

# Assignment - R Programming

Team 10

April 16 2021

## R Markdown - Netflix datasets

This is an R Markdown document relating to Netflix datasets involving its shows, type, director, cast, country, date added, release year, rating, viewers, duration, category, and description. The dataset file can be found in <https://github.com/poojarao02/Assignment-1-R-Analysis>

Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document.

## Column Specification

```
str(dataset_01)
```

```
## tibble [7,787 x 14] (S3: tbl_df/tbl/data.frame)
##  $ seq_id      : num [1:7787] 1 2 3 4 5 6 7 8 9 10 ...
##  $ show_id     : chr [1:7787] "s1" "s2" "s3" "s4" ...
##  $ type        : chr [1:7787] "TV Show" "Movie" "Movie" "Movie" ...
##  $ title       : chr [1:7787] "0.03" "0.304861111111111108" "0.99930555555555556" "9" ...
##  $ director    : chr [1:7787] NA "Jorge Michel Grau" "Gilbert Chan" "Shane Acker" ...
##  $ cast        : chr [1:7787] "João Miguel, Bianca Comparato, Michel Gomes, Rodolfo Valente, Vaneza
##  $ country     : chr [1:7787] "Brazil" "Mexico" "Singapore" "United States" ...
##  $ date_added  : chr [1:7787] "44057" "42727" "43454" "43055" ...
##  $ release_year: num [1:7787] 2020 2016 2011 2009 2008 ...
##  $ rating      : chr [1:7787] "TV-MA" "TV-MA" "R" "PG-13" ...
##  $ viewers     : num [1:7787] 578060 590605 432093 145476 497509 ...
##  $ duration    : num [1:7787] 1600 93 78 80 123 400 95 119 118 143 ...
##  $ listed_in   : chr [1:7787] "International TV Shows, TV Dramas, TV Sci-Fi & Fantasy" "Dramas, Inte
##  $ description : chr [1:7787] "In a future where the elite inhabit an island paradise far from the c
```

### 1. Print the structure of your dataset.

```
print(dataset_01)
```

```
## # A tibble: 7,787 x 14
##   seq_id show_id type  title  director cast  country date_added release_year
##   <dbl> <chr>   <chr> <chr> <chr>   <chr> <chr>   <chr>         <dbl>
```

```
## 1      1 s1      TV Sh~ 0.03    <NA>      João ~ Brazil 44057      2020
## 2      2 s2      Movie 0.304~ Jorge M~ Demiãj~ Mexico 42727      2016
## 3      3 s3      Movie 0.999~ Gilbert~ Tedd C~ Singap~ 43454      2011
## 4      4 s4      Movie 9        Shane A~ Elijah~ United~ 43055      2009
## 5      5 s5      Movie 21       Robert ~ Jim St~ United~ 43831      2008
## 6      6 s6      TV Sh~ 46      Serdar ~ Erdal ~ Turkey 42917      2016
## 7      7 s7      Movie 122      Yasir A~ Amina ~ Egypt 43983      2019
## 8      8 s8      Movie 187      Kevin R~ Samuel~ United~ 43770      1997
## 9      9 s9      Movie 706      Shravan~ Divya ~ India 43556      2019
## 10     10 s10     Movie 1920     Vikram ~ Rajnee~ India 43084      2008
## # ... with 7,777 more rows, and 5 more variables: rating <chr>, viewers <dbl>,
## #   duration <dbl>, listed_in <chr>, description <chr>
```

## 2. List the variables in your dataset.

```
ls(dataset_01)
```

```
## [1] "cast"          "country"       "date_added"   "description"  "director"
## [6] "duration"      "listed_in"     "rating"       "release_year" "seq_id"
## [11] "show_id"       "title"         "type"         "viewers"
```

## 3. Print the top 15 rows of your dataset.

```
head(dataset_01,15)
```

```
## # A tibble: 15 x 14
##   seq_id show_id type  title  director cast   country date_added release_year
##   <dbl> <chr>   <chr> <chr> <chr>   <chr>   <chr>   <chr>         <dbl>
## 1      1 s1      TV Sh~ 0.03    <NA>      João ~ Brazil 44057      2020
## 2      2 s2      Movie 0.304~ Jorge M~ Demiãj~ Mexico 42727      2016
## 3      3 s3      Movie 0.999~ Gilbert~ Tedd C~ Singap~ 43454      2011
## 4      4 s4      Movie 9        Shane A~ Elijah~ United~ 43055      2009
## 5      5 s5      Movie 21       Robert ~ Jim St~ United~ 43831      2008
## 6      6 s6      TV Sh~ 46      Serdar ~ Erdal ~ Turkey 42917      2016
## 7      7 s7      Movie 122      Yasir A~ Amina ~ Egypt 43983      2019
## 8      8 s8      Movie 187      Kevin R~ Samuel~ United~ 43770      1997
## 9      9 s9      Movie 706      Shravan~ Divya ~ India 43556      2019
## 10     10 s10     Movie 1920     Vikram ~ Rajnee~ India 43084      2008
## 11     11 s11     Movie 1922     Zak Hil~ Thomas~ United~ 43028      2017
## 12     12 s12     TV Sh~ 1983    <NA>      Robert~ Poland~ 43434      2018
## 13     13 s13     TV Sh~ 1994     Diego E~ <NA>      Mexico 43602      2019
## 14     14 s14     Movie 2215     Nottapo~ Artiwa~ Thaila~ 43525      2018
## 15     15 s15     Movie 3022     John Su~ Omar E~ United~ 43909      2019
## # ... with 5 more variables: rating <chr>, viewers <dbl>, duration <dbl>,
## #   listed_in <chr>, description <chr>
```

## 4. Write a user defined function using any of the variables from the data set.

```
dry_principle <- c(dataset_01$country)
edges <- function(v) {
  first <- v[1]
  last <- v[length(v)]
  answer <- c(first, last)
  return(answer)
}
edges(dry_principle)
```

```
## [1] "Brazil"
## [2] "United Kingdom, Canada, United States"
```

5. Use data manipulation techniques and filter rows based on any logical criteria that exist in your dataset.

```
dataset_01 <- na.omit((dataset_01)) # remove missing values
dataset_01 = as.data.frame(dataset_01 %>% select(show_id, type, release_year))
filter(dataset_01, type == "Movie" & release_year == "2010")
```

```
##      show_id  type release_year
## 1       s43 Movie          2010
## 2       s69 Movie          2010
## 3      s273 Movie          2010
## 4      s275 Movie          2010
## 5      s300 Movie          2010
## 6      s301 Movie          2010
## 7      s504 Movie          2010
## 8      s623 Movie          2010
## 9      s719 Movie          2010
## 10     s738 Movie          2010
## 11     s744 Movie          2010
## 12     s868 Movie          2010
## 13     s916 Movie          2010
## 14     s943 Movie          2010
## 15     s976 Movie          2010
## 16    s1004 Movie          2010
## 17    s1087 Movie          2010
## 18    s1142 Movie          2010
## 19    s1248 Movie          2010
## 20    s1262 Movie          2010
## 21    s1272 Movie          2010
## 22    s1273 Movie          2010
## 23    s1409 Movie          2010
## 24    s1669 Movie          2010
## 25    s1740 Movie          2010
## 26    s1767 Movie          2010
## 27    s1791 Movie          2010
## 28    s1812 Movie          2010
## 29    s1913 Movie          2010
## 30    s1915 Movie          2010
```

## 31	s2042 Movie	2010
## 32	s2079 Movie	2010
## 33	s2222 Movie	2010
## 34	s2296 Movie	2010
## 35	s2383 Movie	2010
## 36	s2562 Movie	2010
## 37	s2635 Movie	2010
## 38	s2640 Movie	2010
## 39	s2722 Movie	2010
## 40	s2749 Movie	2010
## 41	s2784 Movie	2010
## 42	s2868 Movie	2010
## 43	s2886 Movie	2010
## 44	s2893 Movie	2010
## 45	s2913 Movie	2010
## 46	s2919 Movie	2010
## 47	s2938 Movie	2010
## 48	s2980 Movie	2010
## 49	s3020 Movie	2010
## 50	s3049 Movie	2010
## 51	s3053 Movie	2010
## 52	s3289 Movie	2010
## 53	s3310 Movie	2010
## 54	s3346 Movie	2010
## 55	s3391 Movie	2010
## 56	s3466 Movie	2010
## 57	s3467 Movie	2010
## 58	s3527 Movie	2010
## 59	s3544 Movie	2010
## 60	s3558 Movie	2010
## 61	s3571 Movie	2010
## 62	s3578 Movie	2010
## 63	s3621 Movie	2010
## 64	s3758 Movie	2010
## 65	s3798 Movie	2010
## 66	s4197 Movie	2010
## 67	s4303 Movie	2010
## 68	s4305 Movie	2010
## 69	s4410 Movie	2010
## 70	s4621 Movie	2010
## 71	s4634 Movie	2010
## 72	s4722 Movie	2010
## 73	s4814 Movie	2010
## 74	s4878 Movie	2010
## 75	s5048 Movie	2010
## 76	s5097 Movie	2010
## 77	s5159 Movie	2010
## 78	s5167 Movie	2010
## 79	s5231 Movie	2010
## 80	s5266 Movie	2010
## 81	s5385 Movie	2010
## 82	s5391 Movie	2010
## 83	s5441 Movie	2010
## 84	s5493 Movie	2010

```
## 85      s5521 Movie      2010
## 86      s5558 Movie      2010
## 87      s5561 Movie      2010
## 88      s5658 Movie      2010
## 89      s5817 Movie      2010
## 90      s5818 Movie      2010
## 91      s5840 Movie      2010
## 92      s5967 Movie      2010
## 93      s6011 Movie      2010
## 94      s6017 Movie      2010
## 95      s6087 Movie      2010
## 96      s6156 Movie      2010
## 97      s6163 Movie      2010
## 98      s6167 Movie      2010
## 99      s6214 Movie      2010
## 100     s6235 Movie      2010
## 101     s6278 Movie      2010
## 102     s6349 Movie      2010
## 103     s6524 Movie      2010
## 104     s6534 Movie      2010
## 105     s6551 Movie      2010
## 106     s6558 Movie      2010
## 107     s6730 Movie      2010
## 108     s6842 Movie      2010
## 109     s6885 Movie      2010
## 110     s6897 Movie      2010
## 111     s6934 Movie      2010
## 112     s7061 Movie      2010
## 113     s7062 Movie      2010
## 114     s7134 Movie      2010
## 115     s7262 Movie      2010
## 116     s7264 Movie      2010
## 117     s7278 Movie      2010
## 118     s7297 Movie      2010
## 119     s7433 Movie      2010
## 120     s7497 Movie      2010
## 121     s7605 Movie      2010
## 122     s7639 Movie      2010
## 123     s7707 Movie      2010
```

6. Identify the dependent & independent variables and use reshaping techniques and create a new data frame by joining those variables from your dataset.

```
# Create vector objects.
director <- c("Jorge Michel Grau","Gilbert Chan")
country <- c("Mexico","Singapore")
# Combine above two vectors into one data frame.
addresses <- cbind(director,country)
# Print the data frame.
print(addresses)
```

```
##      director      country
```

```
## [1,] "Jorge Michel Grau" "Mexico"
## [2,] "Gilbert Chan"      "Singapore"
```

## 7. Remove missing values in your dataset.

```
dataset_01 <- read_excel("C:/Users/Library/Downloads/netflix_titles.xlsx")
x = dataset_01 <- na.omit((dataset_01))
print(x) # Result: from 7787 OBS. TO 4808 OBS.
```

```
## # A tibble: 4,808 x 14
##   seq_id show_id type    title director cast    country date_added release_year
##   <dbl> <chr>   <chr> <chr> <chr>   <chr>   <chr>   <chr>         <dbl>
## 1      2 s2      Movie 0.304~ Jorge M~ DemiÃ~ Mexico 42727         2016
## 2      3 s3      Movie 0.999~ Gilbert~ Tedd C~ Singap~ 43454         2011
## 3      4 s4      Movie 9      Shane A~ Elijah~ United~ 43055         2009
## 4      5 s5      Movie 21     Robert ~ Jim St~ United~ 43831         2008
## 5      6 s6      TV Sh~ 46     Serdar ~ Erdal ~ Turkey 42917         2016
## 6      7 s7      Movie 122    Yasir A~ Amina ~ Egypt 43983         2019
## 7      8 s8      Movie 187    Kevin R~ Samuel~ United~ 43770         1997
## 8      9 s9      Movie 706    Shravan~ Divya ~ India 43556         2019
## 9     10 s10     Movie 1920   Vikram ~ Rajnee~ India 43084         2008
## 10    11 s11     Movie 1922   Zak Hil~ Thomas~ United~ 43028         2017
## # ... with 4,798 more rows, and 5 more variables: rating <chr>, viewers <dbl>,
## #   duration <dbl>, listed_in <chr>, description <chr>
```

## 8. Identify and remove duplicated data in your dataset.

```
# Function to identify duplicated data.
duplicated(dataset_01)
```

```
## [1] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [13] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [25] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [37] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [49] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [61] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [73] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [85] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [97] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [109] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [121] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [133] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [145] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [157] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [169] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [181] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [193] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [205] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [217] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [229] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
```

[illegible]

[illegible]



[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

```
## [4777] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [4789] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [4801] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
```

```
# Function to remove duplicated data.
```

```
dataset_01 %>% distinct()
```

```
## # A tibble: 4,808 x 14
##   seq_id show_id type   title director cast   country date_added release_year
##   <dbl> <chr>   <chr> <chr> <chr>   <chr>   <chr>   <chr>           <dbl>
## 1      2 s2      Movie 0.304~ Jorge M~ Demi~ Mexico 42727      2016
## 2      3 s3      Movie 0.999~ Gilbert~ Tedd C~ Singap~ 43454      2011
## 3      4 s4      Movie 9      Shane A~ Elijah~ United~ 43055      2009
## 4      5 s5      Movie 21     Robert ~ Jim St~ United~ 43831      2008
## 5      6 s6      TV Sh~ 46     Serdar ~ Erdal ~ Turkey 42917      2016
## 6      7 s7      Movie 122    Yasir A~ Amina ~ Egypt 43983      2019
## 7      8 s8      Movie 187    Kevin R~ Samuel~ United~ 43770      1997
## 8      9 s9      Movie 706    Shravan~ Divya ~ India 43556      2019
## 9     10 s10     Movie 1920   Vikram ~ Rajnee~ India 43084      2008
## 10    11 s11     Movie 1922   Zak Hil~ Thomas~ United~ 43028      2017
## # ... with 4,798 more rows, and 5 more variables: rating <chr>, viewers <dbl>,
## #   duration <dbl>, listed_in <chr>, description <chr>
```

## 9. Reorder multiple rows in descending order.

```
dataset_01 <- na.omit((dataset_01)) # remove missing values
x = dataset_01 %>% arrange(desc(release_year, type))
print(x)
```

```
## # A tibble: 4,808 x 14
##   seq_id show_id type   title director cast   country date_added release_year
##   <dbl> <chr>   <chr> <chr> <chr>   <chr>   <chr>   <chr>           <dbl>
## 1  1286 s1286  Movie Charm~ Ross Ven~ "Wilm~ Canada~ 44204      2021
## 2  6478 s6478  TV Sh~ The I~ Maite Ru~ "Mich~ Spain 44204      2021
## 3  7552 s7552  Movie What ~ Kim Dong~ "Cha ~ South ~ 44197      2021
## 4  7570 s7570  Movie What ~ Ross Kau~ "Nanc~ United~ 44211      2021
## 5    28 s28    Movie #Alive Cho Il  "Yoo ~ South ~ 44082      2020
## 6    33 s33    Movie #Frie~ Rako Pri~ "Adip~ Indone~ 44010      2020
## 7    44 s44    Movie Ã'lÃ²~ Kenneth ~ "Beve~ Nigeria 44106      2020
## 8    58 s58    Movie 100% ~ Jastis A~ "Anis~ Indone~ 44203      2020
## 9    74 s74    Movie 18 Pr~ Francesc~ "Vitt~ Italy 43959      2020
## 10   107 s107   Movie 365 D~ Barbara ~ "Anna~ Poland 43989      2020
## # ... with 4,798 more rows, and 5 more variables: rating <chr>, viewers <dbl>,
## #   duration <dbl>, listed_in <chr>, description <chr>
```

## 10. Rename some of the column names in your dataset.

```
names(dataset_01)[1]<-"Sequence ID" # old name: sequence_id
names(dataset_01)[2]<-"Show ID" # old name: show_id
names(dataset_01)[3]<-"Category" # old name: type
colnames(dataset_01)
```

```
## [1] "Sequence ID" "Show ID" "Category" "title" "director"
## [6] "cast" "country" "date_added" "release_year" "rating"
## [11] "viewers" "duration" "listed_in" "description"
```

## 11. Add new variables in your data frame by using a mathematical function

```
dataset_01 <- read_excel("C:/Users/Library/Downloads/netflix_titles.xlsx")
x = dataset_01 %>% mutate(viewers_half = viewers/2)
colnames(x) # Result: "viewers_half" is added as the 15th variable
```

```
## [1] "seq_id" "show_id" "type" "title" "director"
## [6] "cast" "country" "date_added" "release_year" "rating"
## [11] "viewers" "duration" "listed_in" "description" "viewers_half"
```

```
print(x$viewers_half) # Function to view all data of 15th variable from equation "x = viewers/2"
```

```
## [1] 289030.0 295302.5 216046.5 72738.0 248754.5 280746.0 197056.0 209969.0
## [9] 206540.5 278286.5 256998.0 244697.5 225965.0 181344.5 106669.5 196808.0
## [17] 287627.0 168931.5 134824.0 122210.0 72587.5 189382.5 173725.0 299592.5
## [25] 243494.0 115064.0 110125.0 191472.5 190109.0 231512.0 217863.5 105299.0
## [33] 110544.5 277614.5 82042.5 102249.0 201595.5 192449.5 156815.5 232662.5
## [41] 197179.5 71004.0 123474.5 96236.0 136504.0 287774.0 106217.5 217544.0
## [49] 168044.5 54876.0 80018.0 196907.0 109488.0 252688.5 66968.5 278406.5
## [57] 167875.5 283723.5 146649.0 244471.5 167979.5 288625.0 59311.5 282920.0
## [65] 170064.0 77061.0 277643.0 171506.0 287929.0 67977.5 140542.5 68226.0
## [73] 240621.5 237162.5 255771.5 248410.0 136545.5 104130.5 262925.5 226668.5
## [81] 273323.5 232105.0 142368.0 236319.5 230104.0 225861.5 134286.0 154117.0
## [89] 144484.0 196112.0 211435.0 238153.0 231244.0 65564.0 204454.5 202093.0
## [97] 176475.5 217123.0 169490.5 250112.0 127674.5 183708.5 290835.5 280639.0
## [105] 237311.0 188808.5 243477.5 98845.5 191794.0 151589.5 281189.5 210227.5
## [113] 170381.5 106082.5 277179.5 193064.5 149347.5 87010.0 169307.5 131364.0
## [121] 82054.5 145782.5 96451.5 258779.0 200032.5 145591.0 63876.0 246978.5
## [129] 77398.0 76088.0 160798.5 191936.0 293935.5 125571.5 177630.0 131800.0
## [137] 120613.0 153440.0 204328.5 82311.0 243997.0 138240.0 150727.0 272570.0
## [145] 193994.5 54091.0 121570.5 52586.0 192060.0 222313.5 87792.5 257009.5
## [153] 136724.5 288863.0 109781.0 114658.0 177897.5 159627.5 155142.5 126768.5
## [161] 124874.0 166736.0 234361.5 289904.5 298645.5 237475.0 80022.0 223152.5
## [169] 95701.0 204076.0 182743.0 100740.0 66166.0 237353.5 205618.5 64876.5
## [177] 196059.0 193908.5 244092.5 233686.5 196511.5 102459.0 55804.5 273896.5
## [185] 262070.5 296393.0 152601.0 176112.0 70552.0 131806.0 174455.0 135261.0
## [193] 163754.0 81581.0 175811.5 93018.0 150347.0 150241.0 73120.5 253044.5
## [201] 54847.5 259146.5 82092.5 285642.0 173099.5 141713.0 133410.5 261494.0
## [209] 115438.0 286341.5 117064.0 194699.5 160341.5 152096.5 231720.5 152704.0
## [217] 64320.0 125379.0 171124.5 277018.5 167226.5 229060.0 218639.5 60804.0
## [225] 166621.0 262792.0 231193.5 61459.5 173279.5 92109.0 227413.5 101552.0
## [233] 284549.5 52709.0 293903.0 291068.0 136689.5 76801.0 160475.0 259562.5
## [241] 183504.5 115589.0 105749.0 188173.5 73198.5 196545.0 118704.0 160441.5
## [249] 100664.5 120922.0 127880.0 127443.0 62507.0 291790.5 254549.0 240565.5
## [257] 81453.0 102139.5 115902.5 81505.5 287557.5 90844.5 93255.0 140463.5
## [265] 176130.5 154791.0 215914.5 116587.0 289086.5 95065.0 193648.5 220071.5
## [273] 254362.0 181859.5 123538.5 222074.0 113946.5 193928.0 223974.0 116686.5
```

```
## [281] 229868.5 91753.5 117429.0 226011.0 67372.5 238784.5 257226.0 295439.0
## [289] 123441.5 187843.0 144486.0 75394.5 190204.0 64563.5 217432.5 229185.0
## [297] 183702.0 243027.0 143218.5 254995.5 119374.0 214628.0 124413.0 112822.5
## [305] 165362.0 245792.0 250963.0 222874.0 77183.0 272187.5 193533.5 240714.5
## [313] 266116.0 89351.0 197107.0 254354.0 260159.5 112586.0 123548.5 90046.5
## [321] 160032.0 272605.5 57863.0 202549.5 273450.5 264673.5 104396.5 116201.0
## [329] 290530.0 207159.5 236235.5 258836.0 290817.5 271513.0 231039.5 78896.0
## [337] 51878.5 73670.0 289169.5 189687.0 281420.0 158591.0 196558.5 272007.0
## [345] 276033.5 188401.0 214942.5 58488.5 217133.5 172170.5 69865.5 84634.0
## [353] 51231.0 263015.0 85231.0 225799.5 54994.0 250177.5 214722.5 111489.0
## [361] 87393.5 121211.0 158875.5 170875.0 133179.5 294155.5 211638.0 276880.0
## [369] 250500.5 106907.5 162446.5 71759.5 218025.5 132033.5 65414.5 226505.0
## [377] 113758.5 122355.0 70730.5 72748.5 76301.0 217643.5 226045.0 257677.0
## [385] 72025.5 223941.5 218284.0 210043.5 262297.0 53668.0 286410.0 292847.0
## [393] 99608.0 209013.5 108394.0 255183.5 241710.0 55645.0 283079.0 249633.5
## [401] 165898.0 118789.0 95739.5 116717.5 74662.0 249166.5 167355.0 175480.5
## [409] 66457.0 297436.5 51036.0 62844.0 160143.0 295027.5 290896.0 53429.5
## [417] 146592.5 278562.0 62016.0 54069.0 197940.0 206661.0 103042.5 195329.5
## [425] 142468.5 219816.5 101457.0 213177.5 64859.0 87303.5 147006.5 272857.0
## [433] 185028.5 144264.0 202192.5 215473.0 152904.0 150119.0 150464.0 279786.5
## [441] 266200.0 137040.0 101558.5 272672.5 155288.5 233409.0 251690.0 191643.5
## [449] 75933.5 190240.0 193448.5 101732.0 121731.0 278412.5 183082.0 219338.0
## [457] 145473.0 199933.0 290289.0 73182.0 299639.0 55928.5 254725.5 120388.0
## [465] 217046.5 157687.0 287585.5 274863.0 250785.5 154114.5 209925.0 65273.0
## [473] 126372.0 295609.5 292442.5 299244.0 121347.5 211389.5 210167.0 123877.5
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## [6753] 248201.5 240450.5 266982.0 50931.5 111226.5 226639.0 116910.0 98012.5
```

```
## [6761] 120239.0 239585.5 67228.0 239790.5 238051.5 147796.5 139034.0 284335.5
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## [6889] 165141.5 110254.5 262892.0 296280.5 262079.0 257125.5 179786.0 299799.5
## [6897] 216951.0 80622.0 72075.0 117003.0 199781.0 174626.5 270403.0 228986.5
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```

```
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## [7481] 261062.0 294766.0 138360.5 134993.5 175537.5 126636.0 222645.5 193828.5
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## [7537] 237889.0 251299.0 65076.0 293185.5 81527.5 289989.5 202030.5 195957.5
## [7545] 69349.5 188211.0 227112.5 251853.0 67623.0 223798.0 203544.0 161595.0
## [7553] 271661.5 216845.5 290116.5 236567.0 70661.5 94196.5 232868.0 277076.0
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## [7569] 213310.5 147175.5 169185.5 58132.5 95758.0 109933.0 121405.5 270351.0
## [7577] 205709.0 189339.5 145745.5 82972.0 183439.5 201851.5 283579.0 202921.5
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## [7617] 238935.0 127115.0 64704.5 186545.0 235039.5 220787.0 135391.5 263556.5
```



```
## [7625] 214841.0 138953.5 273357.0 104989.0 153321.0 188239.0 63334.0 144030.5
## [7633] 80314.0 103542.5 275260.0 50023.0 136533.0 178063.0 143029.0 175290.0
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## [7649] 71606.5 212697.0 165350.0 60235.5 76944.5 133075.0 218150.5 166703.0
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## [7681] 176770.0 130514.5 127342.5 245005.0 226342.5 229451.0 135243.5 231721.5
## [7689] 261330.5 182415.5 295440.0 210515.5 91900.0 218231.5 64282.5 220123.5
## [7697] 222184.0 226230.0 253364.5 206099.0 105136.0 209292.0 102734.0 258741.5
## [7705] 160496.0 168508.5 251663.0 113495.5 161553.5 181483.5 236936.5 182372.5
## [7713] 288477.5 65901.5 142014.0 57909.5 185062.5 286464.0 154190.5 101752.5
## [7721] 187429.5 230288.0 94960.0 213010.0 248468.5 216707.0 228289.0 85869.0
## [7729] 106859.0 79417.0 286154.5 161391.5 266508.5 129174.5 130302.5 66531.0
## [7737] 165272.5 252675.0 77146.5 264158.0 94927.5 124990.5 299468.5 109147.0
## [7745] 285236.0 79636.0 198290.5 262212.5 238003.0 69243.0 176484.0 290413.5
## [7753] 233890.0 102497.5 82005.5 221356.0 262641.5 123827.5 74735.5 60394.5
## [7761] 174547.5 71044.5 171290.0 224433.0 279863.0 159195.0 216199.5 110095.5
## [7769] 197109.0 104970.5 247912.5 84796.0 299150.5 225491.5 171960.0 240961.5
## [7777] 69310.0 241064.0 286347.5 61412.0 238854.0 203539.5 204605.5 93297.0
## [7785] 156923.5 236690.5 52664.0
```

## 12. Creating a training set using random number generator engine.

```
set.seed(5678)
dataset_01 %>% sample_n(9,replace = FALSE)
```

```
## # A tibble: 9 x 14
##   seq_id show_id type title director cast country date_added release_year
##   <dbl> <chr> <chr> <chr> <chr> <chr> <chr> <chr> <dbl>
## 1 612 s612 Movie Athle~ Bonni C~ <NA> United ~ 44006 2020
## 2 4140 s4140 Movie Miss ~ Liv Ull~ Jessic~ Norway,~ 42249 2014
## 3 1900 s1900 Movie Dying~ HernÃ~n~ <NA> Spain 43602 2018
## 4 2811 s2811 TV Sh~ Horro~ <NA> Jill H~ United ~ 43740 2016
## 5 6842 s6842 Movie The R~ Floria ~ Kriste~ United ~ 43922 2010
## 6 3101 s3101 Movie Jack ~ Richard~ Jack W~ United ~ 43811 2019
## 7 5909 s5909 TV Sh~ Super~ Jesse W~ Meliss~ United ~ 43976 2019
## 8 1068 s1068 Movie Boy B~ Chris S~ Wendy ~ United ~ 43557 2016
## 9 1672 s1672 Movie Death~ Harris~ Cody L~ United ~ 43590 2017
## # ... with 5 more variables: rating <chr>, viewers <dbl>, duration <dbl>,
## # listed_in <chr>, description <chr>
```

## 13. Print the summary statistics of your dataset.

```
summary(dataset_01)
```

```
##      seq_id      show_id      type      title
## Min.   : 1 Length:7787 Length:7787 Length:7787
## 1st Qu.:1948 Class :character Class :character Class :character
```

```
## Median :3894   Mode  :character   Mode  :character   Mode  :character
## Mean    :3894
## 3rd Qu.:5840
## Max.    :7787
## director      cast          country      date_added
## Length:7787   Length:7787   Length:7787   Length:7787
## Class :character Class :character Class :character Class :character
## Mode  :character Mode  :character Mode  :character Mode  :character
##
##
##
## release_year   rating          viewers      duration
## Min.   :1925   Length:7787   Min.   :100046 Min.   : 3.0
## 1st Qu.:2013   Class :character 1st Qu.:225082 1st Qu.: 92.0
## Median :2017   Mode  :character Median :349660 Median : 112.0
## Mean   :2014                      Mean   :349497 Mean   : 305.7
## 3rd Qu.:2018                      3rd Qu.:473424 3rd Qu.: 400.0
## Max.   :2021                      Max.   :599900 Max.   :14000.0
## listed_in      description
## Length:7787     Length:7787
## Class :character Class :character
## Mode  :character Mode  :character
##
##
##
```

#### 14.A. Mean

```
NetflixRYMean <- mean(dataset_01$release_year)
round(NetflixRYMean,digits=0)
```

```
## [1] 2014
```

#### 14.B Median

```
NetflixRYMedian <- median(dataset_01$release_year)
print(NetflixRYMedian)
```

```
## [1] 2017
```

#### 14.C Mode

```
NetflixRYMode <- dataset_01$release_year[which.max(dataset_01$release_year)]
print(NetflixRYMode)
```

```
## [1] 2021
```

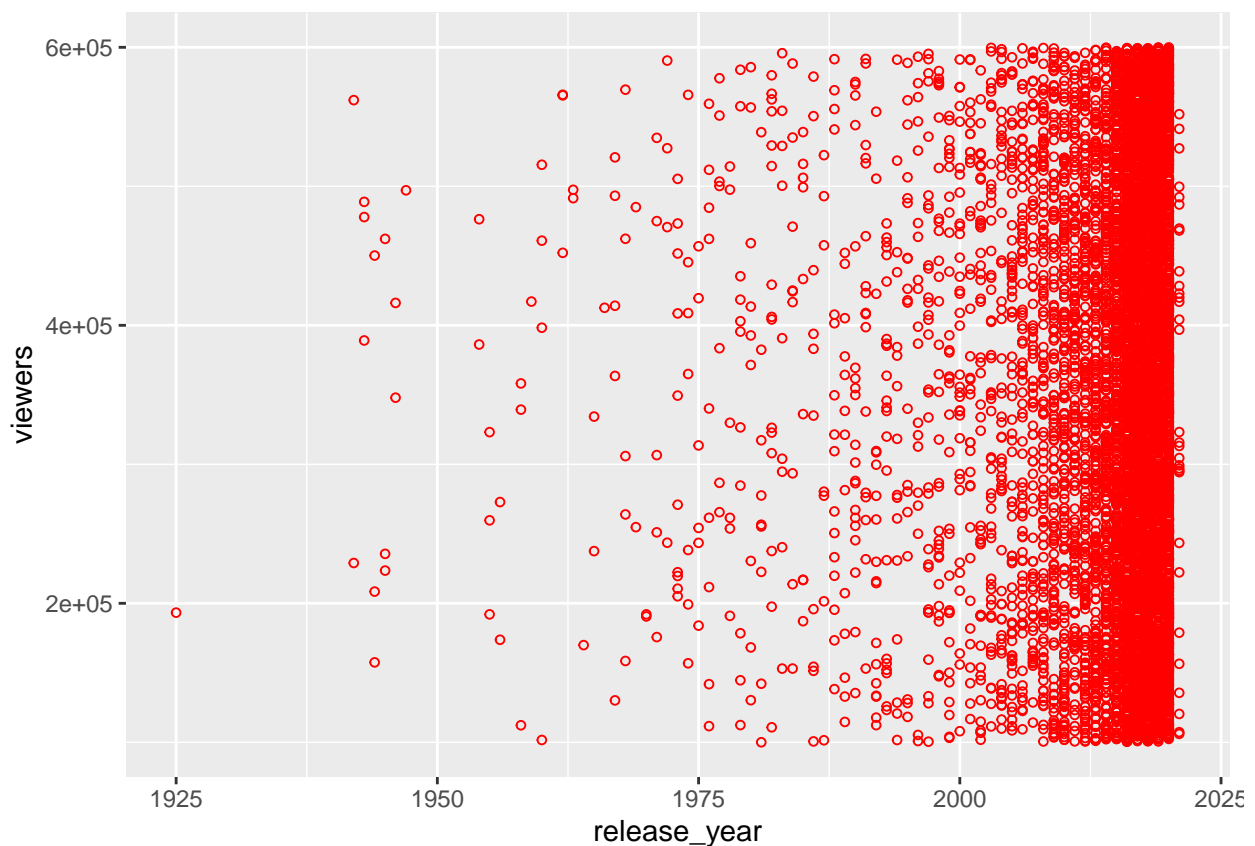
## 14.D Range

```
NetflixRYRange <- range(dataset_01$release_year)
print(NetflixRYRange)
```

```
## [1] 1925 2021
```

## 15. Scatter Plot

```
ggplot(dataset_01, aes(x = release_year, y=viewers)) + geom_point(size = 1.2, color = "red", shape = 21)
```



```
# Analysis: There is an increase of viewers over the years
```

## 16. Bar Plot

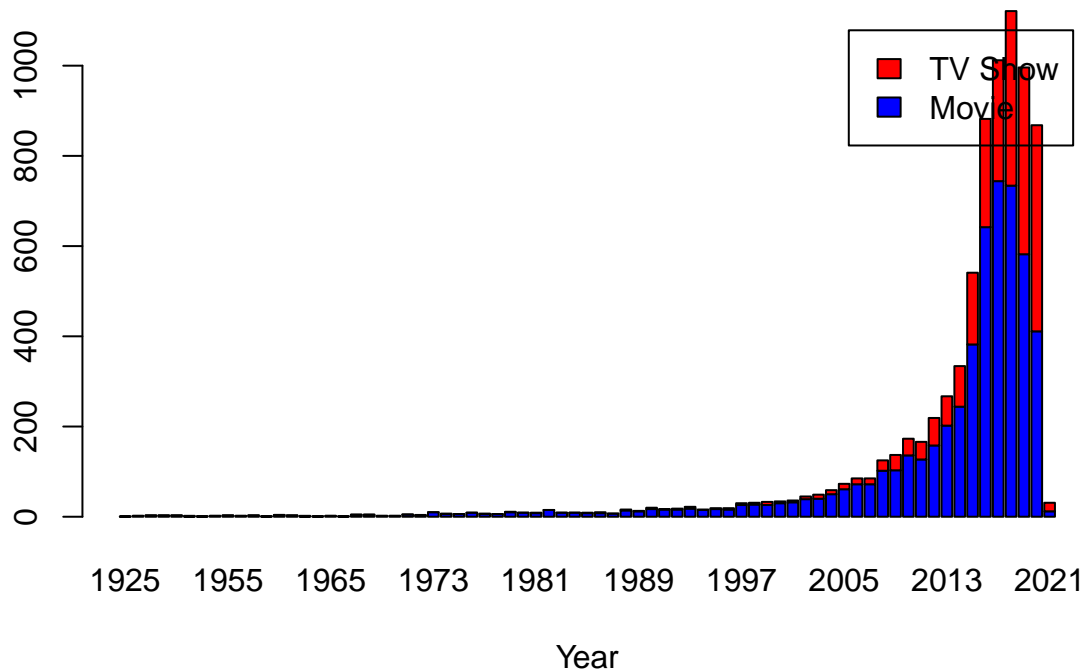
```
x = dataset_01$type
y = dataset_01$release_year
z = complete.cases(x, y)
counts <- table(x, y)
barplot(counts, main="Netflix Content by Year and Type",
```

```

xlab="Year", col=c("blue", "red"),
legend = rownames(counts))

```

## Netflix Content by Year and Type



*# Analysis: Netflix content started with Movies, but, as time progressed, TV shows were also added.  
# By 2015 to date, the amount of TV shows surpass Movie count on Netflix.*

## 17. Correlation in linear regression

```

x <- dataset_01$duration
y <- dataset_01$duration + rnorm(dataset_01$viewers,sd=300)

# Creating the plot
plot(x, y, pch = 19, col = "lightblue")

# Regression line
abline(lm(y ~ x), col = "red", lwd = 2)

# Pearson correlation
text(paste("Correlation:", round(cor(x, y), 2)), x = 1500, y = 10000)

```

