Image courtesy: https://images.squarespace-cdn.com/content/v1/54c156f0e4b09b3245eb51fc/1478188450658-RGQADM0FUA2M45TUVRLU/ke17ZwdGBToddI8pDm48kC9xK_w0dCFOvP1cipP_xiZZw-zPPgdn4jUwVcJE1ZvWQUxwkmyExglNqGp0IvTJZUJFbgE-7XRK3dMEBRBhUpxrwbbH4hijAI1UIErKEAhlot0wHhmOw1008WRvg3GWmiBWk_xbxw79eOwbM456XJQ/sharing-print.jpg?format=1000w

NETFLICKS DATABASE

Project presentation for INFO6210 by ***Group 8***

Group members:

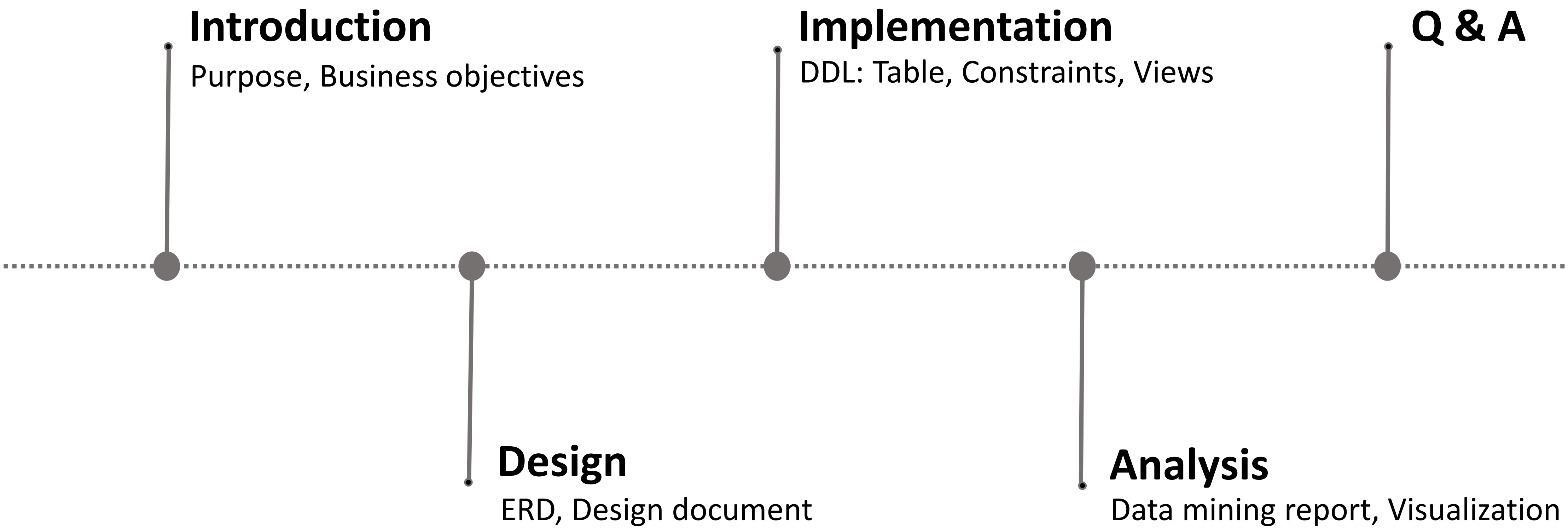
Shilpa, Shweta Chaudhary

Date: 12/08/2019

Northeastern University

Image courtesy: https://www.underconsideration.com/brandnew/archives/northeastern_university_logo.png

Layout



Introduction

Purpose, Business objectives

Design

ERD, Design document

Implementation

DDL: Table, Constraints, Views

Analysis

Data mining report, Visualization

Q & A

Introduction

Purpose:

- To maintain and analyze the data related to movies, TV shows, artists, and users of Netflicks, a hypothetical version of Netflix.

Business objectives:

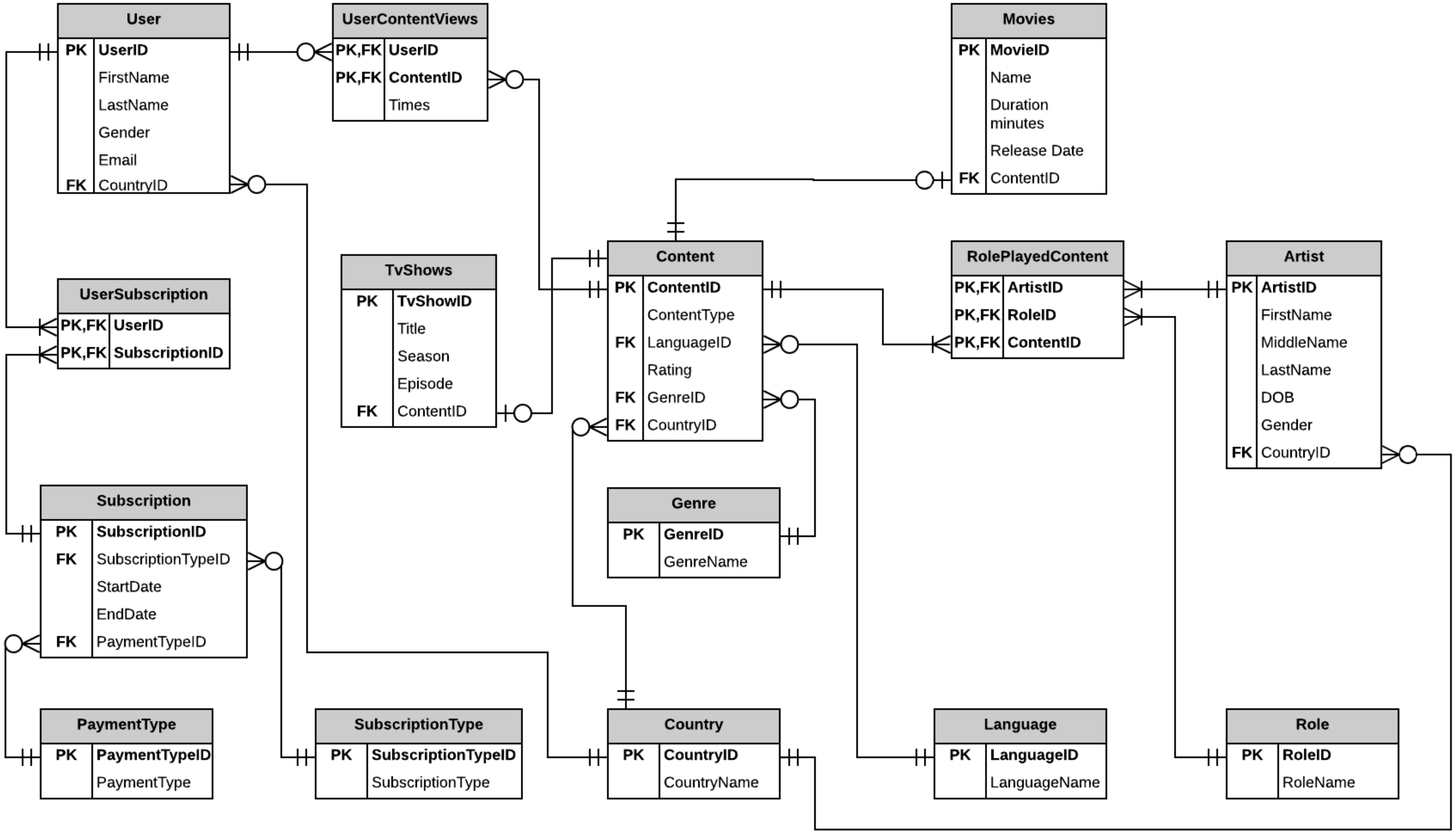
- Use predictive analysis to determine the most viewed content.

- Predict the number of users by country, thereby quantifying the business outreach of Netflicks across different countries.

- The yearly trend in user subscription can be calculated based on the subscription type.

Image courtesy: https://thumbs.dreamstime.com/z/concept-watching-movie-24524713.jpg

Design: Database ERD



User	
PK	**UserID**
	FirstName
	LastName
	Gender
	Email
FK	CountryID

UserContentViews	
PK,FK	**UserID**
PK,FK	**ContentID**
	Times

Movies	
PK	**MovieID**
	Name
	Duration minutes
	Release Date
FK	ContentID

UserSubscription	
PK,FK	**UserID**
PK,FK	**SubscriptionID**

TvShows	
PK	**TvShowID**
	Title
	Season
	Episode
FK	ContentID

Content	
PK	**ContentID**
	ContentType
FK	LanguageID
	Rating
FK	GenreID
FK	CountryID

RolePlayedContent	
PK,FK	**ArtistID**
PK,FK	**RoleID**
PK,FK	**ContentID**

Artist	
PK	**ArtistID**
	FirstName
	MiddleName
	LastName
	DOB
	Gender
FK	CountryID

Genre	
PK	**GenreID**
	GenreName

Subscription	
PK	**SubscriptionID**
FK	SubscriptionTypeID
	StartDate
	EndDate
FK	PaymentTypeID

PaymentType	
PK	**PaymentTypeID**
	PaymentType

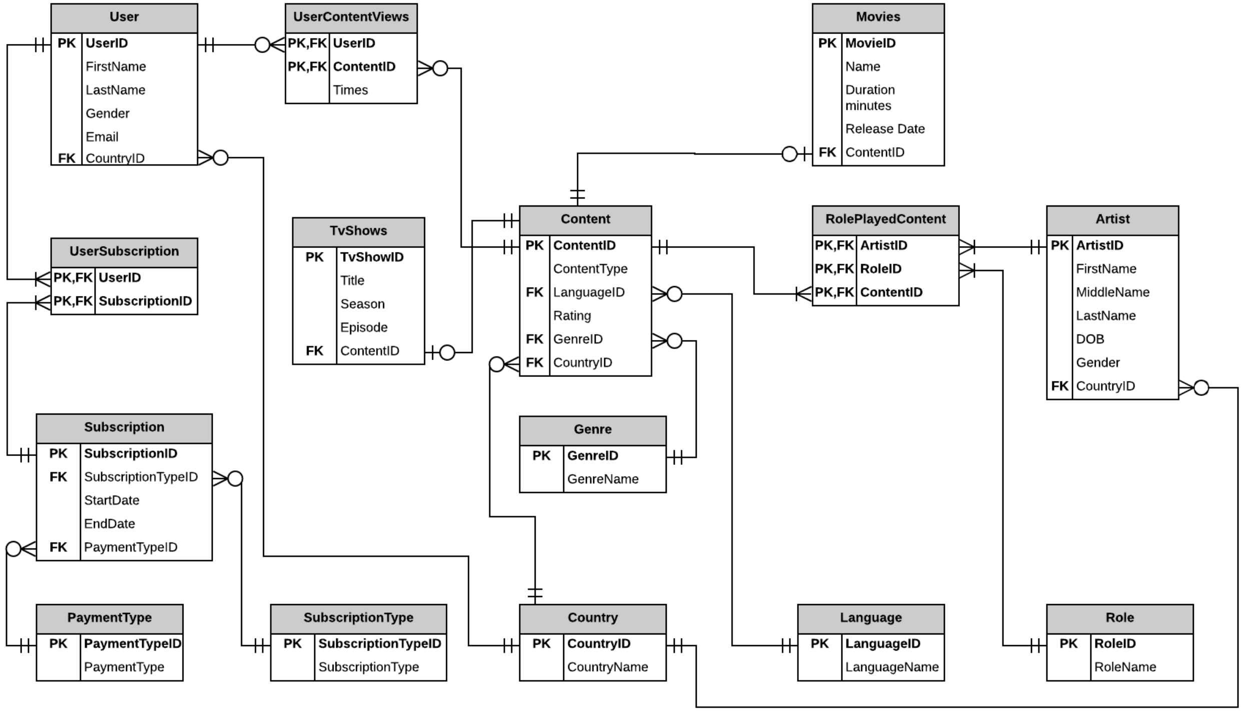
SubscriptionType	
PK	**SubscriptionTypeID**
	SubscriptionType

Country	
PK	**CountryID**
	CountryName

Language	
PK	**LanguageID**
	LanguageName

Role	
PK	**RoleID**
	RoleName

Design



User
PK UserID
FirstName
LastName
Gender
Email
FK CountryID

UserContentViews
PK,FK UserID
PK,FK ContentID
Times

Movies
PK MovieID
Name
Duration minutes
Release Date
FK ContentID

UserSubscription
PK,FK UserID
PK,FK SubscriptionID

TvShows
PK TvShowID
Title
Season
Episode
FK ContentID

Content
PK ContentID
ContentType
FK LanguageID
Rating
FK GenreID
FK CountryID

RolePlayedContent
PK,FK ArtistID
PK,FK RoleID
PK,FK ContentID

Artist
PK ArtistID
FirstName
MiddleName
LastName
DOB
Gender
FK CountryID

Genre
PK GenreID
GenreName

Subscription
PK SubscriptionID
FK SubscriptionTypeID
StartDate
EndDate
FK PaymentTypeID

PaymentType
PK PaymentTypeID
PaymentType

SubscriptionType
PK SubscriptionTypeID
SubscriptionType

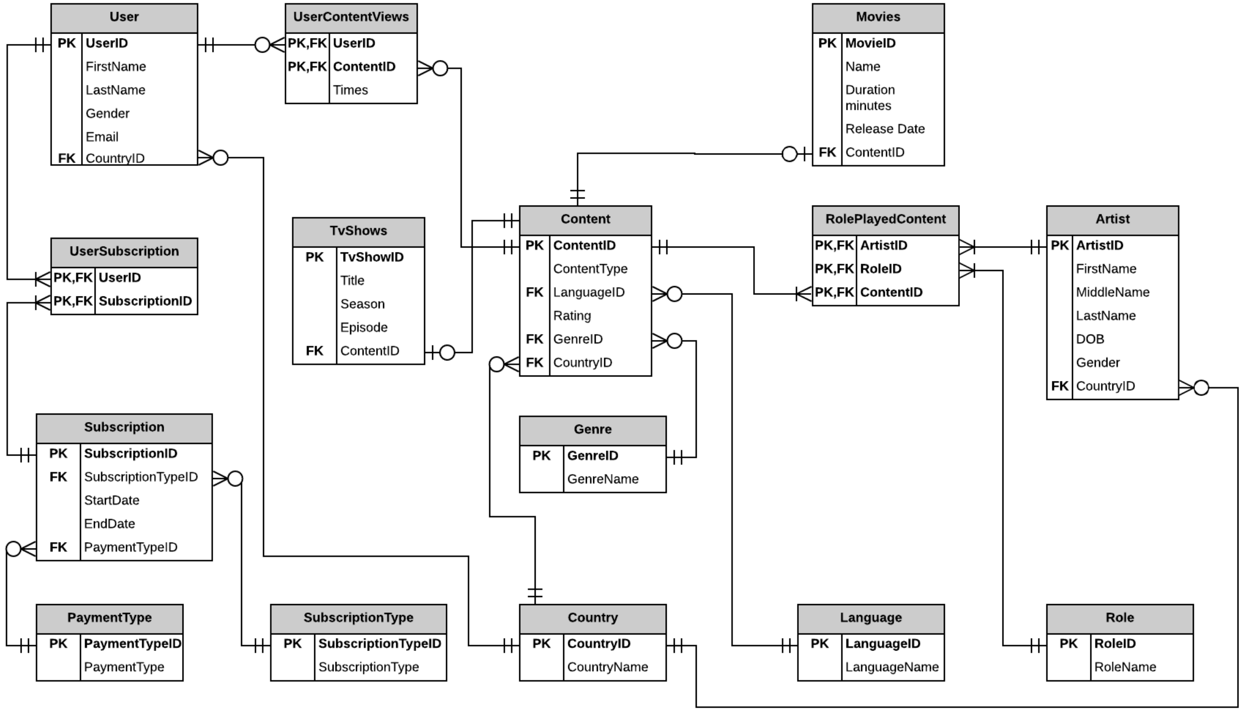
Country
PK CountryID
CountryName

Language
PK LanguageID
LanguageName

Role
PK RoleID
RoleName

Entity Name	Why Entity included	How Entity is related to other Entities
User	One of the primary purposes of Netficks database is to collect information about users along with their email, subscription info, payment types, start and end dates, and the nature of viewed content.	The User entity is related to corresponding views, subscription, and country entities. Each user may have zero or more UserContentViews, one or more subscriptions (in the case a previous user unsubscribed and re-subscribed or changed subscription type), and one and only one country.
Country	A separate Country entity allows us to populate the countries separately. This entity lets the team store the country information specific to each User, Content, and Artist. Such information helps the team gather analyze which country has more number of users, which country's content has been more watched and how does artist count vary across countries.	A Country is related to User, Content, Artist entities. Each country may be related to zero or more users, zero or more contents, and zero or more artists depending on the absence or presence of users, contents, and artists from a given country, respectively.
UserContentViews	The team is interested to track the view count of the users who watched a specific content which is useful to provide recommendations for users based on what they watched previously.	Views entity is related to User and Content entities. Each view corresponds to one and only one user, and one and only one content.
Subscription	Another key function of the database is to understand user subscription type, mode of payment, and the duration of the subscription.	Subscription entity is related to User, PaymentType, SubscriptionType entities. Each subscription consists of one subscription type and payment type, and one or more users (in case of more than one user subscribing to the same type and payment mode on the same day).
PaymentType	The team will monitor which PaymentType a user subscription is associated with.	PaymentType is related to the subscription entity. Each Payment Type (credit or debit) can be associated with zero or more subscriptions. Zero modality is possible if all subscriptions were made using other types of payment - such as all subscriptions were made using a credit card and hence no debit card was used.

Design



User
PK UserID
FirstName
LastName
Gender
Email
FK CountryID

UserContentViews
PK,FK UserID
PK,FK ContentID
Times

Movies
PK MovieID
Name
Duration minutes
Release Date
FK ContentID

UserSubscription
PK,FK UserID
PK,FK SubscriptionID

TvShows
PK TvShowID
Title
Season
Episode
FK ContentID

Content
PK ContentID
ContentType
FK LanguageID
Rating
FK GenreID
FK CountryID

RolePlayedContent
PK,FK ArtistID
PK,FK RoleID
PK,FK ContentID

Artist
PK ArtistID
FirstName
MiddleName
LastName
DOB
Gender
FK CountryID

Genre
PK GenreID
GenreName

Subscription
PK SubscriptionID
FK SubscriptionTypeID
StartDate
EndDate
FK PaymentTypeID

PaymentType
PK PaymentTypeID
PaymentType

SubscriptionType
PK SubscriptionTypeID
SubscriptionType

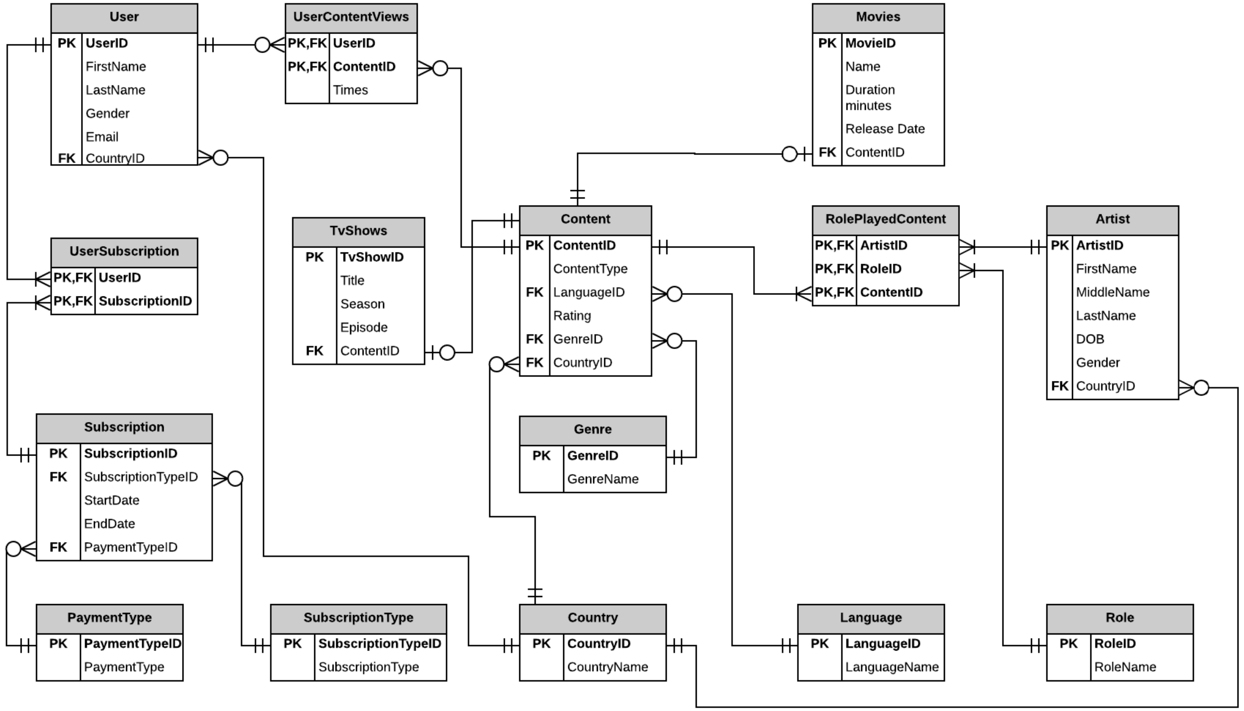
Country
PK CountryID
CountryName

Language
PK LanguageID
LanguageName

Role
PK RoleID
RoleName

Entity Name	Why Entity included	How Entity is related to other Entities
SubscriptionType	The Subscription type determines the duration of subscription for which the user signed up. It is useful to analyze the nature of subscription types undertaken by users from different countries.	SubscriptionType is related to Subscription entity. Each subscription type can be associated with zero or more subscriptions. Zero modality is possible if all subscriptions were made using other subscription types - for example all subscriptions were annual and hence no monthly subscriptions were made.
Content	A primary function of the database is to understand what kind of content is offered to the users. The content entity also stores the language, genre, which countries content we are showing to users, and to monitor which content is getting how many views.	Content is related to Movies, Views, RolePlayedContent, Language, Genre, Country Entities. A content is related either one movie or one TV show. Each content is also related to only one language, only one country, and only one genre.
Movies	The team is interested in showing the details of movies to the user to make it easier for the user to select the movies according to particular release date, duration, language, country, and genre. The last three attributes are found in the Content.Also, the release date allows us to compute the then age of the artists acting in it given their DOB to perform role analytics by age.	Movie Entity is related to content entity such that each movie is either a part of zero or one content. For example, if a content is a TV show it is related to zero movies and if a content is a movie, then it is related to only one movie.
Genre	The team is interested to enable the user to select what content the user would like to see under different type of genre based on their previous views. It also helps the company to determine which genres attract most number of views.	Genre is related to Content entity such that a genre is a part of zero or more contents. The zero modality is possible if a new genre is entered which doesn't have a corresponding content yet.
Language	The Language entity provides language information about the content. This allows analytics to be performed on how the overall content is spread across different languages.	Language entity is related to content such that each language is a part of zero or more contents. The zero modality can arise if there's no content available in a particular language.

Design



User

PK	**UserID**
	FirstName
	LastName
	Gender
	Email
FK	CountryID

UserContentViews

PK,FK	**UserID**
PK,FK	**ContentID**
	Times

Movies

PK	**MovieID**
	Name
	Duration minutes
	Release Date
FK	ContentID

UserSubscription

PK,FK	**UserID**
PK,FK	**SubscriptionID**

TvShows

PK	**TvShowID**
	Title
	Season
	Episode
FK	ContentID

Content

PK	**ContentID**
	ContentType
FK	LanguageID
	Rating
FK	GenreID
FK	CountryID

RolePlayedContent

PK,FK	**ArtistID**
PK,FK	**RoleID**
PK,FK	**ContentID**

Artist

PK	**ArtistID**
	FirstName
	MiddleName
	LastName
	DOB
	Gender
FK	CountryID

Genre

PK	**GenreID**
	GenreName

Subscription

PK	**SubscriptionID**
FK	SubscriptionTypeID
	StartDate
	EndDate
FK	PaymentTypeID

PaymentType

PK	**PaymentTypeID**
	PaymentType

SubscriptionType

PK	**SubscriptionTypeID**
	SubscriptionType

Country

PK	**CountryID**
	CountryName

Language

PK	**LanguageID**
	LanguageName

Role

PK	**RoleID**
	RoleName

Entity Name	Why Entity included	How Entity is related to other Entities
TvShows	The team is interested in showing the details of movies to the user to make it easier for the user to select the movies according to particular season, episode, release date, duration, language, country, and genre. The last three attributes are found in the Content. Also, the release date allows us to compute the then age of the artists acting in it given their DOB to perform role analytics by age.	TV show entity is related to content entity such that each TV show is either a part of zero or one content. For example, if a content is a movie it is related to zero TV shows and if a content is a TV show, then it is related to only one TV show.
RolePlayedContent	This entity depicts the relation between an artist playing a role in a movie or TV show (content).	RolePlayedContent related to Artist, Roles, and Content entities because a role is played by an artist in a content. Each RolePlayedContent record is related to exactly one artist, one role, and one content.
Artist	The team wants to enable a user to watch a content of a particular artist. The artist entity also stores the gender, DOB, and country information that enables artist analytics by gender, country, or age. The age of an artist playing a role in a content can be calculated by the Artist DOB and the release date of the content.	Artist related to RolePlayedContent and Country entities. Each artist belongs to a country, and is associated with one or more records in the RolePlayedContent. This is because an artist can play multiple roles in multiple contents and play a minimum of one role in at least one content to enter the database as an artist.
Role	The Roles entity captures the type of role an artist played in a content. The role names could be lead, director, cameraperson, etc.	Roles related to RolePlayedContent because each role is played by an artist in a content. Each role is played by at least one artist from one content, thereby sharing a one or many relationship with RolePlayedContent entity.
UserSubscription	This entity prevents the many-to-many relationship that may occur between *User* and *Subscription* entities otherwise.	UserSubscription is related to User and Subscription entities. Every UserSubscription is associated with only one User and only one Subscription.

Implementation: DDL for creating tables

```
CREATE DATABASE netflicks; -- to be run separately
```

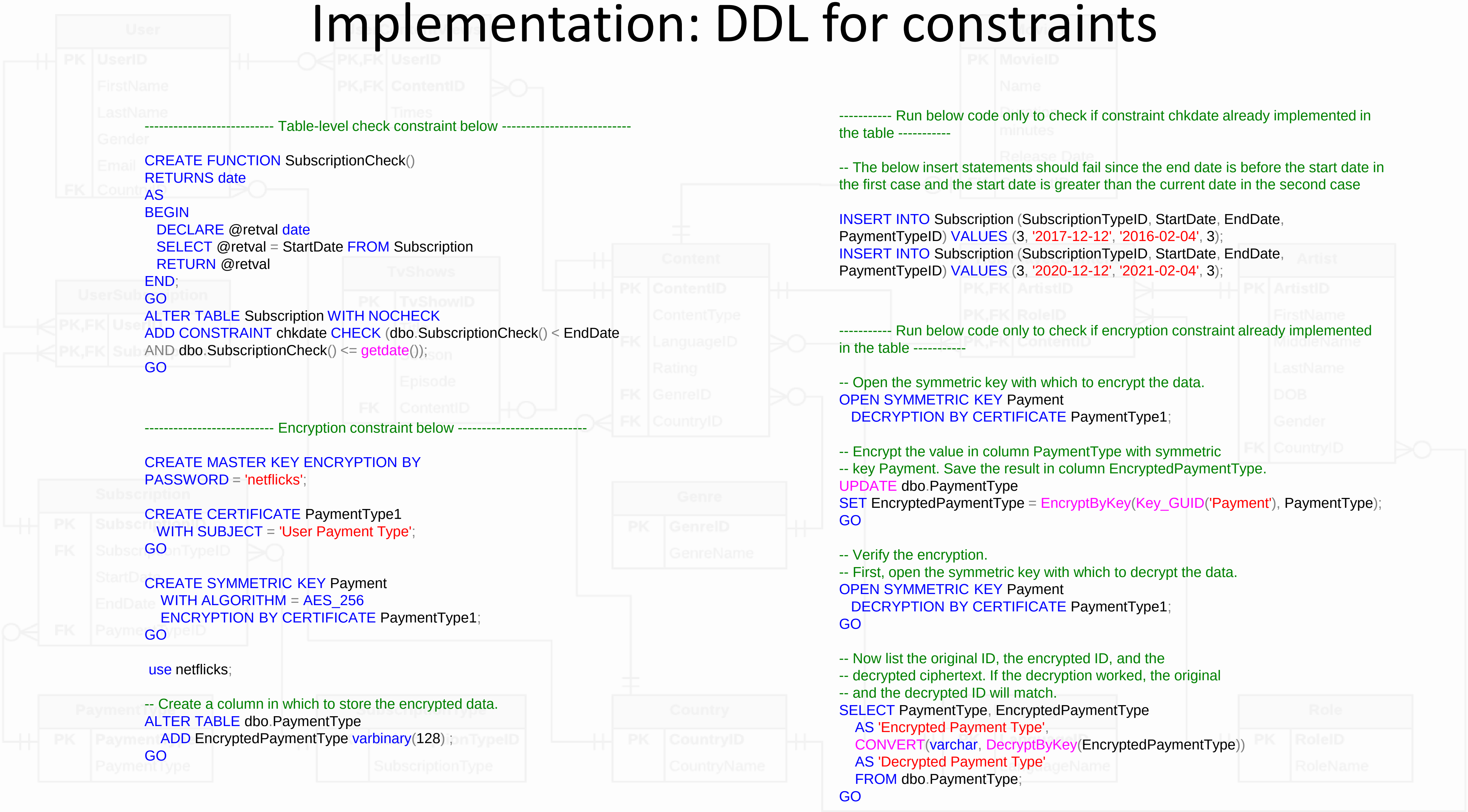
```
USE netflicks;
```

```
CREATE TABLE PaymentType (
PaymentTypeID INT IDENTITY(1,1) PRIMARY KEY,
PaymentType varchar(255) UNIQUE NOT NULL
)

CREATE TABLE SubscriptionType (
SubscriptionTypeID INT IDENTITY(1,1) PRIMARY KEY,
SubscriptionType varchar(255) UNIQUE NOT NULL
)

CREATE TABLE Country (
CountryID INT IDENTITY(1,1) PRIMARY KEY,
CountryName varchar(255) UNIQUE NOT NULL
)

CREATE TABLE [Language] (
LanguageID INT IDENTITY(1,1) PRIMARY KEY,
LanguageName varchar(255) UNIQUE NOT NULL
)

CREATE TABLE [Role] (
RoleID INT IDENTITY(1,1) PRIMARY KEY,
RoleName varchar(255) UNIQUE NOT NULL
)

CREATE TABLE Genre (
GenreID INT IDENTITY(1,1) PRIMARY KEY,
GenreName varchar(255) UNIQUE NOT NULL
)

CREATE TABLE [User] (
UserID INT IDENTITY(1,1) PRIMARY KEY,
Email varchar(255) UNIQUE NOT NULL,
FirstName varchar(255) NOT NULL,
MiddleName varchar(255),
LastName varchar(255) NOT NULL,
Gender varchar(255),
CountryID INT FOREIGN KEY REFERENCES Country(CountryID),
CONSTRAINT UC_User UNIQUE (FirstName, LastName, Gender,
CountryID)
)
```

```
CREATE TABLE Subscription (
SubscriptionID INT IDENTITY(1,1) PRIMARY KEY,
SubscriptionTypeID INT FOREIGN KEY REFERENCES
SubscriptionType(SubscriptionTypeID),
StartDate DATE NOT NULL,
EndDate DATE NOT NULL,
PaymentTypeID INT FOREIGN KEY REFERENCES
PaymentType(PaymentTypeID),
CONSTRAINT UC_Subscription UNIQUE
(SubscriptionTypeID, StartDate, EndDate,
PaymentTypeID)
)

CREATE TABLE UserSubscription (
UserID INT FOREIGN KEY REFERENCES [User](UserID),
SubscriptionID INT FOREIGN KEY REFERENCES
Subscription(SubscriptionID),
PRIMARY KEY (UserID, SubscriptionID)
)

CREATE TABLE UserContentViews (
UserID INT FOREIGN KEY REFERENCES [User](UserID),
ContentID INT FOREIGN KEY REFERENCES Content(ContentID),
Times INT NOT NULL,
PRIMARY KEY (UserID, ContentID)
)

CREATE TABLE RolePlayedContent (
ArtistID INT FOREIGN KEY REFERENCES Artist(ArtistID),
RoleID INT FOREIGN KEY REFERENCES Role(RoleID),
ContentID INT FOREIGN KEY REFERENCES Content(ContentID),
PRIMARY KEY (ArtistID, RoleID, ContentID)
)
```

```
CREATE TABLE Artist (
ArtistID INT IDENTITY(1,1) PRIMARY KEY,
FirstName varchar(255) NOT NULL,
MiddleName varchar(255),
LastName varchar(255) NOT NULL,
DOB DATE NOT NULL,
Gender varchar(255) NOT NULL,
CountryID INT FOREIGN KEY REFERENCES Country(CountryID),
CONSTRAINT UC_Artist UNIQUE (FirstName, LastName, DOB, Gender,
CountryID)
)

CREATE TABLE Content (
ContentID INT IDENTITY(1,1) PRIMARY KEY,
ContentType varchar(255) NOT NULL,
LanguageID INT FOREIGN KEY REFERENCES Language(LanguageID),
Rating FLOAT NOT NULL,
GenreID INT FOREIGN KEY REFERENCES Genre(GenreID),
CountryID INT FOREIGN KEY REFERENCES Country(CountryID),
CONSTRAINT UC_Content UNIQUE (ContentID, ContentType, LanguageID,
Rating, GenreID, CountryID)
)

CREATE TABLE TVShows (
TVShowID INT IDENTITY(1,1) PRIMARY KEY,
Title varchar(255) NOT NULL,
Season varchar(255) NOT NULL,
Episode varchar(255) NOT NULL,
ContentID INT FOREIGN KEY REFERENCES Content(ContentID),
CONSTRAINT UC_TVShows UNIQUE (Title, Season, Episode, ContentID)
)

CREATE TABLE Movies (
MovieID INT IDENTITY(1,1) PRIMARY KEY,
[Name] varchar(255) NOT NULL,
DurationMinutes INT NOT NULL,
ReleaseDate DATE NOT NULL,
ContentID INT FOREIGN KEY REFERENCES Content(ContentID),
CONSTRAINT UC_Movies UNIQUE ([Name], DurationMinutes, ReleaseDate,
ContentID)
)
```

Implementation: DDL for constraints

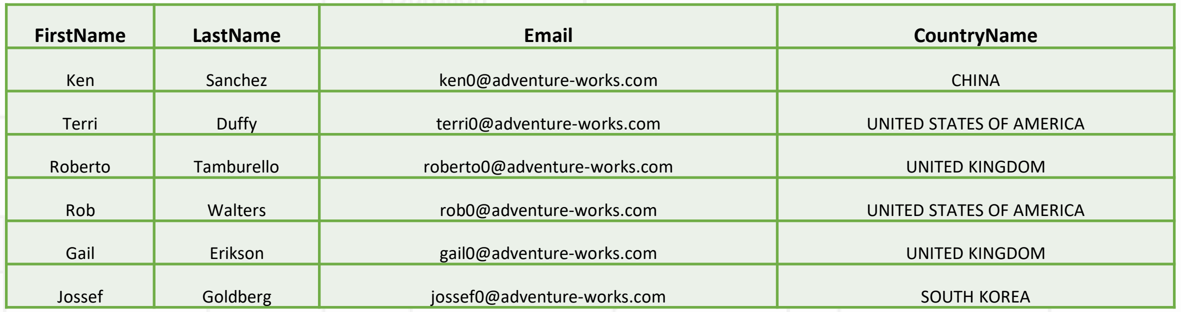


```
--------------------------- Table-level check constraint below ---------------------------

CREATE FUNCTION SubscriptionCheck()
RETURNS date
AS
BEGIN
  DECLARE @retval date
  SELECT @retval = StartDate FROM Subscription
  RETURN @retval
END;
GO
ALTER TABLE Subscription WITH NOCHECK
ADD CONSTRAINT chkdate CHECK (dbo.SubscriptionCheck() < EndDate
AND dbo.SubscriptionCheck() <= getdate());
GO



--------------------------- Encryption constraint below ---------------------------

CREATE MASTER KEY ENCRYPTION BY
PASSWORD = 'netflicks';

CREATE CERTIFICATE PaymentType1
  WITH SUBJECT = 'User Payment Type';
GO

CREATE SYMMETRIC KEY Payment
   WITH ALGORITHM = AES_256
   ENCRYPTION BY CERTIFICATE PaymentType1;
GO

 use netflicks;

-- Create a column in which to store the encrypted data.
ALTER TABLE dbo.PaymentType
   ADD EncryptedPaymentType varbinary(128) ;
GO
```

```
----------- Run below code only to check if constraint chkdate already implemented in
the table -----------

-- The below insert statements should fail since the end date is before the start date in
the first case and the start date is greater than the current date in the second case

INSERT INTO Subscription (SubscriptionTypeID, StartDate, EndDate,
PaymentTypeID) VALUES (3, '2017-12-12', '2016-02-04', 3);
INSERT INTO Subscription (SubscriptionTypeID, StartDate, EndDate,
PaymentTypeID) VALUES (3, '2020-12-12', '2021-02-04', 3);


----------- Run below code only to check if encryption constraint already implemented
in the table -----------

-- Open the symmetric key with which to encrypt the data.
OPEN SYMMETRIC KEY Payment
  DECRYPTION BY CERTIFICATE PaymentType1;

-- Encrypt the value in column PaymentType with symmetric
-- key Payment. Save the result in column EncryptedPaymentType.
UPDATE dbo.PaymentType
SET EncryptedPaymentType = EncryptByKey(Key_GUID('Payment'), PaymentType);
GO

-- Verify the encryption.
-- First, open the symmetric key with which to decrypt the data.
OPEN SYMMETRIC KEY Payment
  DECRYPTION BY CERTIFICATE PaymentType1;
GO

-- Now list the original ID, the encrypted ID, and the
-- decrypted ciphertext. If the decryption worked, the original
-- and the decrypted ID will match.
SELECT PaymentType, EncryptedPaymentType
    AS 'Encrypted Payment Type',
    CONVERT(varchar, DecryptByKey(EncryptedPaymentType))
    AS 'Decrypted Payment Type'
    FROM dbo.PaymentType;
GO
```

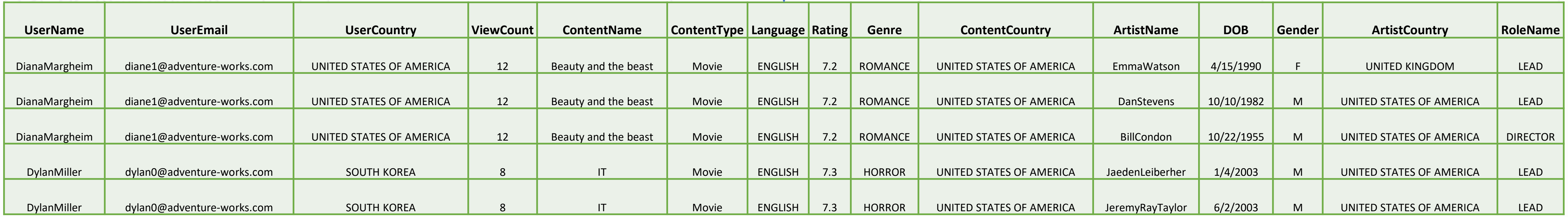
Implementation: DDL for generating views

```
--------------------------- View 1 (UserCountryView) ---------------------------

CREATE VIEW UserCountryView
AS
SELECT [User].FirstName, [User].LastName, [User].Email, Country.CountryName FROM [User]
INNER JOIN Country ON [User].CountryID = Country.CountryID;

SELECT * FROM UserCountryView;
```



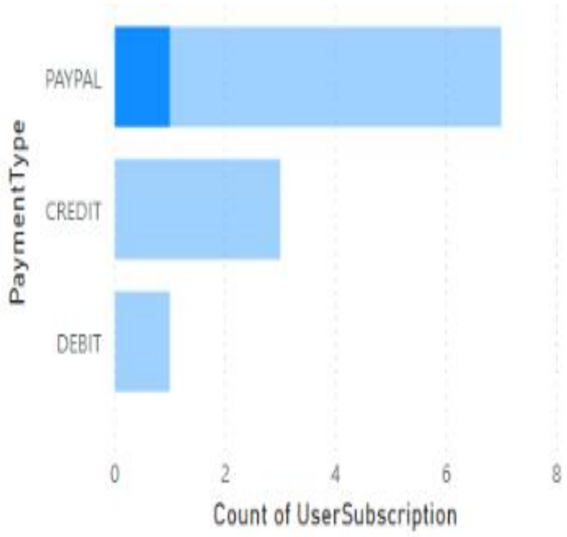
FirstName	LastName	Email	CountryName
Ken	Sanchez	ken0@adventure-works.com	CHINA
Terri	Duffy	terri0@adventure-works.com	UNITED STATES OF AMERICA
Roberto	Tamburello	roberto0@adventure-works.com	UNITED KINGDOM
Rob	Walters	rob0@adventure-works.com	UNITED STATES OF AMERICA
Gail	Erikson	gail0@adventure-works.com	UNITED KINGDOM
Jossef	Goldberg	jossef0@adventure-works.com	SOUTH KOREA

```
--------------------------- View 9 (MasterView) ---------------------------

CREATE VIEW MasterView
AS
SELECT UserName, UserEmail, UserCountry, ViewCount, RolePlayedContentView.ContentName,
RolePlayedContentView.ContentType, RolePlayedContentView.[Language],
RolePlayedContentView.Rating, RolePlayedContentView.Genre,
RolePlayedContentView.ContentCountry, ArtistName, DOB, Gender, ArtistCountry, RoleName
FROM UserContentSummaryView
INNER JOIN RolePlayedContentView ON UserContentSummaryView.ContentID =
RolePlayedContentView.ContentID

SELECT * FROM MasterView;
```

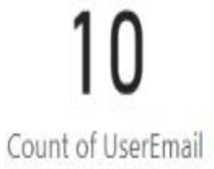


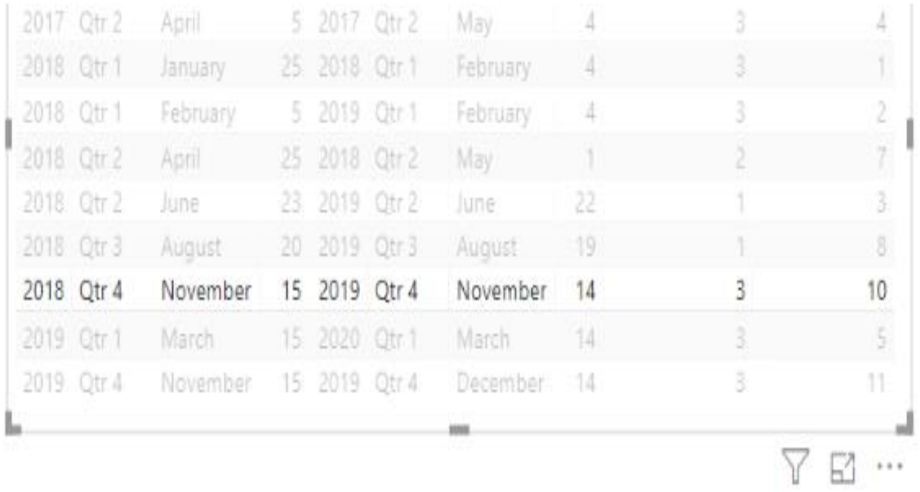
UserName	UserEmail	UserCountry	ViewCount	ContentName	ContentType	Language	Rating	Genre	ContentCountry	ArtistName	DOB	Gender	ArtistCountry	RoleName
DianaMargheim	diane1@adventure-works.com	UNITED STATES OF AMERICA	12	Beauty and the beast	Movie	ENGLISH	7.2	ROMANCE	UNITED STATES OF AMERICA	EmmaWatson	4/15/1990	F	UNITED KINGDOM	LEAD
DianaMargheim	diane1@adventure-works.com	UNITED STATES OF AMERICA	12	Beauty and the beast	Movie	ENGLISH	7.2	ROMANCE	UNITED STATES OF AMERICA	DanStevens	10/10/1982	M	UNITED STATES OF AMERICA	LEAD
DianaMargheim	diane1@adventure-works.com	UNITED STATES OF AMERICA	12	Beauty and the beast	Movie	ENGLISH	7.2	ROMANCE	UNITED STATES OF AMERICA	BillCondon	10/22/1955	M	UNITED STATES OF AMERICA	DIRECTOR
DylanMiller	dylan0@adventure-works.com	SOUTH KOREA	8	IT	Movie	ENGLISH	7.3	HORROR	UNITED STATES OF AMERICA	JaedenLeiberher	1/4/2003	M	UNITED STATES OF AMERICA	LEAD
DylanMiller	dylan0@adventure-works.com	SOUTH KOREA	8	IT	Movie	ENGLISH	7.3	HORROR	UNITED STATES OF AMERICA	JeremyRayTaylor	6/2/2003	M	UNITED STATES OF AMERICA	LEAD

DATA ANALYSIS USING POWER BI

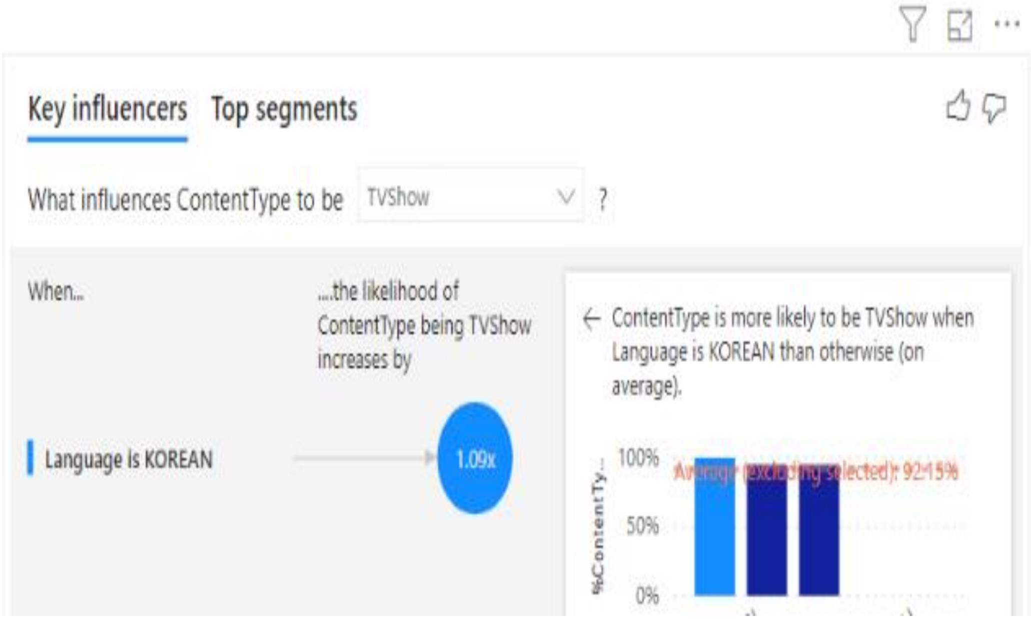


- Payment type used along with the count of user subscription
  The date and user email details
  Analysis of the key influencer(language) on the content type
  Total number of registered user emails





2017	Qtr 2	April	5	2017	Qtr 2	May	4	3	4
2018	Qtr 1	January	25	2018	Qtr 1	February	4	3	1
2018	Qtr 1	February	5	2019	Qtr 1	February	4	3	2
2018	Qtr 2	April	25	2018	Qtr 2	May	1	2	7
2018	Qtr 2	June	23	2019	Qtr 2	June	22	1	3
2018	Qtr 3	August	20	2019	Qtr 3	August	19	1	8
2018	Qtr 4	November	15	2019	Qtr 4	November	14	3	10
2019	Qtr 1	March	15	2020	Qtr 1	March	14	3	5
2019	Qtr 4	November	15	2019	Qtr 4	December	14	3	11



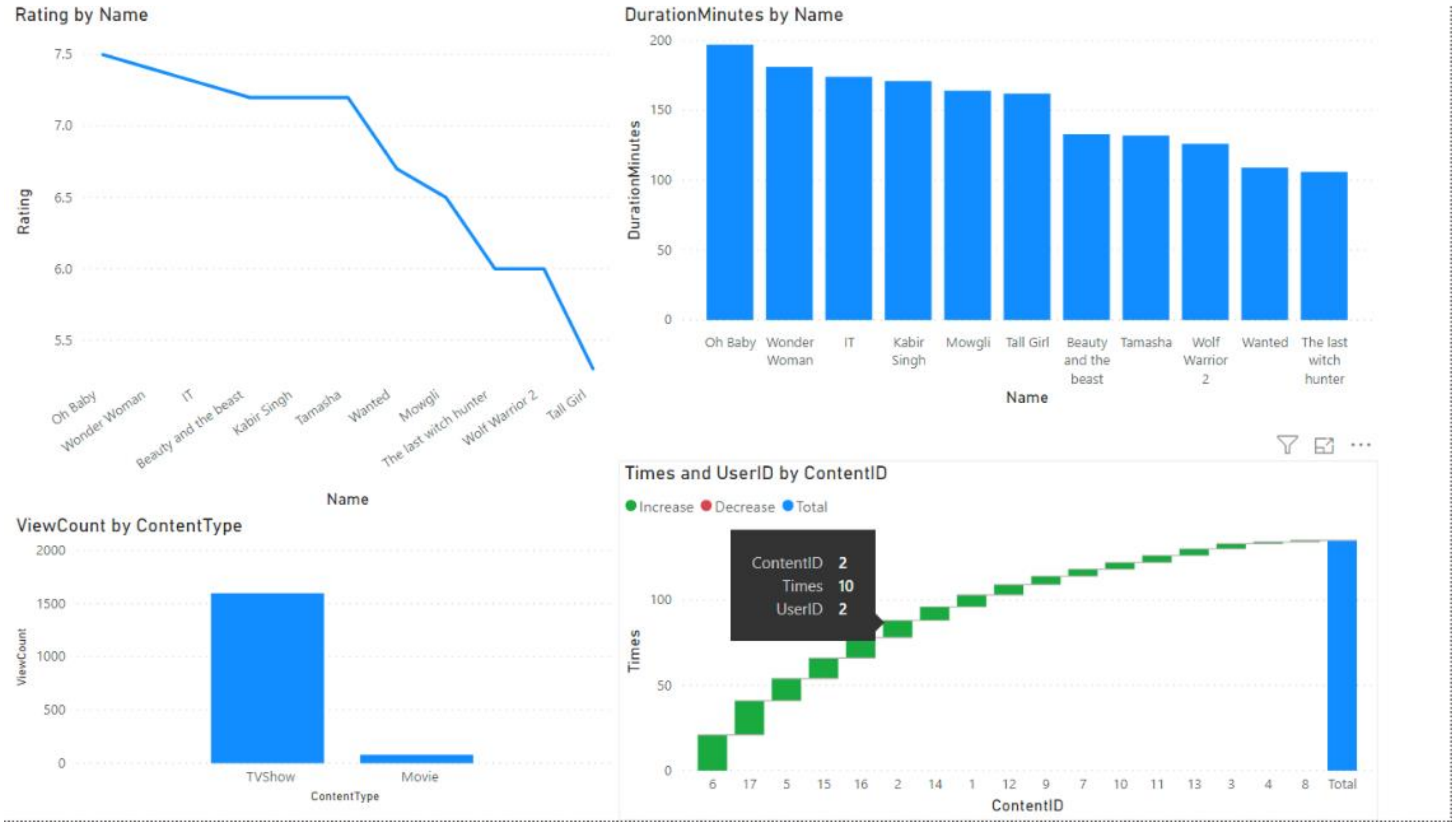
What influences ContentType to be TVShow ?

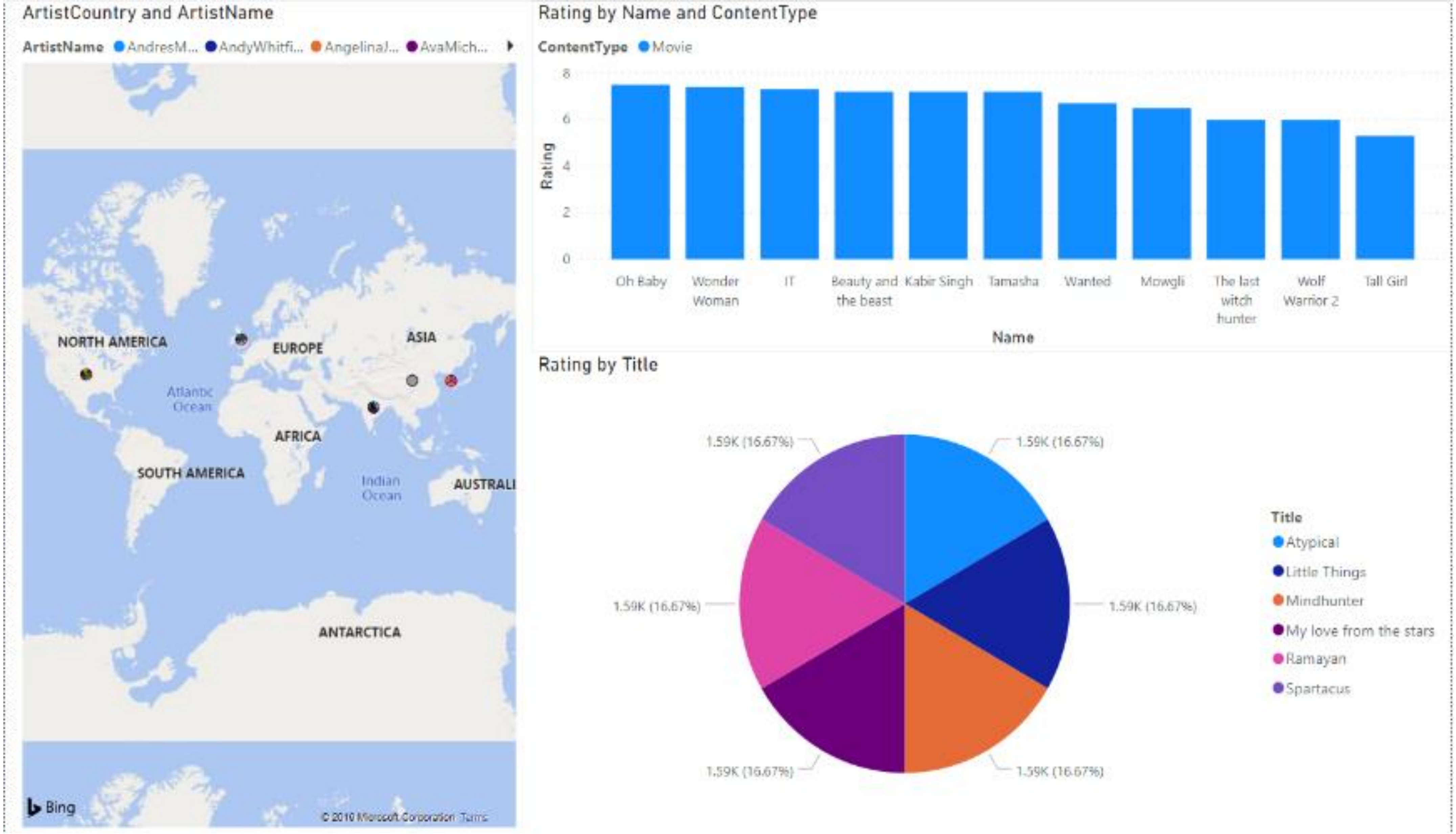
When...

...the likelihood of ContentType being TVShow increases by

Language is KOREAN 1.09x

ContentType is more likely to be TVShow when Language is KOREAN than otherwise (on average).


Rating by Name
7.5
7.0
6.5
6.0
5.5
Rating
Oh Baby
Wonder Woman
IT
Beauty and the beast
Kabir Singh
Tamasha
Wanted
Mowgli
The last witch hunter
Wolf Warrior 2
Tall Girl
Name
DurationMinutes by Name
200
150
100
50
0
DurationMinutes
Oh Baby
Wonder Woman
IT
Kabir Singh
Mowgli
Tall Girl
Beauty and the beast
Tamasha
Wolf Warrior 2
Wanted
The last witch hunter
Name
ViewCount by ContentType
2000
1500
1000
500
0
ViewCount
TVShow
Movie
ContentType
Times and UserID by ContentID
● Increase ● Decrease ● Total
ContentID 2
Times 10
UserID 2
100
50
0
Times
6
17
5
15
16
2
14
1
12
9
7
10
11
13
3
4
8
Total
ContentID


ArtistCountry and ArtistName
ArtistName ● AndresM... ● AndyWhitfi... ● AngelinaJ... ● AvaMich...
NORTH AMERICA
EUROPE
ASIA
Atlantic Ocean
AFRICA
SOUTH AMERICA
Indian Ocean
AUSTRALI
ANTARCTICA
Bing
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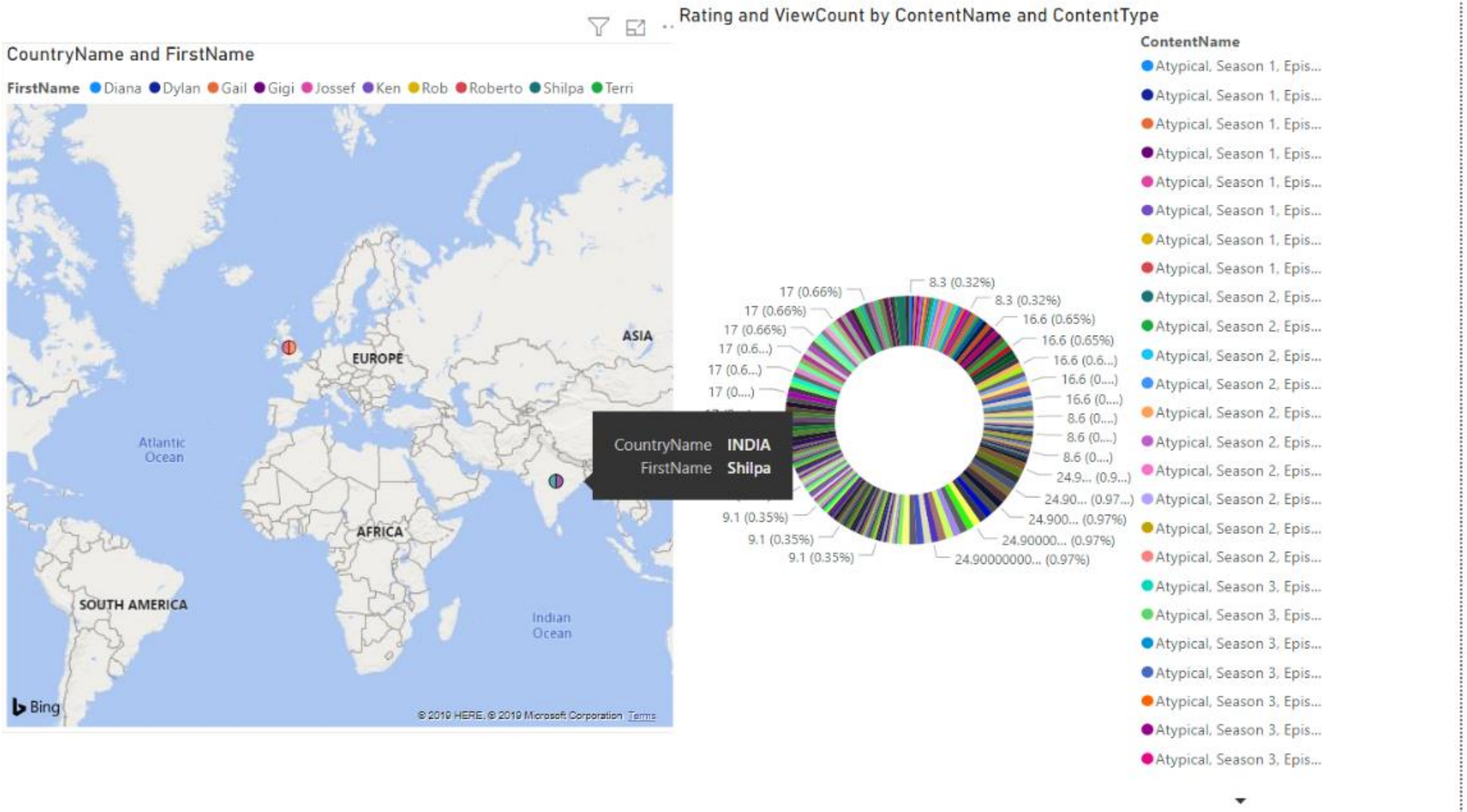
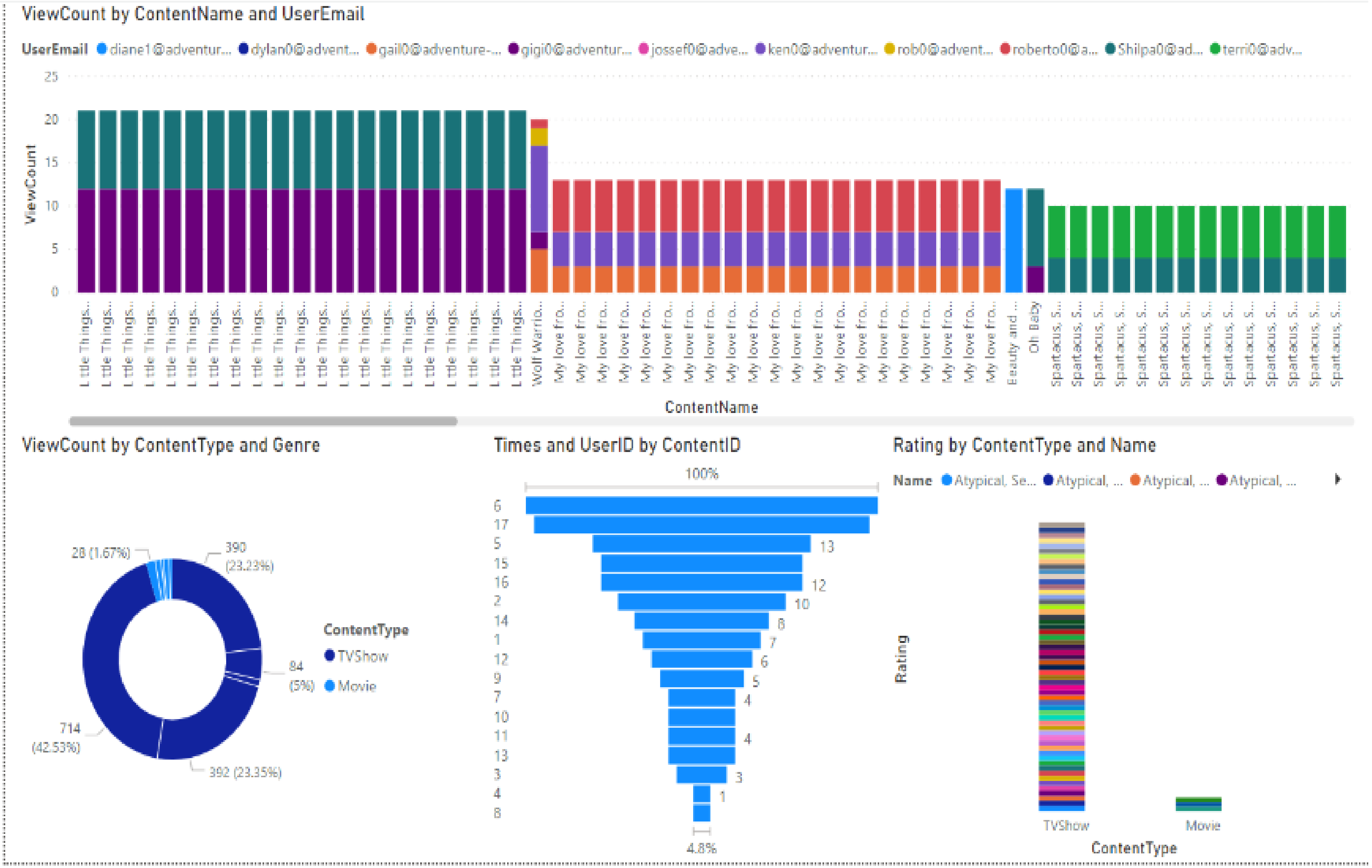
Rating by Name and ContentType
ContentType ● Movie
Rating
8
6
4
2
0
Oh Baby
Wonder Woman
IT
Beauty and the beast
Kabir Singh
Tamasha
Wanted
Mowgli
The last witch hunter
Wolf Warrior 2
Tall Girl
Name
Rating by Title
1.59K (16.67%)
1.59K (16.67%)
1.59K (16.67%)
1.59K (16.67%)
1.59K (16.67%)
1.59K (16.67%)
Title
● Atypical
● Little Things
● Mindhunter
● My love from the stars
● Ramayan
● Spartacus


CountryName and FirstName
FirstName ● Diana ● Dylan ● Gail ● Gigi ● Jossef ● Ken ● Rob ● Roberto ● Shilpa ● Terri
EUROPE
ASIA
AFRICA
SOUTH AMERICA
Atlantic Ocean
Indian Ocean
Bing
© 2019 HERE, © 2019 Microsoft Corporation Terms
CountryName INDIA
FirstName Shilpa
Rating and ViewCount by ContentName and ContentType
8.3 (0.32%)
8.3 (0.32%)
16.6 (0.65%)
16.6 (0.65%)
16.6 (0.6...)
16.6 (0....)
16.6 (0....)
8.6 (0....)
8.6 (0....)
8.6 (0....)
24.9... (0.9...)
24.90... (0.97...)
24.900... (0.97%)
24.90000... (0.97%)
24.90000000... (0.97%)
9.1 (0.35%)
9.1 (0.35%)
9.1 (0.35%)
17 (0.66%)
17 (0.66%)
17 (0.66%)
17 (0.6...)
17 (0.6...)
17 (0....)
ContentName
Atypical, Season 1, Epis...
Atypical, Season 1, Epis...
Atypical, Season 1, Epis...
Atypical, Season 1, Epis...
Atypical, Season 1, Epis...
Atypical, Season 1, Epis...
Atypical, Season 1, Epis...
Atypical, Season 1, Epis...
Atypical, Season 2, Epis...
Atypical, Season 2, Epis...
Atypical, Season 2, Epis...
Atypical, Season 2, Epis...
Atypical, Season 2, Epis...
Atypical, Season 2, Epis...
Atypical, Season 2, Epis...
Atypical, Season 2, Epis...
Atypical, Season 2, Epis...
Atypical, Season 2, Epis...
Atypical, Season 3, Epis...
Atypical, Season 3, Epis...
Atypical, Season 3, Epis...
Atypical, Season 3, Epis...
Atypical, Season 3, Epis...
Atypical, Season 3, Epis...
Atypical, Season 3, Epis...



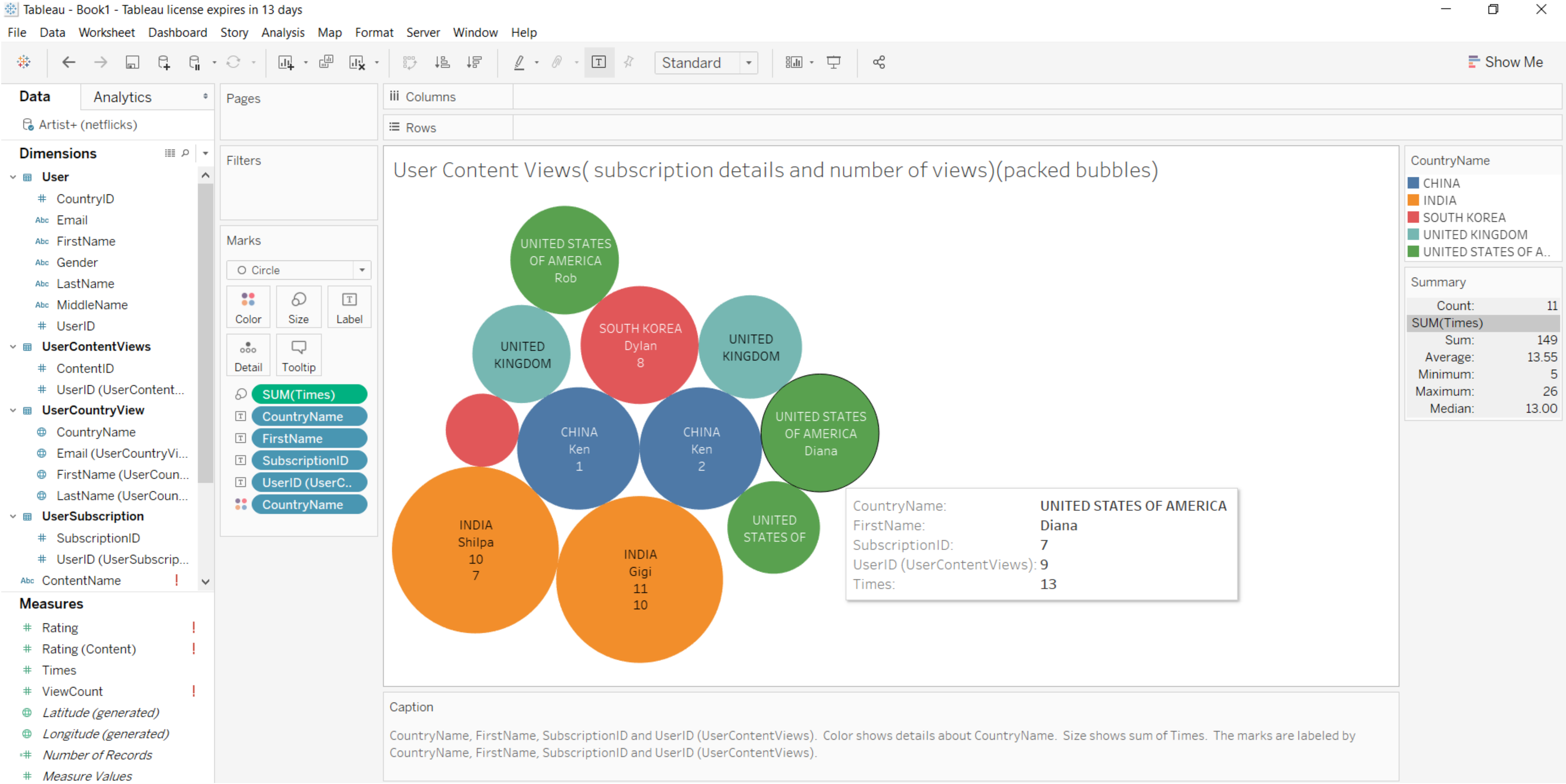
ViewCount by ContentName and UserEmail

ViewCount by ContentType and Genre

Times and UserID by ContentID

Rating by ContentType and Name

DATA VISUALIZATION USING TABLEAU



User Content Views(subscription details and number of views)(packed bubbles)

CountryName

- 🟦 CHINA
- 🟧 INDIA
- 🟥 SOUTH KOREA
- 🟦 UNITED KINGDOM
- 🟩 UNITED STATES OF A..

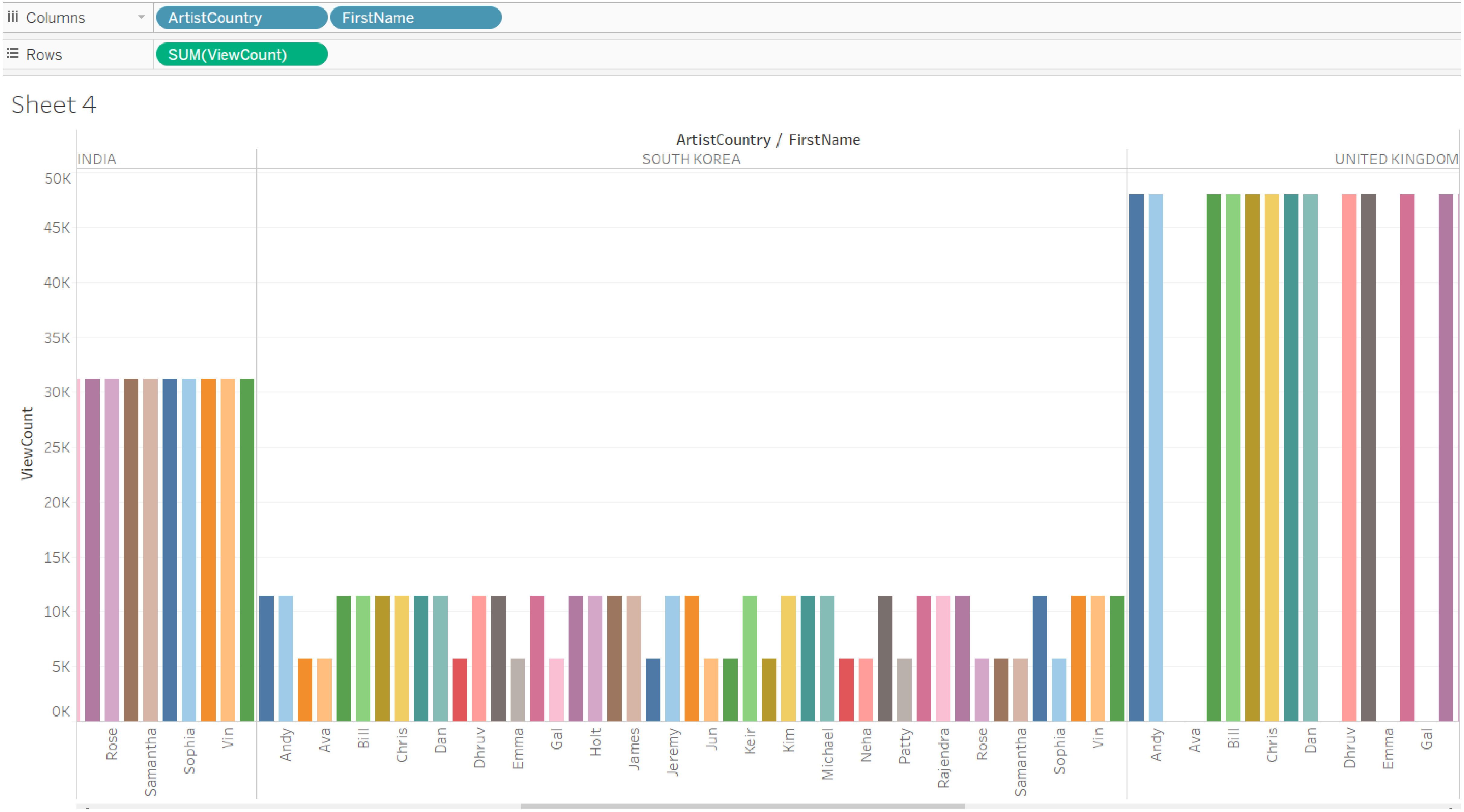
Summary

Count:	11
SUM(Times)	
Sum:	149
Average:	13.55
Minimum:	5
Maximum:	26
Median:	13.00

CountryName:	UNITED STATES OF AMERICA
FirstName:	Diana
SubscriptionID:	7
UserID (UserContentViews):	9
Times:	13

Caption

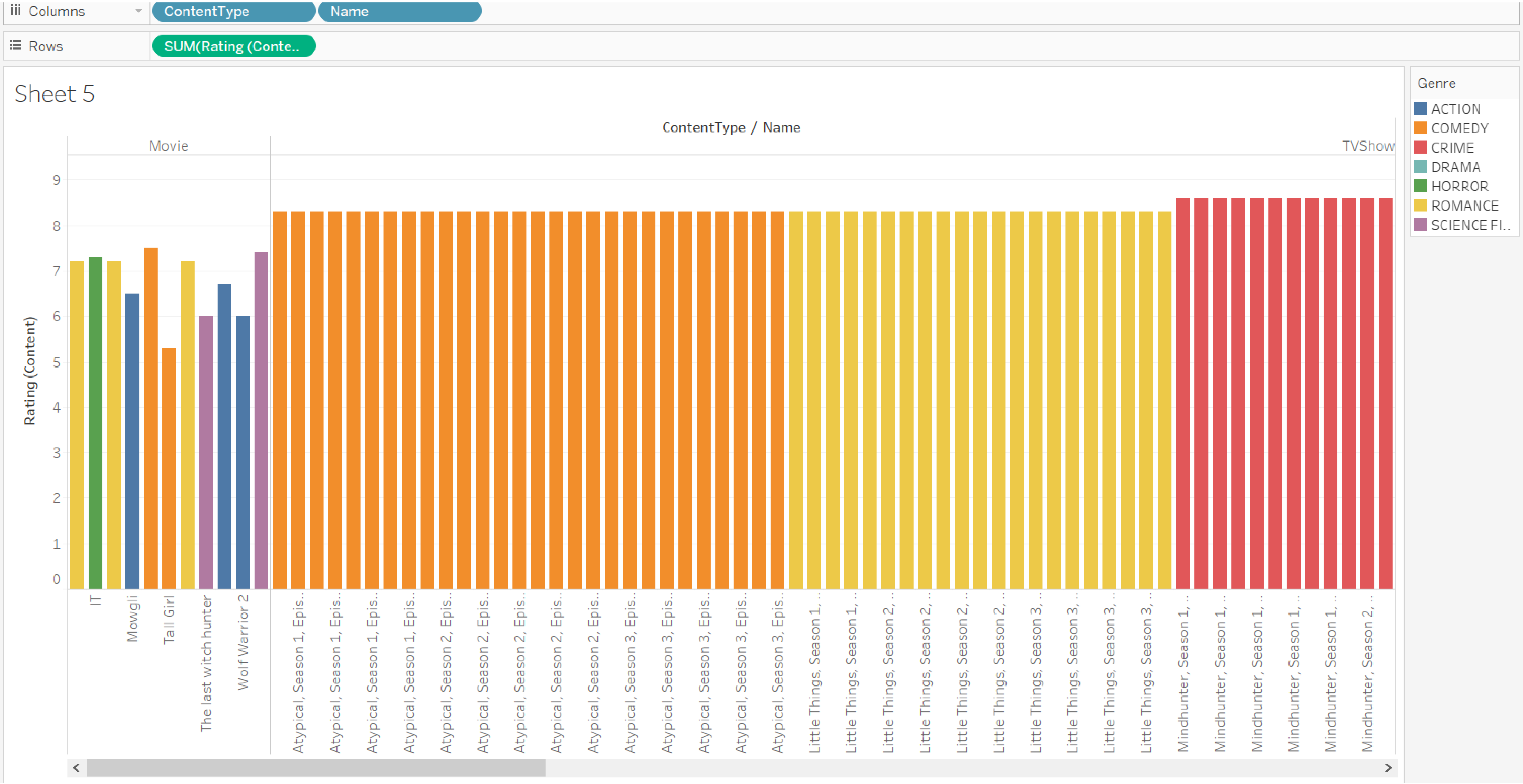
CountryName, FirstName, SubscriptionID and UserID (UserContentViews). Color shows details about CountryName. Size shows sum of Times. The marks are labeled by CountryName, FirstName, SubscriptionID and UserID (UserContentViews).



Columns: ArtistCountry, FirstName

Rows: SUM(ViewCount)

Sheet 4

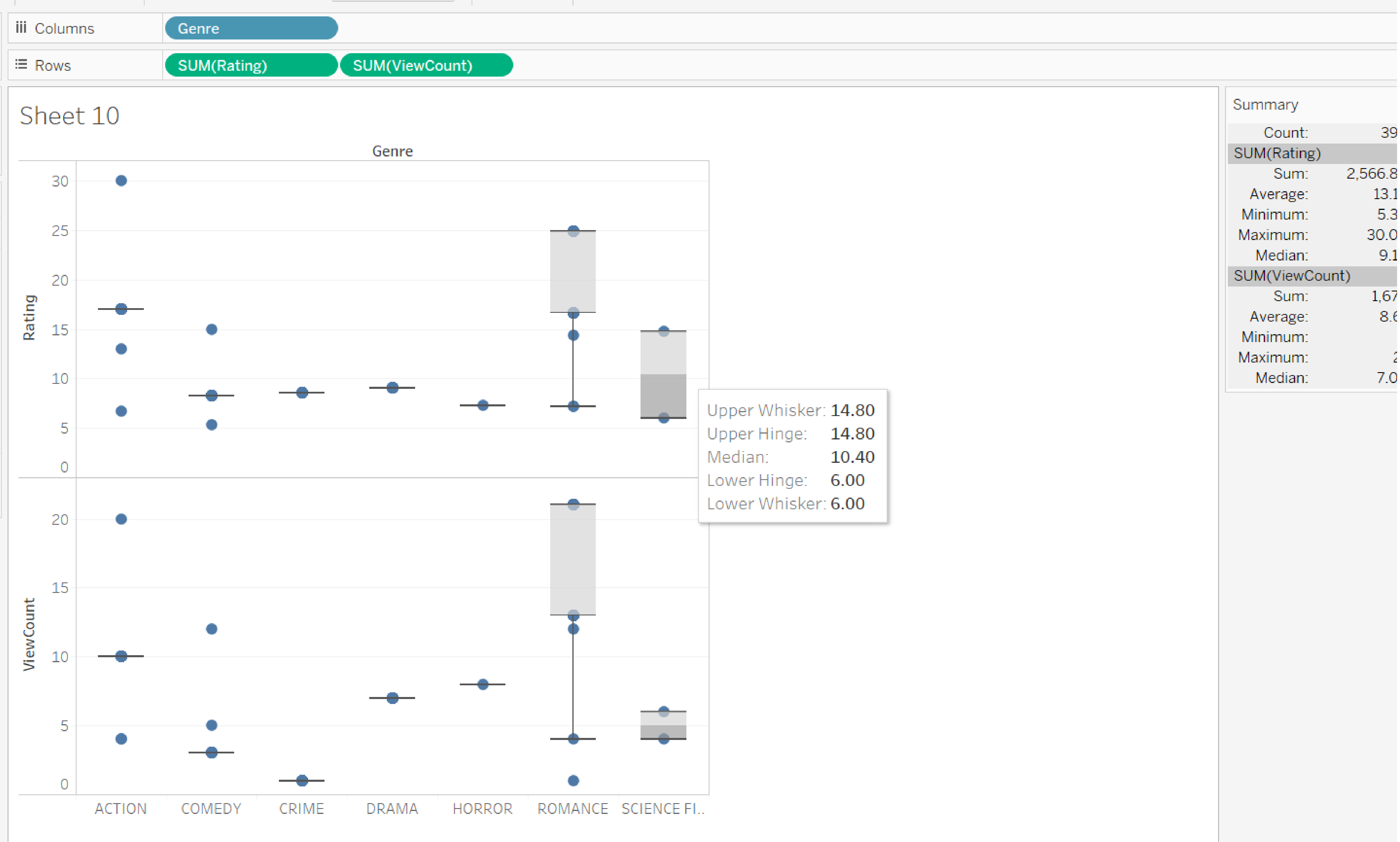


Columns: ContentType, Name

Rows: SUM(Rating (Conte..

Sheet 5

ContentType / Name
Movie
TVShow
Rating (Content)
0
1
2
3
4
5
6
7
8
9
IT
Mowgli
Tall Girl
The last witch hunter
Wolf Warrior 2
Atypical, Season 1, Epis..
Atypical, Season 1, Epis..
Atypical, Season 1, Epis..
Atypical, Season 1, Epis..
Atypical, Season 2, Epis..
Atypical, Season 2, Epis..
Atypical, Season 2, Epis..
Atypical, Season 2, Epis..
Atypical, Season 2, Epis..
Atypical, Season 3, Epis..
Atypical, Season 3, Epis..
Atypical, Season 3, Epis..
Atypical, Season 3, Epis..
Atypical, Season 3, Epis..
Little Things, Season 1, ..
Little Things, Season 1, ..
Little Things, Season 2, ..
Little Things, Season 2, ..
Little Things, Season 2, ..
Little Things, Season 2, ..
Little Things, Season 3, ..
Little Things, Season 3, ..
Little Things, Season 3, ..
Little Things, Season 3, ..
Mindhunter, Season 1, ..
Mindhunter, Season 1, ..
Mindhunter, Season 1, ..
Mindhunter, Season 1, ..
Mindhunter, Season 1, ..
Mindhunter, Season 2, ..
Genre
ACTION
COMEDY
CRIME
DRAMA
HORROR
ROMANCE
SCIENCE FI..



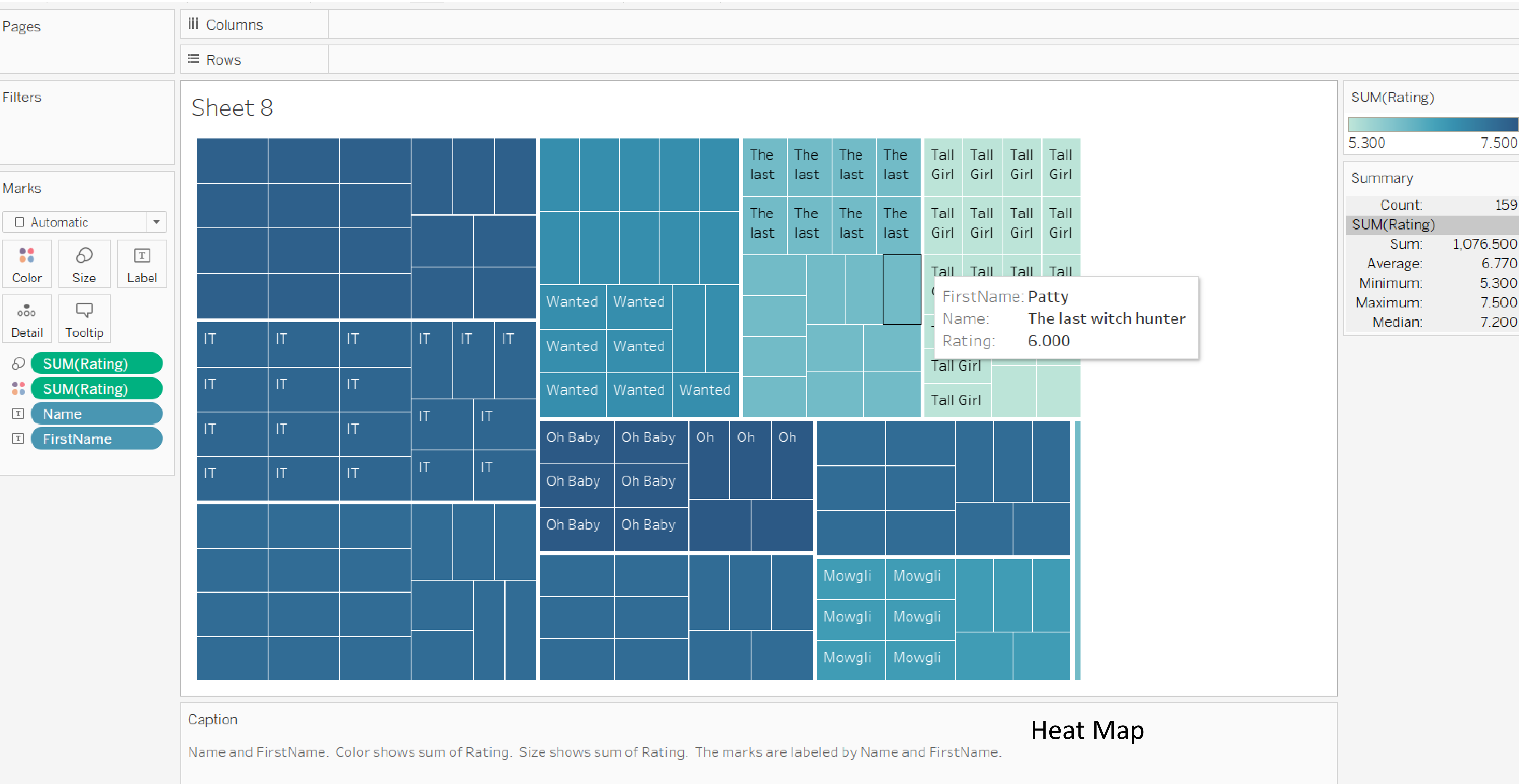
Columns: Genre

Rows: SUM(Rating) SUM(ViewCount)

Sheet 10

```
Upper Whisker: 14.80
Upper Hinge:   14.80
Median:        10.40
Lower Hinge:   6.00
Lower Whisker: 6.00
```

```
Summary
     Count:        39
SUM(Rating)
       Sum:   2,566.8
   Average:      13.1
   Minimum:       5.3
   Maximum:      30.0
    Median:       9.1
SUM(ViewCount)
       Sum:      1,67
   Average:       8.6
   Minimum:
   Maximum:         2
    Median:       7.0
```



FirstName: Patty
Name: The last witch hunter
Rating: 6.000

Summary

Count:	159
SUM(Rating)	
Sum:	1,076.500
Average:	6.770
Minimum:	5.300
Maximum:	7.500
Median:	7.200

Name and FirstName. Color shows sum of Rating. Size shows sum of Rating. The marks are labeled by Name and FirstName.

Heat Map

Thank you !