Netflix Data Visualisation Project

This project will use data visualisation techniques on the Netflix Movies and TV Shows using R. We will calculate which country has the most content on netflix and what year will have the most releases. The most popular genres on netflix for tv shows and movies will be uncovered and the most frequent director in the dataset. These will also be visualised in different types of plots throughout.

Data available from https://www.kaggle.com/shivamb/netflix-shows.

Explore the Data

First the data set and the relevant packages will be loaded then the first few lines of data will be viewed.

```
#import relevant packages
library(tidyverse)

## ── Attaching packages ───────────────────── tidyverse 1.3.0 ──

## ✓ ggplot2 3.3.2     ✓ purrr   0.3.4
## ✓ tibble  3.0.3     ✓ dplyr   1.0.2
## ✓ tidyr   1.1.2     ✓ stringr 1.4.0
## ✓ readr   1.4.0     ✓ forcats 0.5.0

## ── Conflicts ──────────────────────── tidyverse_conflicts() ──
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()

library(wordcloud)

## Loading required package: RColorBrewer

library(tokenizers)
library(repr)
library(ggplot2)


#read the netflix dataset
netflix <- read.csv("netflix_titles.csv")

#view the first few lines of data
head(netflix)

##    show_id    type                                   title
## 1 81145628   Movie Norm of the North: King Sized Adventure
## 2 80117401   Movie              Jandino: Whatever it Takes
## 3 70234439 TV Show                      Transformers Prime
## 4 80058654 TV Show        Transformers: Robots in Disguise
## 5 80125979   Movie                            #realityhigh
## 6 80163890 TV Show                                 Apaches
##                   director
## 1 Richard Finn, Tim Maltby
## 2
## 3
## 4
## 5         Fernando Lebrija
## 6
##
cast
## 1                                        Alan Marriott, Andrew Toth, Brian
Dobson, Cole Howard, Jennifer Cameron, Jonathan Holmes, Lee Tockar, Lisa
Durupt, Maya Kay, Michael Dobson
## 2
Jandino Asporaat
## 3 Peter Cullen, Sumalee Montano, Frank Welker, Jeffrey Combs, Kevin
Michael Richardson, Tania Gunadi, Josh Keaton, Steve Blum, Andy Pessoa, Ernie
Hudson, Daran Norris, Will Friedle
## 4                                                           Will Friedle,
Darren Criss, Constance Zimmer, Khary Payton, Mitchell Whitfield, Stuart
Allan, Ted McGinley, Peter Cullen
## 5           Nesta Cooper, Kate Walsh, John Michael Higgins, Keith Powers,
Alicia Sanz, Jake Borelli, Kid Ink, Yousef Erakat, Rebekah Graf, Anne
Winters, Peter Gilroy, Patrick Davis
## 6
Alberto Ammann, Eloy Azorín, Verónica Echegui, Lucía Jiménez, Claudia Traisac
##                                    country        date_added release_year
## 1 United States, India, South Korea, China September 9, 2019         2019
## 2                           United Kingdom September 9, 2016         2016
## 3                            United States September 8, 2018         2013
## 4                            United States September 8, 2018         2016
## 5                            United States September 8, 2017         2017
## 6                                    Spain September 8, 2017         2016
##     rating duration
## 1    TV-PG   90 min
## 2    TV-MA   94 min
## 3 TV-Y7-FV 1 Season
## 4    TV-Y7 1 Season
## 5    TV-14   99 min
## 6    TV-MA 1 Season
##                                                            listed_in
## 1                                 Children & Family Movies, Comedies
## 2                                                    Stand-Up Comedy
## 3                                                           Kids' TV
## 4                                                           Kids' TV
## 5                                                           Comedies
## 6 Crime TV Shows, International TV Shows, Spanish-Language TV Shows
```

```
## 
description
## 1         Before planning an awesome wedding for his grandfather, a polar
bear king must take back a stolen artifact from an evil archaeologist first.
## 2    Jandino Asporaat riffs on the challenges of raising kids and
serenades the audience with a rousing rendition of "Sex on Fire" in his
comedy show.
## 3         With the help of three human allies, the Autobots once again
protect Earth from the onslaught of the Decepticons and their leader,
Megatron.
## 4                       When a prison ship crash unleashes hundreds of
Decepticons on Earth, Bumblebee leads a new Autobot force to protect
humankind.
## 5 When nerdy high schooler Dani finally attracts the interest of her
longtime crush, she lands in the cross hairs of his ex, a social media
celebrity.
## 6             A young journalist is forced into a life of crime to save
his father and family in this series based on the novel by Miguel Sáez
Carral.
```

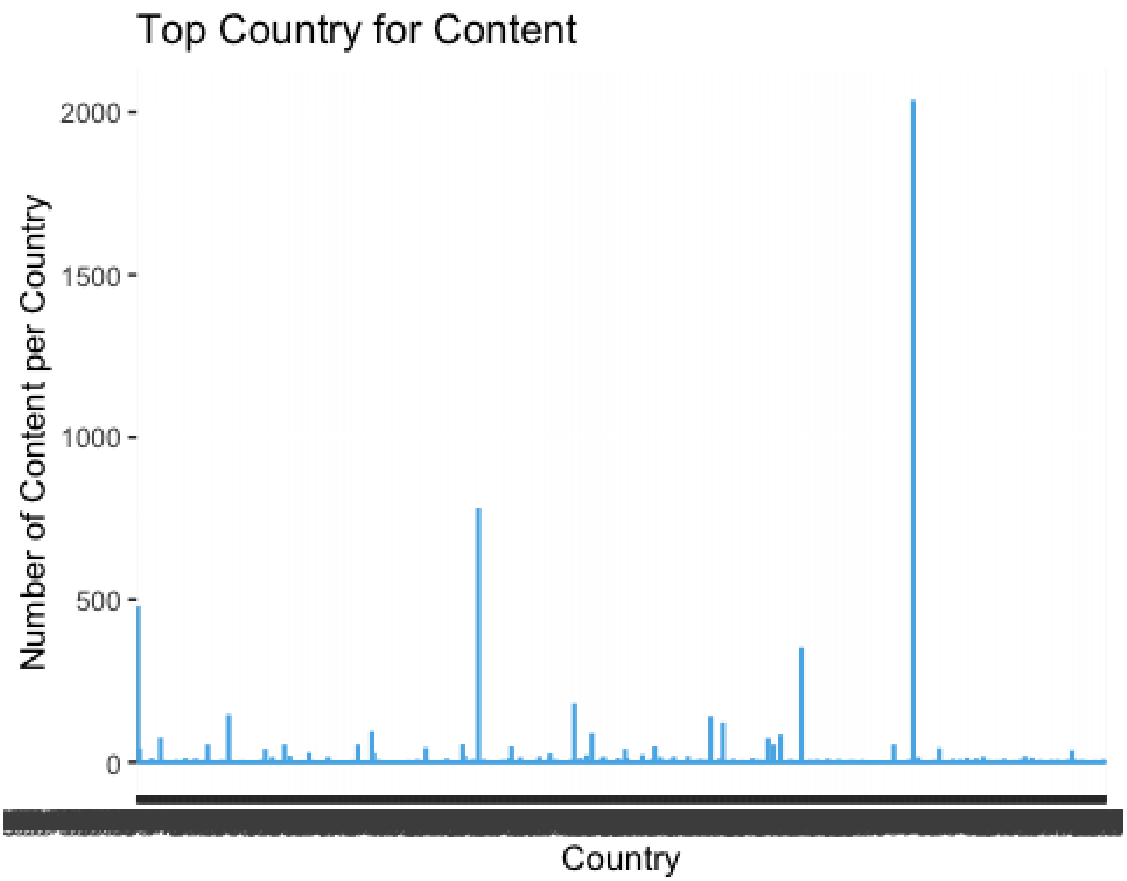
Top Country for Content

By grouping the data by country we can count which country has the most tv shows and movies and plot them below. It is clear that United States is the country with the most tv shows.

```
#group the data by countries
group_by_countries <- netflix %>%group_by(netflix$country)

#count the number of countries
country_count <- netflix %>% count(country)

# view the number of shows released per date
tail(country_count, 25)
```

```
##                                                    country  n
## 531                        United States, Spain, Germany  1
## 532                          United States, Spain, Italy  1
## 533                                United States, Sweden  3
## 534                                United States, Taiwan  1
## 535                  United States, United Arab Emirates  3
## 536                        United States, United Kingdom 32
## 537             United States, United Kingdom, Australia  4
## 538                United States, United Kingdom, Canada  2
## 539         United States, United Kingdom, Canada, Japan  1
## 540       United States, United Kingdom, Denmark, Sweden  1
## 541                United States, United Kingdom, France  3
## 542 United States, United Kingdom, France, Germany, Japan  1
## 543               United States, United Kingdom, Germany  2
## 544                 United States, United Kingdom, Italy  1
## 545                United States, United Kingdom, Morocco  1
## 546     United States, United Kingdom, Spain, South Korea  1
## 547                                United States, Uruguay  1
## 548                              United States, Venezuela  1
## 549                                               Uruguay  2
## 550                             Uruguay, Argentina, Spain  1
## 551                                Uruguay, Spain, Mexico  1
## 552                                             Venezuela  1
## 553                                   Venezuela, Colombia  1
## 554                                               Vietnam  4
## 555                                          West Germany  1
```

```r
# Create the plot
plot1 <- ggplot(country_count, aes(x = country, y =n, color = n))+
geom_col(color = c("#56B4E9")) +
labs(title='Top Country for Content',x='Country', y='Number of Content per
Country')

#show the plot
plot1
```



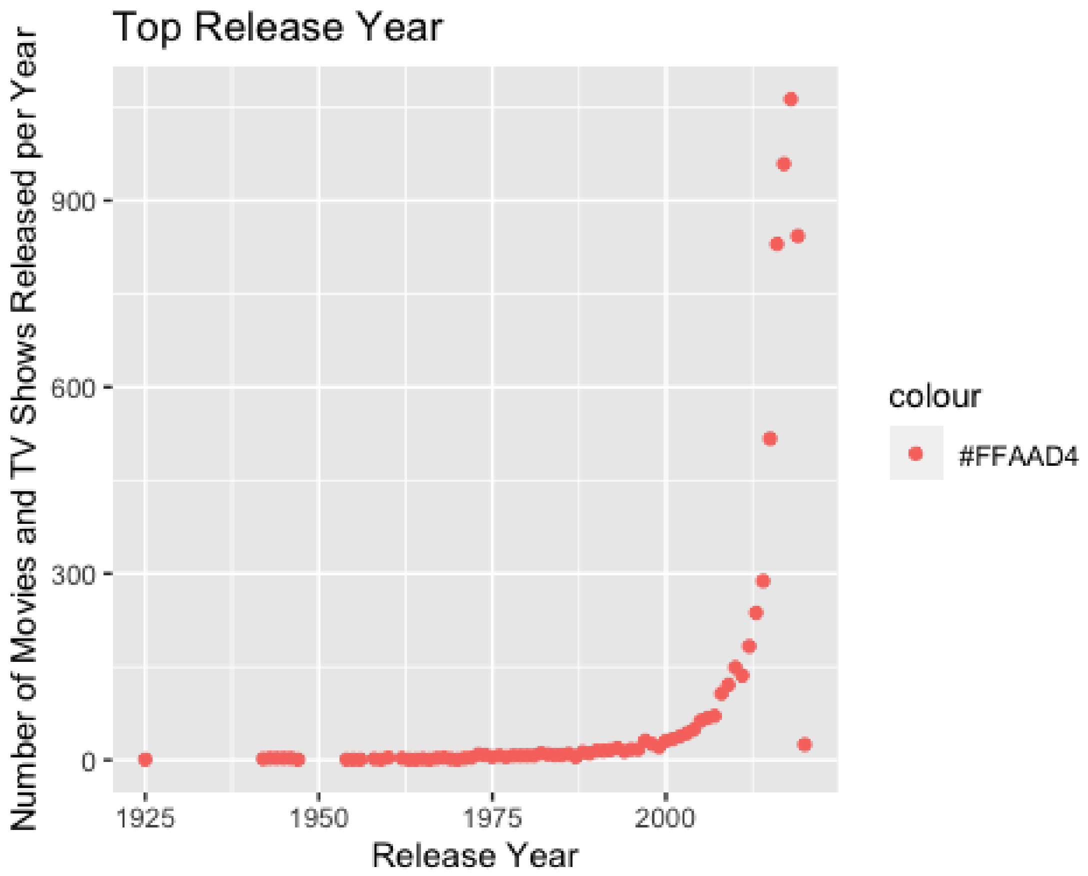
Top Release Year

A similar approach can be applied to the release years of the movies and tv shows. After grouping the data by release year we can count both types released each year. This is shown below where it is clear that there is spike of numbers after the year 2000.

```
# group the data by release date
group_by_date <- netflix %>% group_by(release_year)

# count the number of shows released per date
count_by_date <- netflix  %>% count(release_year)

# view the number of shows released per date
head(count_by_date)
```

```
##   release_year n
## 1         1925 1
## 2         1942 2
## 3         1943 3
## 4         1944 3
## 5         1945 3
## 6         1946 3
```

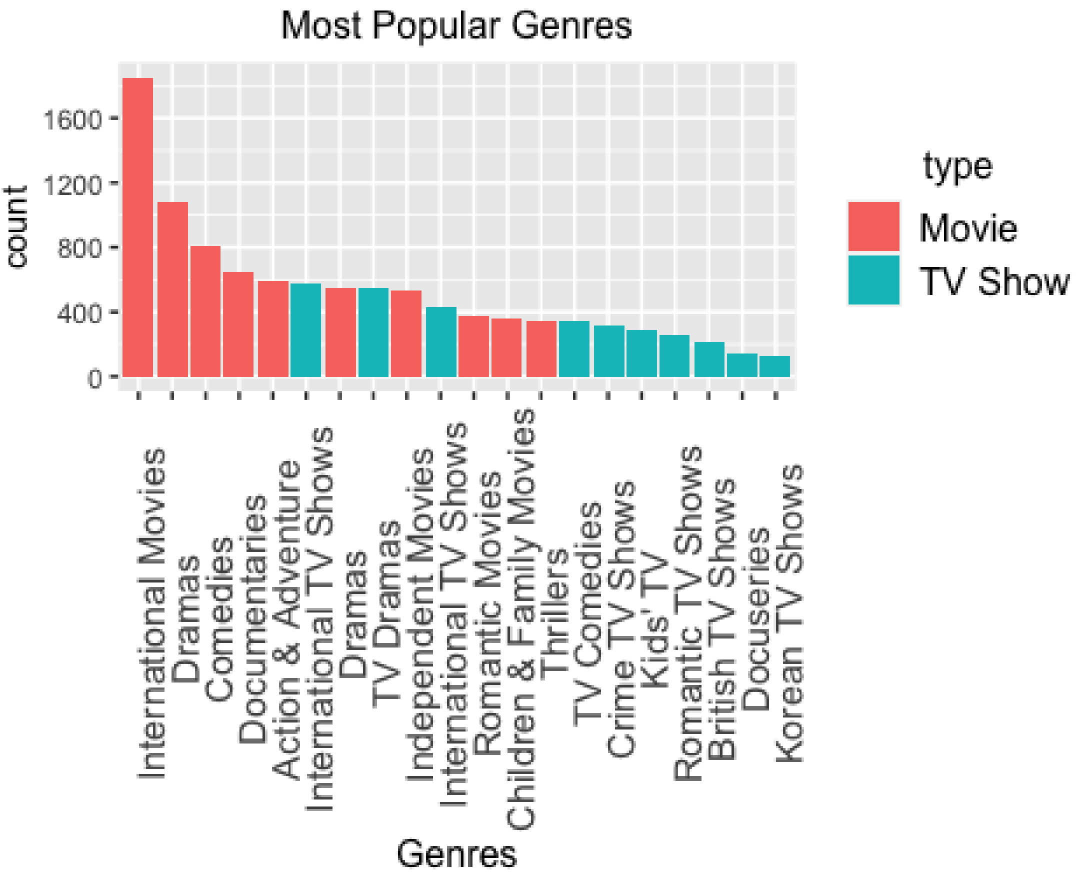
```
# create the plot
plot2 <- ggplot(count_by_date, aes(x = release_year, y = n,
backgroundColor="white", color='#FFAAD4',
removePanelGrid=TRUE,removePanelBorder=TRUE))+
labs(title='Top Release Year',x='Release Year', y='Number of Movies and TV
Shows Released per Year')

# Display the scatterplot
plot2 +
  geom_point()
```



Most Popular Genres

We find the most popular genres for both tv shows and movies below. This shows the international movies and international tv shows are the most popular genres found in the data set.

```
size <- function(width, height){ options(repr.plot.width = width,
repr.plot.height = height)}

size(16,10)

genres=netflix %>% mutate(genre=strsplit(listed_in,',')) %>%
unnest(genre) %>% group_by(type,genre) %>%
summarise(count=n()) %>%
unique() %>%
arrange(desc(count)) %>%
top_n(10,count)

## `summarise()` regrouping output by 'type' (override with `.groups`
argument)

genres %>%
ggplot(aes(x=fct_reorder(genre,count,.desc = T), y=count,fill=type))+
geom_col()+scale_y_continuous(limits =c(0,1850),breaks =seq(0,1850,400))+
labs(title='Most Popular Genres',x='Genres')+
theme(axis.text.x = element_text(size = 12,angle =90),
axis.title.x = element_text(hjust = 0.5,size = 12),
legend.text = element_text(size = 12),
legend.title=element_text(hjust = 0.5,size = 12),
plot.title=element_text(hjust = 0.5,size = 12))
```



Top Directors

The data set can be arranged to show the most frequently found director on netflix by first selecting the show ids with the director. After counting and arranging them in descending order the top director found in the data set can be found as Jan Suter with over 20 counts.

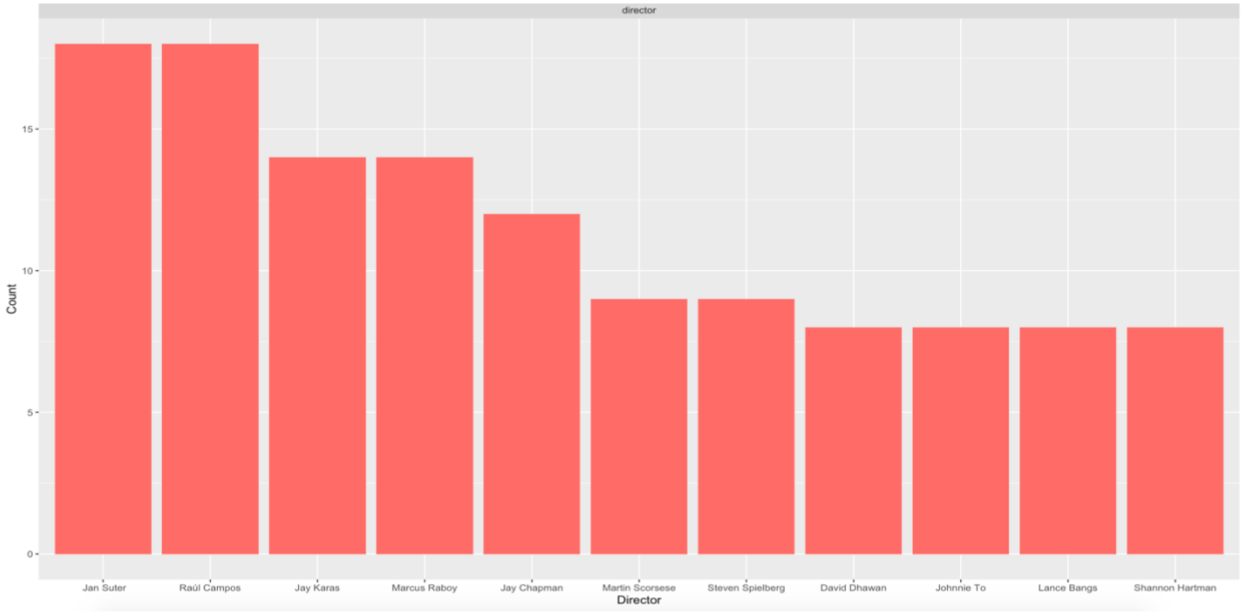
```
#create a variable for the director per show
director <- netflix %>%
select(c('show_id', 'director')) %>%
gather(key = 'role', value = 'person', director) %>%
filter(person != "") %>%
separate_rows(person, sep = ',')

#view the first few lines
head(director)
```

```
## # A tibble: 6 x 3
##    show_id role     person
##      <int> <chr>    <chr>
## 1 81145628 director "Richard Finn"
## 2 81145628 director " Tim Maltby"
## 3 80125979 director "Fernando Lebrija"
## 4 70304989 director "Gabe Ibáñez"
## 5 80164077 director "Rodrigo Toro"
## 6 80164077 director " Francisco Schultz"
```

```
#count directors and arrange in descending order
count_director<- director %>%
  group_by(person,role) %>%
    summarise(count = n()) %>%
      arrange(desc(count))
```

```
## `summarise()` regrouping output by 'person' (override with `.groups`
argument)
```

```
#create the plot to display top 10 directors
count_director %>%
  group_by(role) %>%
    top_n(10,count) %>%
      ungroup() %>%

ggplot(aes(x = fct_reorder(person,count,.desc = T), y = count, fill = role))
+
geom_bar(stat = 'identity') +
scale_x_discrete() +
facet_wrap(~role, scales = 'free_x') +
theme(legend.position = 'none') +
labs(x = 'Director', y='Count')
```


director
Count
Jan Suter
Raúl Campos
Jay Karas
Marcus Raboy
Jay Chapman
Martin Scorsese
Steven Spielberg
David Dhawan
Johnnie To
Lance Bangs
Shannon Hartman
Director