Available'. There are buttons for Group resources, Modify, Actions, Restore from S3, and Create database.

8. DATA ANALYSIS USING RDS:

Once the data is loaded into the tables, we have used Mysql workbench to connect to the AWS RDS and performed the analysis by SQL queries. Below are few queries executed.

- Query1: To find the top 10 ted talk shows based on Views.

The screenshot shows MySQL Workbench with a connection to a database named 'TED'. The left pane shows the schema with tables like 'sys', 'TED', 'tedauthor', 'tedshows', and their respective columns and indexes. The main pane displays a query editor with the following SQL code:

```
1 -- Top 10 ted-talk shows based on views
2
3 select a.Title, b.author, a.Month,a.Year, a.Views from TED.tedshows as a
4 left join TED.tedauthor as b
5 on a.Author_id = b.Author_id
6 Order by Views Desc limit 10;
7
8 -- top 20 popular shows between 2020 to 2022 years
9
10 select a.Title, b.author, a.Month, a.Year, a.Views from TED.tedshows as a
```

Below the query, a result grid shows the top 10 results:

Title	author	Month	Year	Likes
Do schools kill creativity?	Sir Ken Robinson	Feb	2006	2100000
Your body language may shape who you are	Amy Cuddy	Jun	2012	1900000
Inside the mind of a master procrastinator	Tim Urban	Feb	2016	1800000
How great leaders inspire action	Simon Sinek	Sep	2009	1700000
The power of vulnerability	Brene Brown	Jun	2010	1700000
How to speak so that people want to listen	Julian Treasure	Jun	2013	1400000
The next outbreak? We're not ready	Bill Gates	Mar	2015	1300000
My philosophy for a happy life	Sam Berns	Oct	2013	1300000
What makes a good life? Lessons from the long...	Robert Waldinger	Nov	2015	1200000
10 things you didn't know about orgasm	Mary Roach	Feb	2009	1100000

- Query2: To find the top 10 ted talk shows based on Likes.

```

MySQL Workbench

Administration Schemas Query 1 top 10_shows by views Less popular shows DB & table creation shows per month:year
Schemas
sys TED
Tables
tedauthor
Columns
Indexes
Foreign Keys
Triggers
tedshows
Columns
Indexes
Foreign Keys
Triggers
Views
Stored Procedures
Functions
Object Info Session
No object selected
13 where a.Year between '2020' and '2022'
14 Order by Views Desc limit 20;
15
16
17 -- Top 10 ted-talk shows based on Likes
18
19 • select a.Title, b.author, a.Month,a.Year, a.Likes from TED.tedshows as a
20 left join TED.tedaauthor as b
21 on a.Author_id = b.Author_id
22 Order by Likes Desc limit 10;
23
100% 1:23
Result Grid Filter Rows: Search Export: Fetch rows:
Title author Month Year Likes
Do schools kill creativity? Sir Ken Robinson Feb 2006 2100000
Your body language may shape who you are Amy Cuddy Jun 2012 1900000
Inside the mind of a master procrastinator Tim Urban Feb 2016 1800000
How great leaders inspire action Simon Sinek Sep 2009 1700000
The power of vulnerability Brené Brown Jun 2010 1700000
How to speak so that people want to listen Julian Treasure Jun 2013 1400000
My philosophy for a happy life Sam Berns Oct 2013 1300000
The next outbreak? We're not ready Bill Gates Mar 2015 1300000
What makes a good life? Lessons from the longest study on happiness Robert Waldinger Nov 2015 1200000
Looks aren't everything. Believe me, I'm a model. Cameron Russell Oct 2012 1100000

```

- Query3: To Find the popular shows in the recent times (2020 to 2022).

```

MySQL Workbench

Administration Schemas Query 1 top 10_shows by views Less popular shows DB & table creation shows per month:year Num_of_authors
Schemas
sys TED
Tables
tedauthor
Columns
Author_id
Author
Num_Authors
Occupation
Indexes
Foreign Keys
Triggers
tedshows
Columns
Indexes
Foreign Keys
Object Info Session
Column: Num_Authors
Definition:
Num_Authors int
100% 30:14
Result Grid Filter Rows: Search Export: Fetch rows:
Title author Month Year Views
What causes dandruff, and how do you get rid of it? Thomas L. Dawson Feb 2021 10000000
How we must respond to the coronavirus pandemic Bill Gates Mar 2020 8600000
How does alcohol make you drunk? Judy Grisel Apr 2020 7400000
What is schizophrenia? Anees Bahji Mar 2020 7000000
When is a pandemic over? Alex Rosenthal Jun 2020 7000000
What if a US presidential candidate refuses to concede after an election? Van Jones Oct 2020 6900000
The tale of the doctor who defied Death Isseult Gillespie Mar 2020 6400000
The surprising effects of pregnancy TED-Ed Oct 2020 6300000
Countdown Global Livestream 2021 TED Oct 2021 6100000
How every child can thrive by five Molly Wright Jul 2021 5900000
What's that ringing in your ears? Marc Fagelson Aug 2020 5700000
Which is better: Soap or hand sanitizer? Alex Rosenthal, Pall... May 2020 4900000
What really happened during the Salem Witch Trials Brian A. Pavlac May 2020 4800000
A brief history of alcohol Rod Phillips Jan 2020 4700000
Why do we have hair in such random places? Nina G. Jablonski Jun 2021 4600000
How the pandemic will shape the near future Bill Gates Jun 2020 4600000

```

- Query4: To find 100 less popular shows based on Views and Likes.

The screenshot shows the MySQL Workbench interface with the 'Query 1' tab selected. The query window contains the following SQL code:

```

1 -- 100 shows which are less popular that is less views and less likes
2
3 • select a.Title, b.author, a.Month,a.Year, a.Views, a.Likes from TED.tedshows as a
4 left join TED.tedauthor as b
5 on a.Author_id = b.Author_id
6 Order by Likes, Views asc
7 Limit 100;
8
9 -- 20 less popular shows between 2020 to 2022.
10
11 • select a.Title, b.author, a.Month, a.Year, a.Views from TED.tedshows as a

```

The result grid displays 100 rows of show titles, authors, months, years, views, and likes. The data includes titles like "Post-Pandemic Paradise in Rapa Nui" and "Virtual Worlds", along with their respective authors, months, years, views, and likes counts.

Title	author	Month	Year	Views	Likes
Post-Pandemic Paradise in Rapa Nui	Far Flung	Oct	2020	1200	37
Virtual Worlds	Far Flung	Nov	2020	1300	39
"Jamie Raeburn" / "Baloo Baleerie" / "Twa recruitin Sergeant"	Findlay Napier , Gillia...	Jul	2019	1300	40
"Part II. The Journey Through Time" / "Ruslan and Lyudmila"	Deutsche Philharmoni...	Nov	2018	1300	40
The case for public media	Qi Wu 吴琪	Nov	2020	1500	47
"Dive In"	Dave Matthews	Oct	2021	1600	49
A chef shares: Here's how we can feed the planet without hurting the clima...	Peggy Chan	Oct	2020	2100	65
Facing the future together	Rowan Fitzpatrick , H...	Dec	2017	2200	68
Cement's carbon problem ,Á and 2 ways to fix it	Mahendra Singhi	Oct	2021	2400	72
"Good Morning Young Artist" and "Ms. Metronome"	Mike Sempert	Sep	2014	2400	72
The revolutionary power of Black joy	Miracle Jones	Apr	2021	2400	74
"Healthcare Anthem of Merck KGaA, Darmstadt, Germany"	Lars Jvnsson	Nov	2018	2500	75
A game that lets you decide how to tackle the climate crisis	Cassie Flynn	Sep	2019	2500	75
"Astral Plane"	Valerie June	Oct	2021	2500	76
"San Francisco"	The Ferocious Few	Dec	2017	2600	79
"Ruisevor" / "No Hay Vuelta Atrs"	Flor de Tolache	Nov	2018	2800	85

- Query5: To find the shows frequency per Month.

The screenshot shows the MySQL Workbench interface with the 'Query 1' tab selected. The query window contains the following SQL code:

```

1 -- shows per month
2
3 • select a.Month, count(*) as shows_per_month
4 From TED.tedshows as a
5 group by a.Month
6 Order by count(*) desc;
7
8 -- shows per year
9
10 • select a.Year, count(*) as shows_per_year
11 From TED.tedshows as a

```

The result grid displays the number of shows per month. The data shows the highest frequency in February (725 shows) and the lowest in January (145 shows).

Month	shows_per_mon...
Feb	725
Nov	682
Oct	585
Mar	580
Apr	576
Jun	493
Jul	445
Sep	349
Dec	334
May	321
Aug	200
Jan	145

- Query6: To find the shows frequency per Year.

The screenshot shows a database interface with a sidebar navigation and a main query editor and results grid.

Navigation:

- > sys
- ↳ TED
 - Tables
 - tedauthor
 - Columns
 - Indexes
 - Foreign Keys
 - Triggers
 - tedshows
 - Columns
 - Indexes
 - Foreign Keys
 - Triggers
 - Views
 - Stored Procedures
 - Functions

Object Info | **Session**

No object selected

Code Editor (Query 6):

```

7
8      -- shows per year
9
10 •   select a.Year, count(*) as shows_per_year
11 From TED.tedshows as a
12 group by a.Year
13 Order by count(*) desc;
14
15
16
17

```

Result Grid:

Year	shows_per_year
2019	544
2020	501
2017	495
2018	473
2016	399
2021	390
2013	388
2015	376
2014	357
2012	302
2011	271
2010	267
2009	233
2007	113
2008	84
2005	65

- Query7: To find number of shows with more than 1 speaker.

The screenshot shows a database interface with a sidebar navigation and a main query editor and results grid.

Navigation:

- > sys
- ↳ TED
 - Tables
 - tedauthor
 - Columns
 - Indexes
 - Foreign Keys
 - Triggers
 - tedshows
 - Columns
 - Indexes
 - Foreign Keys
 - Triggers
 - Views
 - Stored Procedures
 - Functions

Object Info | **Session**

No object selected

Code Editor (Query 7):

```

1      -- Shows with more than 1 author.
2
3 •   select a.Title, b.Num_Authors, a.Month,a.Year
4     from TED.tedshows as a
5     left join TED.tedauthor as b
6       on a.Author_id = b.Author_id
7     where b.Num_Authors > 1
8     order by Num_Authors desc;
9
10    -- Checking any correlation between author occupation and Views.
11

```

Result Grid:

Title	Num_Authors	Month	Year
Climate change is our reality. Here's how we're taking action	5	Oct	2020
The interspecies internet? An idea in progress	4	Feb	2013
The path to ending systemic racism in the US	4	Jun	2020
The science of extreme weather, and how to reduce the harm	4	Oct	2021
"(Nothing But) Flowers" with string quartet	3	Feb	2010
Award-winning teenage science in action	3	Dec	2011
"Space Oddity"	3	Feb	2016
An interview with the founders of Black Lives Matter	3	Oct	2016
"Illusions for a better society"	3	Apr	2018
The race to net-zero emissions by 2050 is on. Can we count you in?	3	Oct	2020
"A Ride With Polly Jean" / "Ali Farka Touche"	3	Aug	2021
Dear world leaders, these are our climate demands	3	Oct	2021
The genesis of Google	2	Feb	2004
Toys and materials from the future	2	Feb	2005
The Jill and Julia Show	2	Mar	2007
A performance with breath, music, passion	2	Feb	2008

- Query8: To find total number of shows per number of speakers.

The screenshot shows a database interface with a sidebar on the left containing a tree view of database objects. The 'Tables' node under 'TED' is expanded, showing 'tedauthor' and 'tedshows'. The 'tedshows' table has columns, indexes, foreign keys, and triggers. The 'Functions' node is also visible. The main pane displays a SQL query and its results. The query is:

```

-- total number of shows per num_authors

32 • select b.Num_Authors, count(a.Title) as count_of_shows
33   from TED.tedshows as a
34   left join TED.tedauthor as b
35     on a.Author_id = b.Author_id
36   group by Num_Authors
37   order by Num_Authors desc;
38
39

```

The result grid shows the following data:

Num_Authors	count_of_shows
5	1
4	3
3	8
2	174
1	5249

- Query9: average number of Likes per year.

The screenshot shows a database interface with a sidebar on the left containing a tree view of database objects. The 'Tables' node under 'TED' is expanded, showing 'tedauthor' and 'tedshows'. The 'tedshows' table has columns, indexes, foreign keys, and triggers. The 'Functions' node is also visible. The main pane displays a SQL query and its results. The query is:

```

47
48
49   -- avg number of Likes per year
50
51 • select a.Year, avg(a.Likes) as avg_likes from TED.tedshows as a
52   group by a.Year
53   order by avg(a.Likes) desc;
54
55
56
57

```

The result grid shows the following data:

Year	avg_likes
2006	110232.6531
2004	104133.3333
2015	93488.6862
2013	83118.3402
2012	80566.9172
2008	75147.6190
2005	73923.0769
2009	72281.1159
2016	70944.3158
2014	70242.7591
2011	64497.7860
2001	63020.0000
2017	61649.1475
2010	59786.1423
2019	52876.0570
2018	52159.6047

Result 20

- Query10: To find number of shows based on author occupation.

```

19   --- number of shows per author occupation
20
21 •   select b.Occupation , count(*) as Shows_per_occupation
22     from TED.tedshows as a
23     left join TED.tedauthor as b
24       on a.Author_id = b.Author_id
25     where NULLIF(b.Occupation, '') is not null
26     group by b.Occupation
27     having count(*) > 1
28   Order by count(*) desc;
29

```

Result Grid

Occupation	Shows_per_occupation
Writer	45
Architect	36
Artist	35
Designer	33
Journalist	33
Entrepreneur	32
Psychologist	28
Inventor	27
Photographer	27
Neuroscientist	25
Filmmaker	23
Educator	21
Economist	20
Author	18
Philosopher	17
Roboticist	16

Query11: Total number of shows performed by each Speaker.

```

10   --- number of shows performed by each author
11
12 •   select b.author, count(a.Title) from TED.tedshows as a
13     inner join TED.tedauthor as b
14       on a.Author_id= b.Author_id
15     group by b.Author
16     order by count(a.Title) desc;
17

```

Result Grid

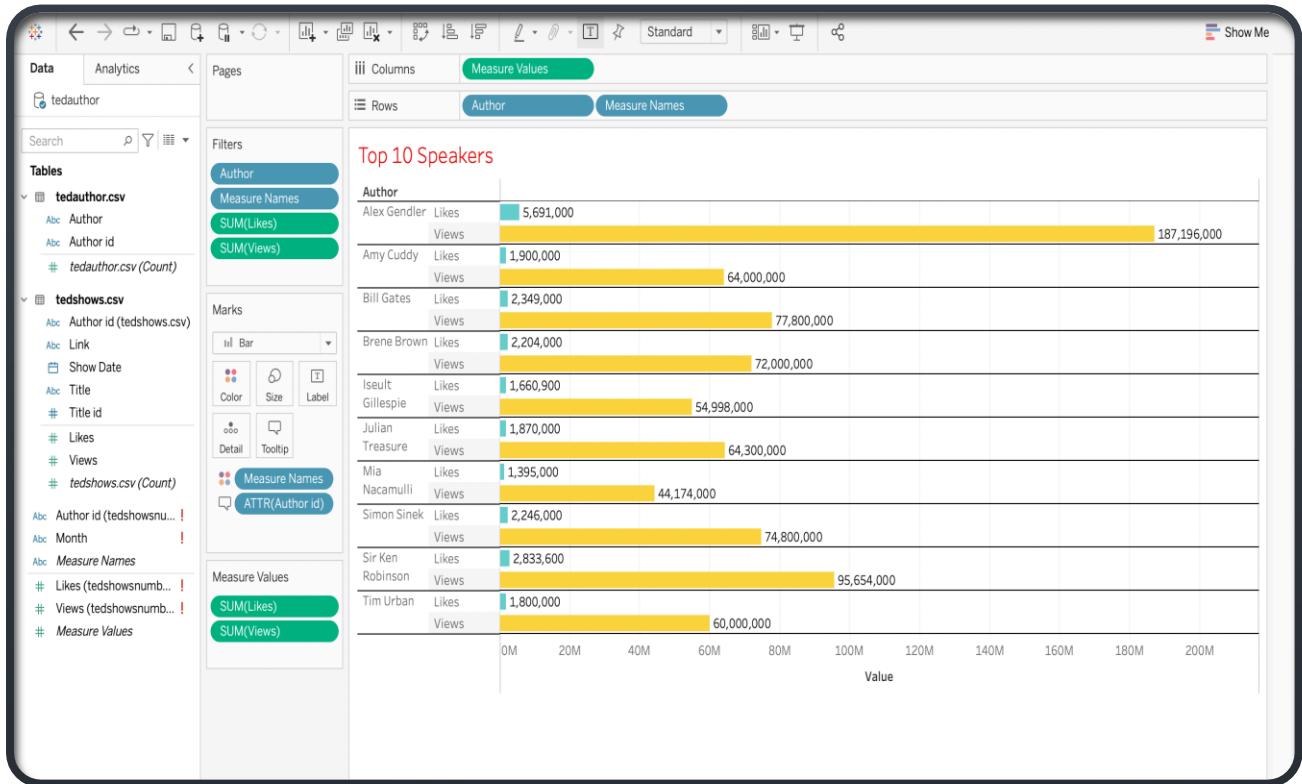
author	count(a.Title)
Alex Gendler	45
Iseult Gillespie	33
Matt Walker	18
Alex Rosenthal	15
Elizabeth Cox	13
Emma Bryce	12
Juan Enriquez	11
Daniel Finkel	11
TED-Ed	10
Hans Rosling	9
Greg Gage	9
Dan Finkel	9
Mona Chalabi	9
Jen Gunter	9
Wendy De La Rosa	9
Bill Gates	8

Looking at the above Query's it is evident that the Likes and Views have a linear relationship. Moreover, the number of shows with one speaker are 5249, two speakers is 174, three speakers are 8, four speakers are 3, and five speakers is 1. In addition to this, we could say that the most of authors occupation is "Writer". Although a greater number of shows are conducted in February month (i.e, 725 shows) and 2019 year (i.e, 544 shows), we could see that the average number of Likes and Views were more in the year 2006.

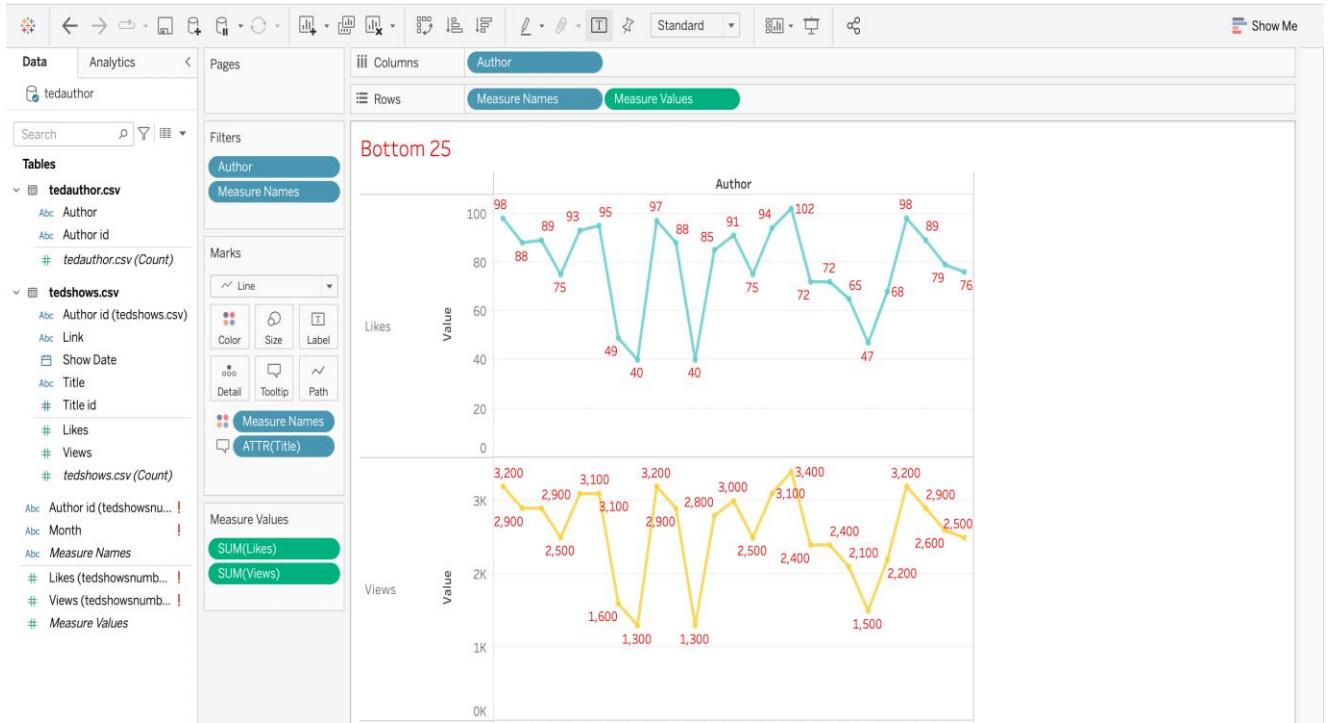
9. DATA VIZUALIZATION USING TABLEAU:

We have used Tableau for BI data visualization. Once the data is cleaned, we have connected the data to tableau server to perform Visualizations and analysis.

- Vizualization1: Top 10 Speakers based on Likes and Views.



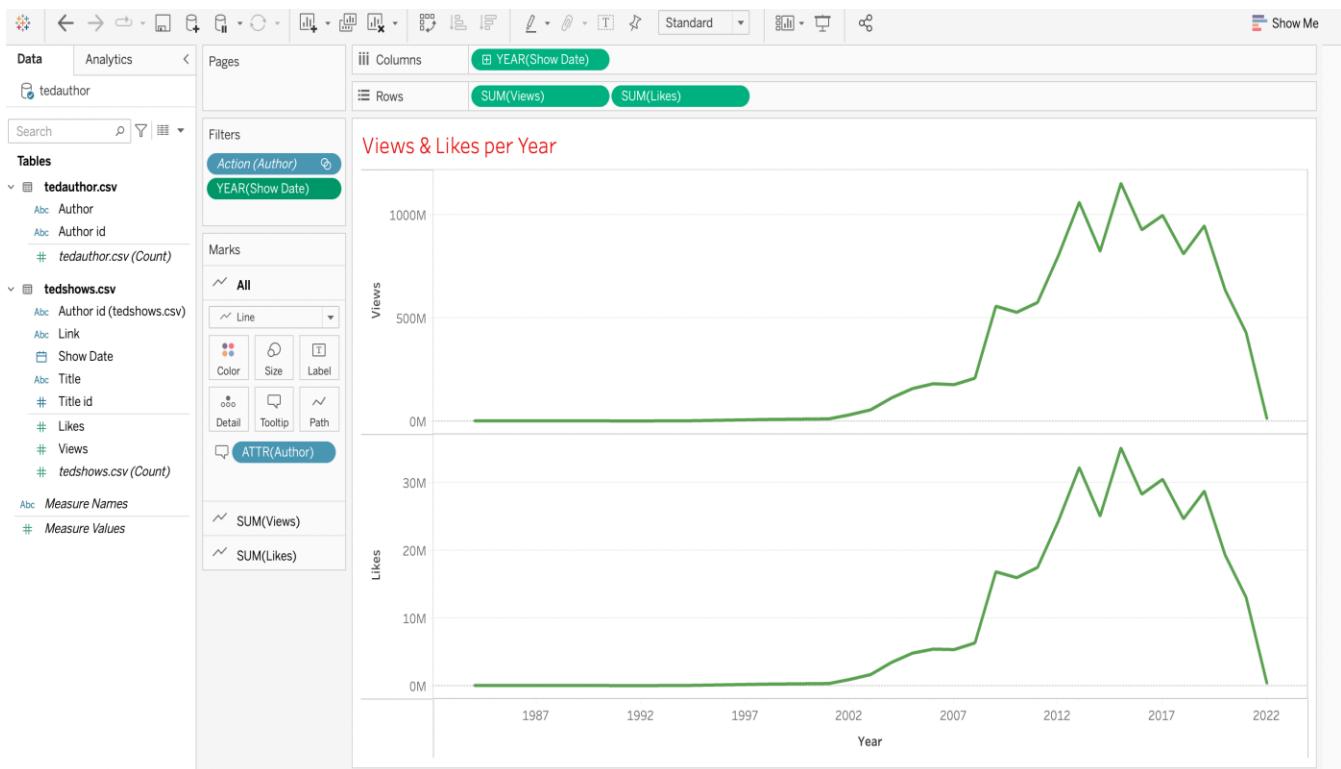
■ Vizualization2: Bottom 25 Speakers.



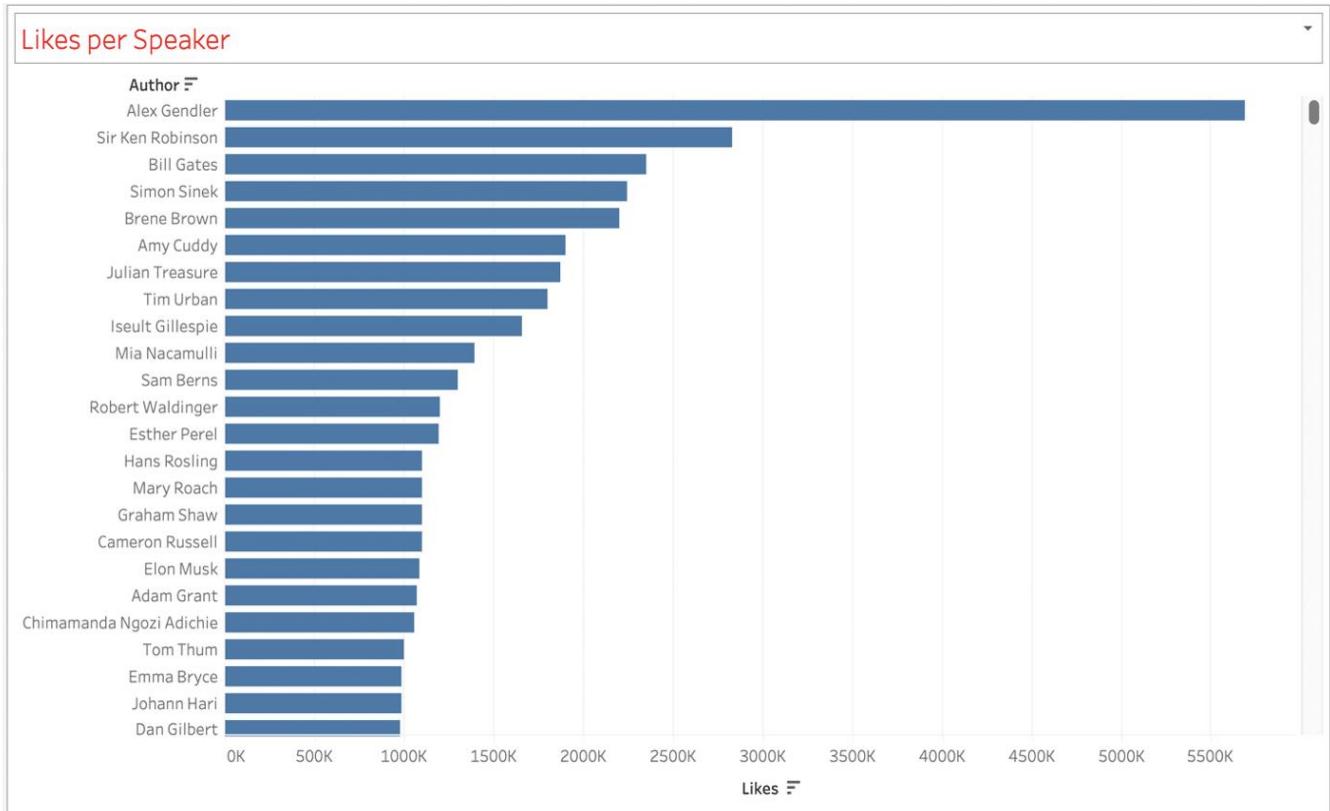
■ Vizualization3: Likes & Views per Month.



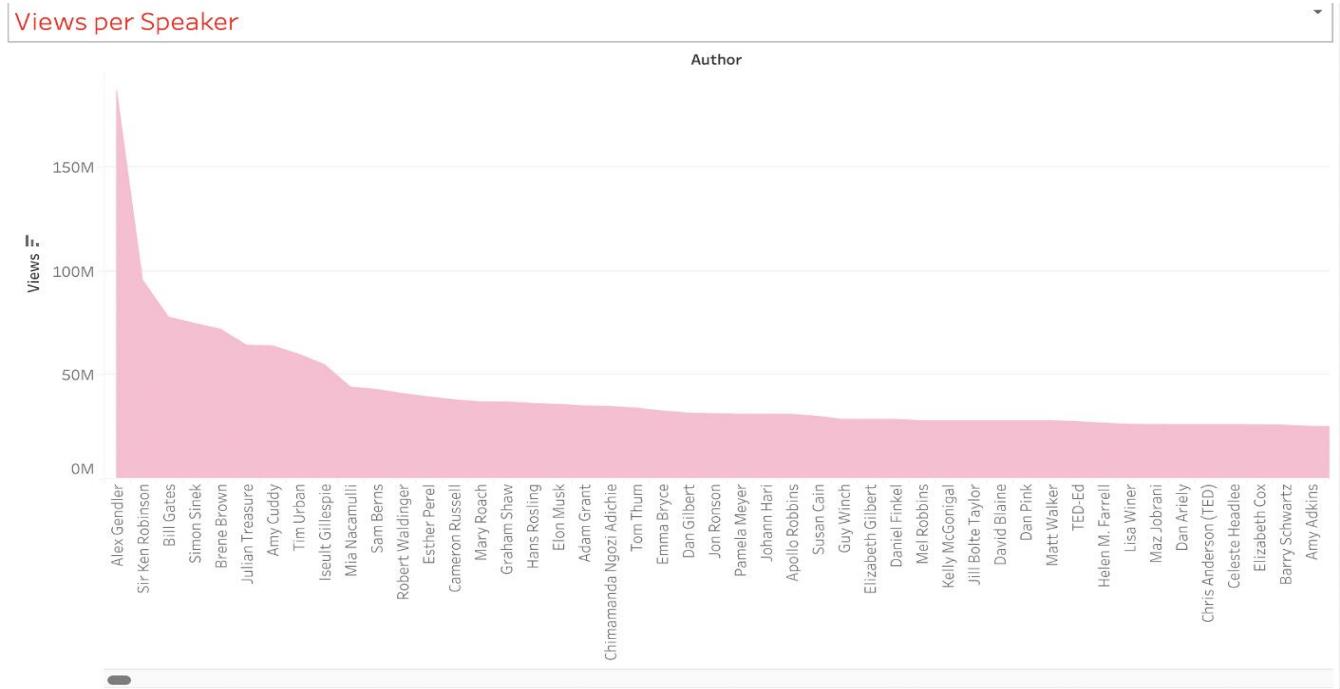
■ Visualization4: Views & Likes per Year.



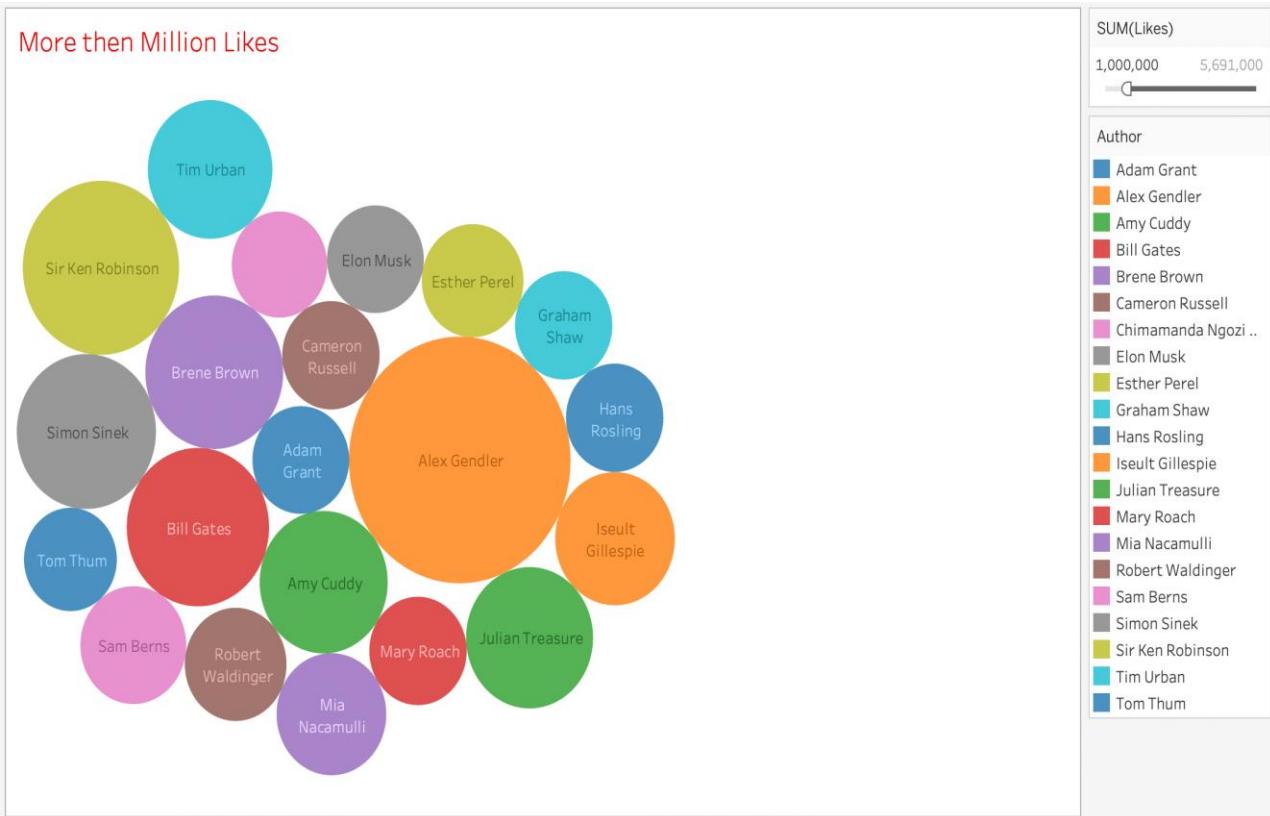
■ Visualization5: Likes per Speaker.



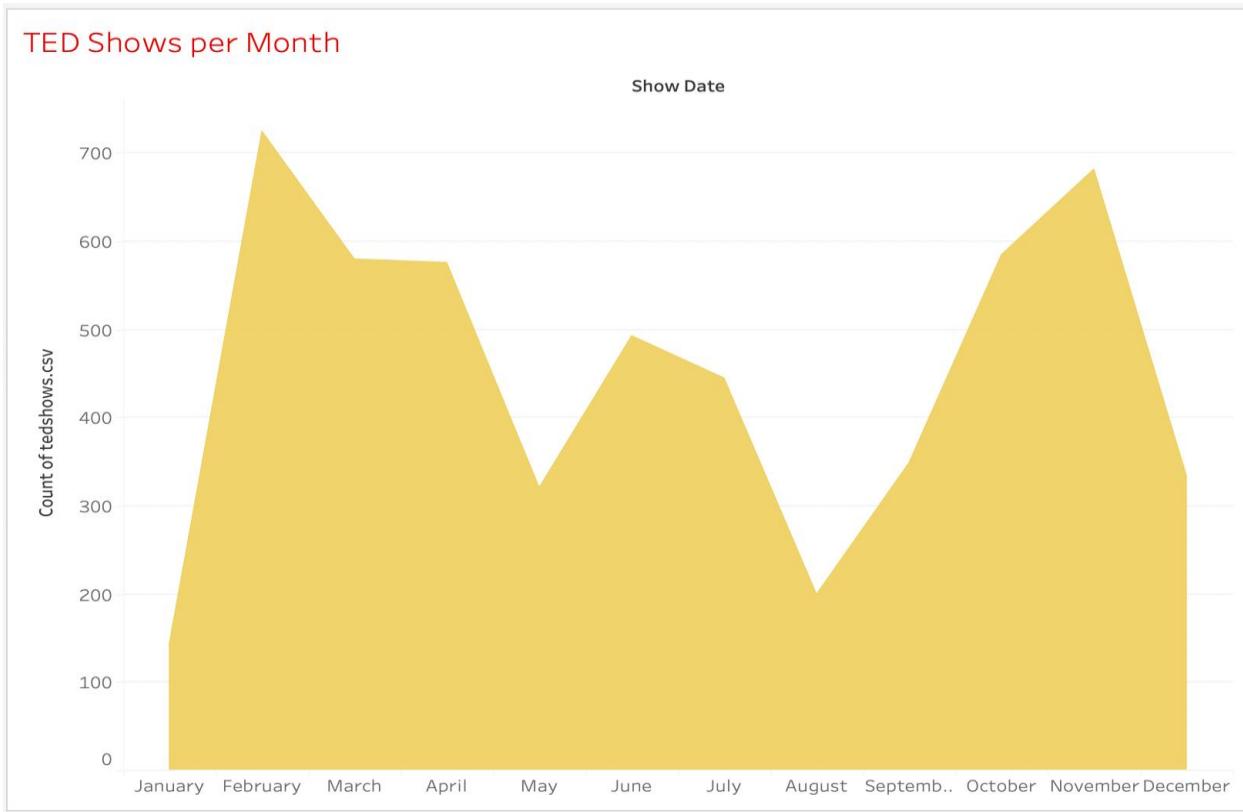
▪ Vizualization6: Views per Speaker.



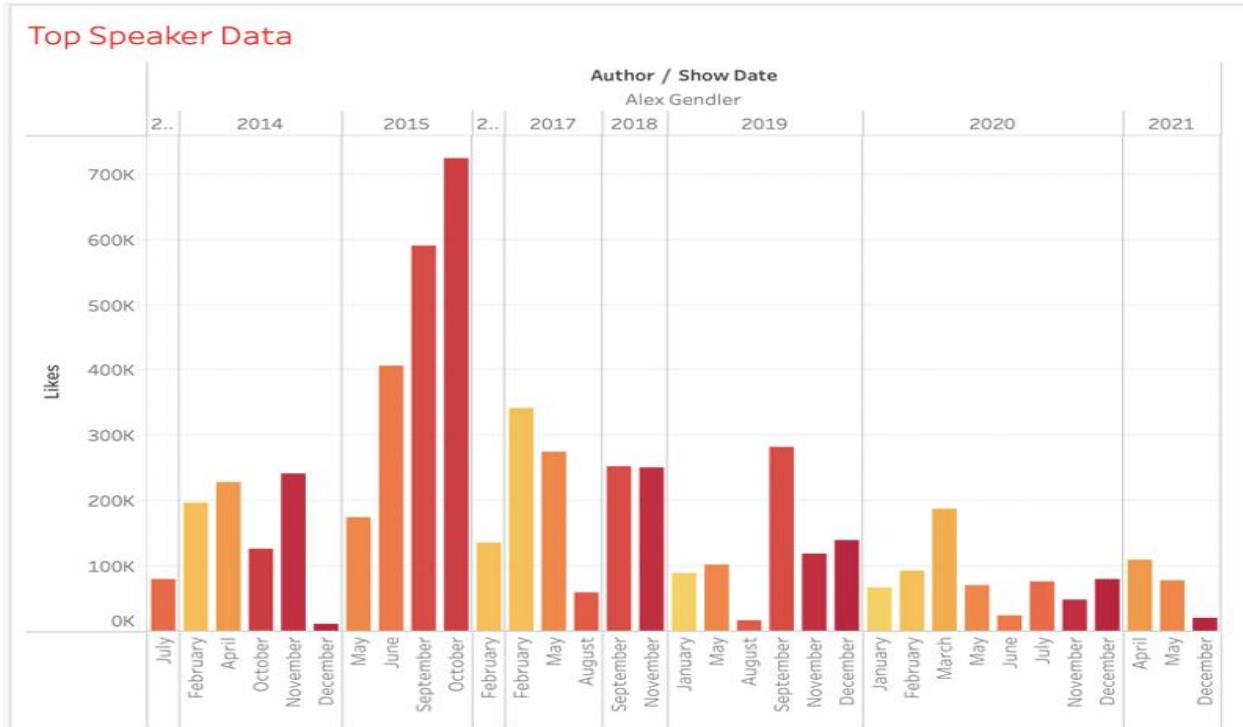
▪ Vizualization7: Speakers with more than Million Likes.



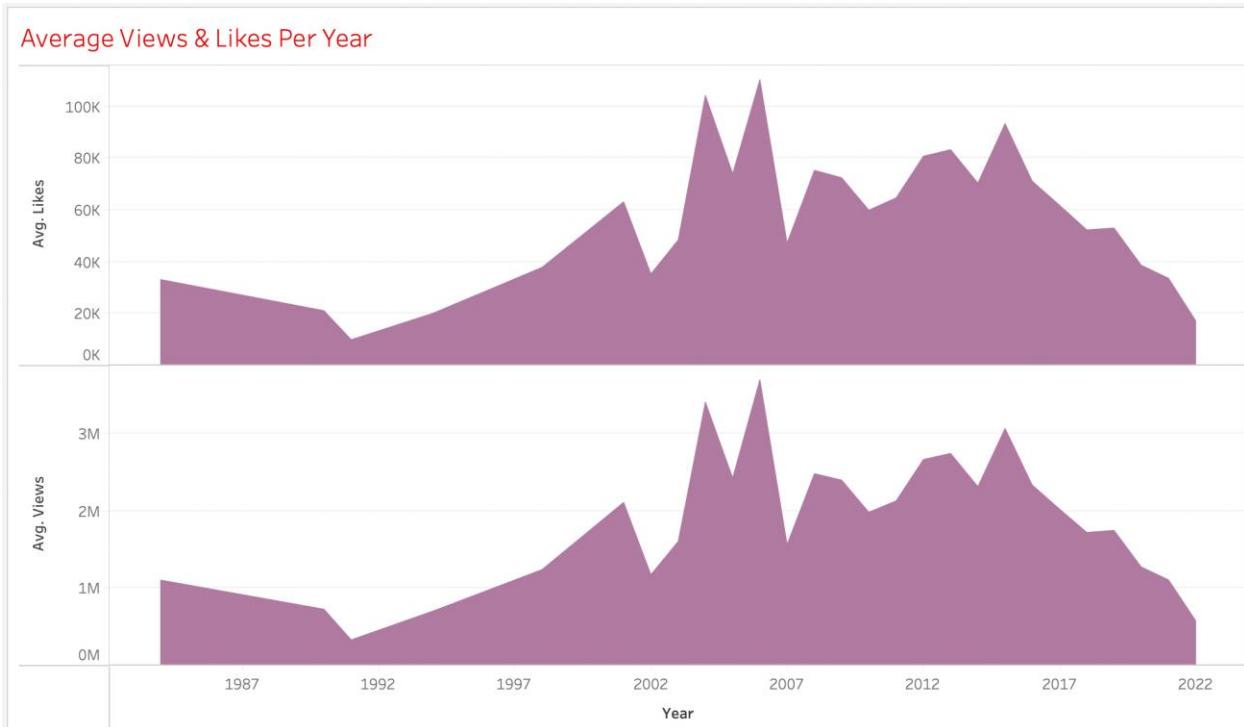
- Vizualization8: Ted shows per month.



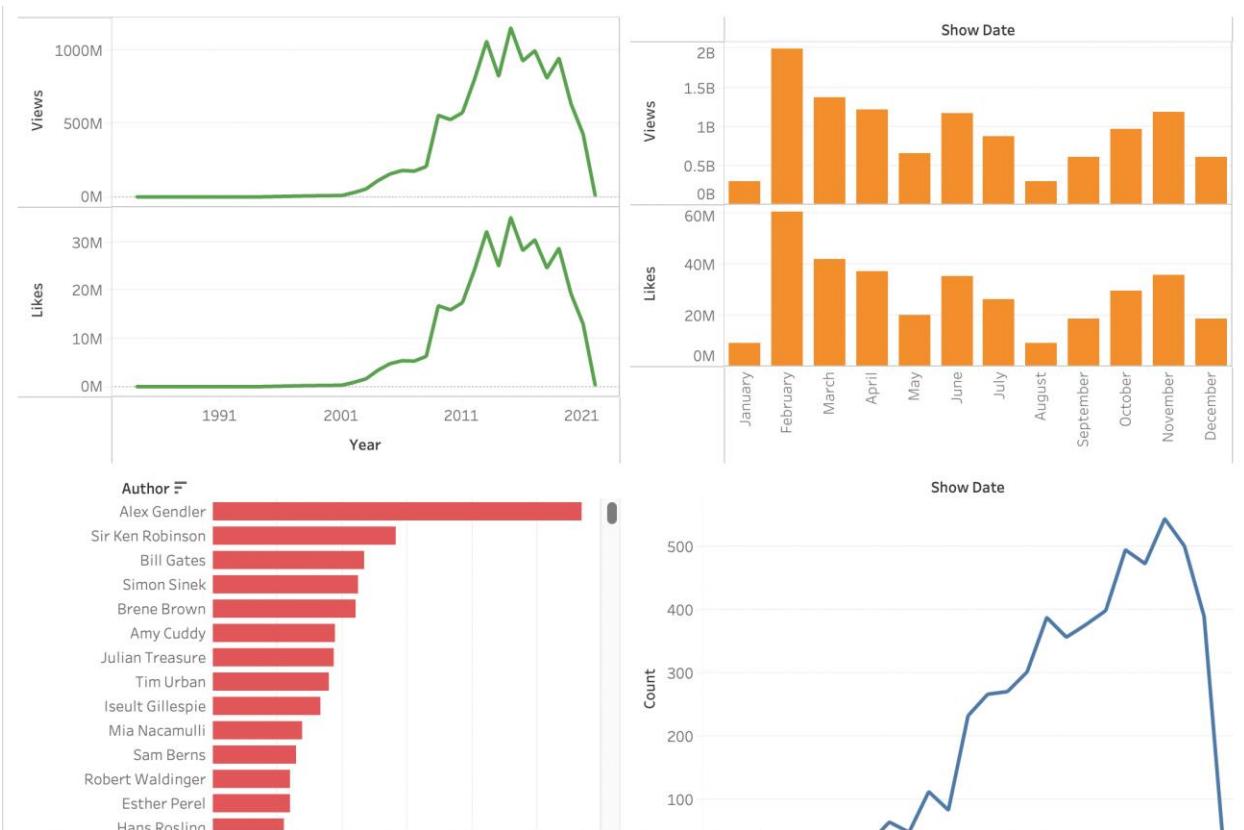
- Vizualization9: Month & Year wise data of the Top one Speaker of all the shows.



▪ Vizualization10: Average Views & Likes Per Year.



▪ Vizualization11: Dashboard



Based on the above Visualizations we can interpret that “Alex Gendler” has the greatest number of Views and Likes in the period 1984 to 2022 (i.e, performed 45 shows with 187,196,000 Views and 5,691,000 Likes). In April 2017, greatest number of views has been recorded. In addition to this, we could observe that every year in between February and April, the shows conducted has received the highest interest from the audience. We could assume from our analysis that the number of people watching the Ted talks show has been decreased gradually since April 2019. Also, Total number of views and Likes are highest in the year 2015 (i.e, 1,154,739,598 Views and 35,151,746 Likes).

CONCLUSION:

The Analysis uncovers that the ‘Alex Gendler’ has the greatest number of views & likes than any other author in the period from Feb. 1984 to Feb. 2022. The greatest number of views is recorded in the month of April 2017. Highest number of shows is recorded in Feb Month and in 2019 year. Average number of Views and Likes are more in the year 2006. Every year between Feb and April, the shows have received the highest interest from audience. It is safe to assume from our analysis that the number of people watching ted talks has decreased gradually since April 2019. Hence, they could take measures to increase the viewers for the shows as the trend is decreasing since April 2019.

REFERENCES:

- [1]. Ashish Jangra, 2022, Kaggle TED TALKS
<https://www.kaggle.com/datasets/ashishjangra27/ted-talks>