R Notebook

```
library(RSQLite)
library(ggplot2)
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --
```

```
## v tibble  3.1.1      v dplyr   1.0.6
## v tidyr   1.1.3      v stringr 1.4.0
## v readr   1.4.0      v forcats 0.5.1
## v purrr   0.3.4
```

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

```
library(plyr)
```

```
## --------------------------------------------------------------------------------
```

```
## You have loaded plyr after dplyr - this is likely to cause problems.
## If you need functions from both plyr and dplyr, please load plyr first, then dplyr:
## library(plyr); library(dplyr)
```

```
## --------------------------------------------------------------------------------
```

```
##
## Attaching package: 'plyr'
```

```
## The following objects are masked from 'package:dplyr':
##
##     arrange, count, desc, failwith, id, mutate, rename, summarise,
##     summarize
```

```
## The following object is masked from 'package:purrr':
##
##     compact
```

```
# Download the SQLite database called imdb.db, from canvas, and save it in a local folder on your compu
db <- dbConnect(SQLite(), dbname= "/Users/maitrishah/Desktop/imdb.db")
dbListTables(db)
```

```
## [1] "director_info" "movie_info"
```

```
#dbDisconnect(db)
```

#Loading imdb.db in R console sqlite> .open "/Users/maitrishah/Desktop/imdb.db" sqlite> .tables #1 table found movie_info sqlite> select * from movie_info; sqlite> .mode column sqlite> .headers on sqlite> select * from movie_info;

#Q1 Create a table named director_info using SQLite; the columns are: Director_ID, and Director_Name. The Director_ID should be the primary key.

sqlite DROP TABLE director_info; sqlite> CREATE TABLE director_info (Director_ID INT PRIMARY KEY, Director_Name TEXT NOT NULL); sqlite> .tables #new table created director_info movie_info

Q2- Import the entire data from the CSV file into the director_info table using the SQLite .importcommand (see helpful resources below). Verify that your data was imported correctly.

sqlite .separator ',' sqlite> .mode csv director_info sqlite> .import /Users/maitrishah/Downloads/directors.csv –skip 1 director_info sqlite> select * from director_info ORDER BY Director_ID;

```
#Q2
#1. Count the number of rows in the movie_info and director_info tables.
dbGetQuery(db, "SELECT count(*) from director_info")  #Returns 548, therefore number of rows in table d
```

```
##   count(*)
## 1      548
```

```
dbGetQuery(db, "SELECT count(*) from movie_info")  #Returns 1000, therefore number of rows in table mov
```

```
##   count(*)
## 1     1000
```

```
#Q2
#2. How many movies were released between 2010 and 2020 (inclusive)? Visualize the results.
release <- dbGetQuery(db, "SELECT * FROM movie_info
          WHERE Release_Year >= 2010 and Release_Year <= 2020")
```

```
## Warning in result_fetch(res@ptr, n = n): Column 'Gross': mixed type, first seen
## values of type real, coercing other values of type string
```

```
release
```

```
##        ID                          Series_Title Release_Year Runtime
## 1   T0009                             Inception          2010 148 min
## 2   T0019                              Hamilton          2020 160 min
## 3   T0020                          Gisaengchung          2019 132 min
## 4   T0021                        Soorarai Pottru          2020 153 min
## 5   T0022                          Interstellar          2014 169 min
## 6   T0034                                 Joker          2019 122 min
## 7   T0035                              Whiplash          2014 106 min
```

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## 8   T0036                           The Intouchables    2011 112 min
## 9   T0054                              Capharnaüm       2018 126 min
## 10  T0055                      Ayla: The Daughter of War  2017 125 min
## 11  T0056                            Vikram Vedha        2017 147 min
## 12  T0057                           Kimi no na wa.       2016 106 min
## 13  T0058                                Dangal          2016 161 min
## 14  T0059              Spider-Man: Into the Spider-Verse  2018 117 min
## 15  T0060                         Avengers: Endgame       2019 181 min
## 16  T0061                       Avengers: Infinity War    2018 149 min
## 17  T0062                                 Coco           2017 105 min
## 18  T0063                           Django Unchained     2012 165 min
## 19  T0064                        The Dark Knight Rises    2012 164 min
## 20  T0085                                 1917           2019 119 min
## 21  T0086                                Tumbbad         2018 104 min
## 22  T0087                               Andhadhun        2018 139 min
## 23  T0088                               Drishyam         2013 160 min
## 24  T0089                                Jagten          2012 115 min
## 25  T0090                      Jodaeiye Nader az Simin   2011 123 min
## 26  T0091                               Incendies        2010 131 min
## 27  T0092                        Miracle in cell NO.7    2019 132 min
## 28  T0129                              Chhichhore        2019 143 min
## 29  T0130                      Uri: The Surgical Strike  2018 138 min
## 30  T0131                         K.G.F: Chapter 1       2018 156 min
## 31  T0132                              Green Book        2018 130 min
## 32  T0133        Three Billboards Outside Ebbing, Missouri  2017 115 min
## 33  T0134                               Talvar          2015 132 min
## 34  T0135                     Baahubali 2: The Conclusion  2017 167 min
## 35  T0136                                Klaus          2019  96 min
## 36  T0137                               Drishyam         2015 163 min
## 37  T0138                                Queen          2013 146 min
## 38  T0139                              Mandariinid       2013  87 min
## 39  T0140                          Bhaag Milkha Bhaag    2013 186 min
## 40  T0141                          Gangs of Wasseypur    2012 321 min
## 41  T0142                                Udaan          2010 134 min
## 42  T0143                          Paan Singh Tomar      2012 135 min
## 43  T0145                               Warrior         2011 140 min
## 44  T0146                            Shutter Island      2010 138 min
## 45  T0148                        The Wolf of Wall Street  2013 180 min
## 46  T0152                             Toy Story 3        2010 103 min
## 47  T0196                  Portrait de la jeune fille en feu  2019 122 min
## 48  T0197                                 Pink          2016 136 min
## 49  T0198                           Koe no katachi       2016 130 min
## 50  T0199                             Contratiempo       2016 106 min
## 51  T0200                              Ah-ga-ssi         2016 145 min
## 52  T0201                                Mommy          2014 139 min
## 53  T0202                               Haider          2014 160 min
## 54  T0203                                Logan          2017 137 min
## 55  T0204                                 Room          2015 118 min
## 56  T0205                            Relatos salvajes    2014 122 min
## 57  T0206                                 Soul          2020 100 min
## 58  T0207                             Kis Uykusu         2014 196 min
## 59  T0208                                  PK           2014 153 min
## 60  T0209                           OMG: Oh My God!      2012 125 min
## 61  T0210                       The Grand Budapest Hotel  2014  99 min
```

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```
## 62  T0211                                       Gone Girl  2014 149 min
## 63  T0212              Ōkami kodomo no Ame to Yuki  2012 117 min
## 64  T0213                                   Hacksaw Ridge  2016 139 min
## 65  T0214                                       Inside Out  2015  95 min
## 66  T0215                                          Barfi!  2012 151 min
## 67  T0216                              12 Years a Slave  2013 134 min
## 68  T0217                                            Rush  2013 123 min
## 69  T0218                                   Ford v Ferrari  2019 152 min
## 70  T0219                                       Spotlight  2015 129 min
## 71  T0220                                 Song of the Sea  2014  93 min
## 72  T0221                                         Kahaani  2012 122 min
## 73  T0222                        Zindagi Na Milegi Dobara  2011 155 min
## 74  T0223                                       Prisoners  2013 153 min
## 75  T0224                             Mad Max: Fury Road  2015 120 min
## 76  T0227  Harry Potter and the Deathly Hallows: Part 2  2011 130 min
## 77  T0231                        How to Train Your Dragon  2010  98 min
## 78  T0323                                       Badhaai ho  2018 124 min
## 79  T0324                                            Togo  2019 113 min
## 80  T0325                                         Airlift  2016 130 min
## 81  T0326                               Bajrangi Bhaijaan  2015 163 min
## 82  T0327                                            Baby  2015 159 min
## 83  T0328                                       La La Land  2016 128 min
## 84  T0329                                            Lion  2016 118 min
## 85  T0330                                     The Martian  2015 144 min
## 86  T0331                                        Zootopia  2016 108 min
## 87  T0332                         Bãhubali: The Beginning  2015 159 min
## 88  T0333                        Kaguyahime no monogatari  2013 137 min
## 89  T0334                                          Wonder  2017 113 min
## 90  T0335                                       Gully Boy  2019 154 min
## 91  T0336                                 Special Chabbis  2013 144 min
## 92  T0337                                   Short Term 12  2013  96 min
## 93  T0338                         Serbuan maut 2: Berandal  2014 150 min
## 94  T0339                               The Imitation Game  2014 114 min
## 95  T0340                            Guardians of the Galaxy  2014 121 min
## 96  T0341                                 Blade Runner 2049  2017 164 min
## 97  T0342                                             Her  2013 126 min
## 98  T0343                                 Bohemian Rhapsody  2018 134 min
## 99  T0344                                     The Revenant  2015 156 min
## 100 T0345                    The Perks of Being a Wallflower  2012 103 min
## 101 T0346        Tropa de Elite 2: O Inimigo Agora é Outro  2010 115 min
## 102 T0347                               The King's Speech  2010 118 min
## 103 T0348                                        The Help  2011 146 min
## 104 T0349                                         Deadpool  2016 108 min
## 105 T0353                                 My Name Is Khan  2010 165 min
## 106 T0356                                       Black Swan  2010 108 min
## 107 T0358                                    The Avengers  2012 143 min
## 108 T0360                               Dallas Buyers Club  2013 117 min
## 109 T0373                                     Mar adentro  2014 126 min
## 110 T0464                                      Knives Out  2019 130 min
## 111 T0465                                     Dil Bechara  2020 101 min
## 112 T0466                                  Manbiki kazoku  2018 121 min
## 113 T0467                                   Marriage Story  2019 137 min
## 114 T0468                              Call Me by Your Name  2017 132 min
## 115 T0469                                  I, Daniel Blake  2016 100 min
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## 116 T0470                          Isle of Dogs                2018 101 min
## 117 T0471              Hunt for the Wilderpeople              2016 101 min
## 118 T0472                    Captain Fantastic                2016 118 min
## 119 T0473                         Sing Street                2016 106 min
## 120 T0474                      Thor: Ragnarok                2017 130 min
## 121 T0475                       Nightcrawler                2014 117 min
## 122 T0476                        Jojo Rabbit                2019 108 min
## 123 T0477                            Arrival                2016 116 min
## 124 T0478  Star Wars: Episode VII - The Force Awakens        2015 138 min
## 125 T0479                     Before Midnight                2013 109 min
## 126 T0480             X-Men: Days of Future Past              2014 132 min
## 127 T0481              Bir Zamanlar Anadolu'da               2011 157 min
## 128 T0482                         The Artist                2011 100 min
## 129 T0483                    Edge of Tomorrow                2014 113 min
## 130 T0484                             Amour                2012 127 min
## 131 T0485                       The Irishman                2019 209 min
## 132 T0492                           Boyhood                2014 165 min
## 133 T0499                          Life of Pi                2012 127 min
## 134 T0570                      The Gentlemen                2019 113 min
## 135 T0571                            Raazi                2018 138 min
## 136 T0572                      Sound of Metal                2019 120 min
## 137 T0573                        Forushande                2016 124 min
## 138 T0574                           Dunkirk                2017 106 min
## 139 T0575                 Perfetti sconosciuti               2016  96 min
## 140 T0576                     Hidden Figures                2016 127 min
## 141 T0577                       Paddington 2                2017 103 min
## 142 T0578                        Udta Punjab                2016 148 min
## 143 T0579             Kubo and the Two Strings               2016 101 min
## 144 T0580          M.S. Dhoni: The Untold Story              2016 184 min
## 145 T0581               Manchester by the Sea               2016 137 min
## 146 T0582                       Under sandet                2015 100 min
## 147 T0583                          Rogue One                2016 133 min
## 148 T0584            Captain America: Civil War              2016 147 min
## 149 T0585                   The Hateful Eight                2015 168 min
## 150 T0586                       Little Women                2019 135 min
## 151 T0587                     Loving Vincent                2017  94 min
## 152 T0588                             Pride                2014 119 min
## 153 T0589                          Le passé                2013 130 min
## 154 T0590                  La grande bellezza               2013 141 min
## 155 T0591                       The Lunchbox                2013 104 min
## 156 T0592                        Vicky Donor                2012 126 min
## 157 T0593                        Big Hero 6                2014 102 min
## 158 T0594                        About Time                2013 123 min
## 159 T0595                   English Vinglish                2012 134 min
## 160 T0596                       Kaze tachinu                2013 126 min
## 161 T0597                       Toy Story 4                2019 100 min
## 162 T0598                  La migliore offerta              2013 131 min
## 163 T0599                   Moonrise Kingdom                2012  94 min
## 164 T0600             How to Train Your Dragon 2             2014 102 min
## 165 T0601                       The Big Short                2015 130 min
## 166 T0602                           Kokuhaku                2010 106 min
## 167 T0603                  Ang-ma-reul bo-at-da              2010 144 min
## 168 T0604          The Girl with the Dragon Tattoo           2011 158 min
## 169 T0605                    Captain Phillips                2013 134 min
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## 170 T0606                                            Ajeossi 2010 119 min
## 171 T0607                             Straight Outta Compton 2015 147 min
## 172 T0610                   The Hobbit: The Desolation of Smaug 2013 161 min
## 173 T0613                          The Trial of the Chicago 7 2020 129 min
## 174 T0614                                               Druk 2020 117 min
## 175 T0615                                        The Fighter 2010 116 min
## 176 T0619                     The Hobbit: An Unexpected Journey 2012 169 min
## 177 T0622                                              Drive 2011 100 min
## 178 T0721                                               Roma 2018 135 min
## 179 T0722                                  God's Own Country 2017 104 min
## 180 T0723                                         Deadpool 2 2018 119 min
## 181 T0724                                         Wind River 2017 107 min
## 182 T0725                                            Get Out 2017 104 min
## 183 T0726                         Mission: Impossible - Fallout 2018 147 min
## 184 T0727                                 En man som heter Ove 2015 116 min
## 185 T0728                           What We Do in the Shadows 2014  86 min
## 186 T0729                                   Omoide no Mânî 2014 103 min
## 187 T0730                            The Theory of Everything 2014 123 min
## 188 T0731                        Kingsman: The Secret Service 2014 129 min
## 189 T0732                             The Fault in Our Stars 2014 126 min
## 190 T0733                     Me and Earl and the Dying Girl 2015 105 min
## 191 T0734 Birdman or (The Unexpected Virtue of Ignorance) 2014 119 min
## 192 T0735                                   La vie d'Adèle 2013 180 min
## 193 T0736                                       Kai po che! 2013 130 min
## 194 T0737                       The Broken Circle Breakdown 2012 111 min
## 195 T0738                   Captain America: The Winter Soldier 2014 136 min
## 196 T0739                                           Rockstar 2011 159 min
## 197 T0740                                           Nebraska 2013 115 min
## 198 T0741                                     Wreck-It Ralph 2012 101 min
## 199 T0742                                   Le Petit Prince 2015 108 min
## 200 T0743                                         Detachment 2011  98 min
## 201 T0744                                   Midnight in Paris 2011  96 min
## 202 T0745                                     The Lego Movie 2014 100 min
## 203 T0746                                            Gravity 2013  91 min
## 204 T0747                             Star Trek Into Darkness 2013 132 min
## 205 T0748                               Beasts of No Nation 2015 137 min
## 206 T0749                                 The Social Network 2010 120 min
## 207 T0750                                     X: First Class 2011 131 min
## 208 T0752                                           Skyfall 2012 143 min
## 209 T0753                             Silver Linings Playbook 2012 122 min
## 210 T0754                                               Argo 2012 120 min
## 211 T0756         Harry Potter and the Deathly Hallows: Part 1 2010 146 min
## 212 T0761                                           Flipped 2010  90 min
## 213 T0765                                         Ex Machina 2014 108 min
## 214 T0772                                           Tangled 2010 100 min
## 215 T0878                                       Dark Waters 2019 126 min
## 216 T0879                                         Searching 2018 102 min
## 217 T0880                        Once Upon a Time... in Hollywood 2019 161 min
## 218 T0881                                          Nelyubov 2017 127 min
## 219 T0882                                 The Florida Project 2017 111 min
## 220 T0883                                        Just Mercy 2019 137 min
## 221 T0884                                            Gifted 2017 101 min
## 222 T0885                            The Peanut Butter Falcon 2019  97 min
## 223 T0886                                          Victoria 2015 138 min
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## 224 T0887                                          Mustang          2015  97 min
## 225 T0888                  Guardians of the Galaxy Vol. 2           2017 136 min
## 226 T0889                                      Baby Driver          2017 113 min
## 227 T0890                                   Only the Brave          2017 134 min
## 228 T0891                                   Bridge of Spies         2015 142 min
## 229 T0892                                    Incredibles 2          2018 118 min
## 230 T0893                                            Moana          2016 107 min
## 231 T0894                                          Sicario          2015 121 min
## 232 T0895                                            Creed          2015 133 min
## 233 T0896                                          Leviafan         2014 140 min
## 234 T0897                               Hell or High Water          2016 102 min
## 235 T0898                                         Philomena         2013  98 min
## 236 T0899                   Dawn of the Planet of the Apes          2014 130 min
## 237 T0900                                        El cuerpo         2012 112 min
## 238 T0901                                     Serbuan maut         2011 101 min
## 239 T0902                                     End of Watch         2012 109 min
## 240 T0903                       Kari-gurashi no Arietti          2010  94 min
## 241 T0904                                   A Star Is Born         2018 136 min
## 242 T0905                                        True Grit         2010 110 min
## 243 T0906                                          Hævnen          2010 118 min
## 244 T0907                                     Despicable Me         2010  95 min
## 245 T0908                                            50/50         2011 100 min
## 246 T0909                                          Kick-Ass        2010 117 min
## 247 T0911                                         Moneyball         2011 133 min
## 248 T0912                                 La piel que habito         2011 120 min
##                              Genre IMDB_Rating Director_ID      Gross
## 1        Action, Adventure, Sci-Fi         8.8          86 292576195
## 2        Biography, Drama, History         8.6         495          0
## 3         Comedy, Drama, Thriller         8.6          57  53367844
## 4                            Drama         8.6         475          0
## 5        Adventure, Drama, Sci-Fi         8.6          86 188020017
## 6          Crime, Drama, Thriller         8.5         502 335451311
## 7                     Drama, Music         8.5          93  13092000
## 8        Biography, Comedy, Drama         8.5         368  13182281
## 9                            Drama         8.4         348    1661096
## 10       Biography, Drama, History         8.4          70          0
## 11           Action, Crime, Drama         8.4         156          0
## 12       Animation, Drama, Fantasy         8.4         302    5017246
## 13      Action, Biography, Drama         8.4         361  12391761
## 14   Animation, Action, Adventure         8.4          56 190241310
## 15       Action, Adventure, Drama         8.4          37 858373000
## 16      Action, Adventure, Sci-Fi         8.4          37 678815482
## 17   Animation, Adventure, Family         8.4         290 209726015
## 18                  Drama, Western         8.4         394 162805434
## 19               Action, Adventure         8.4          86 448139099
## 20         Drama, Thriller, War         8.3         441 159227644
## 21        Drama, Fantasy, Horror         8.3         395          0
## 22          Crime, Drama, Music         8.3         463    1373943
## 23        Crime, Drama, Thriller         8.3         224          0
## 24                           Drama         8.3         496     687185
## 25                           Drama         8.3          43    7098492
## 26         Drama, Mystery, War          8.3         112    6857096
## 27                           Drama         8.3         325          0
## 28                  Comedy, Drama         8.2         361     898575
```

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## 29             Action, Drama, War   8.2     9    4186168
## 30                 Action, Drama    8.2   392          0
## 31      Biography, Comedy, Drama    8.2   385   85080171
## 32          Comedy, Crime, Drama    8.2   313   54513740
## 33          Crime, Drama, Mystery   8.2   324     342370
## 34                 Action, Drama    8.2   440   20186659
## 35   Animation, Adventure, Comedy   8.2   453          0
## 36          Crime, Drama, Mystery   8.2   360     739478
## 37      Adventure, Comedy, Drama    8.2   518    1429534
## 38                    Drama, War    8.2   547     144501
## 39       Biography, Drama, Sport    8.2   399    1626289
## 40          Action, Comedy, Crime   8.2    41          0
## 41                        Drama    8.2   519       7461
## 42      Action, Biography, Crime    8.2   497      39567
## 43           Action, Drama, Sport   8.2   155   13657115
## 44              Mystery, Thriller   8.2   315  128012934
## 45       Biography, Crime, Drama    8.2   315  116900694
## 46   Animation, Adventure, Comedy   8.2   290  415004880
## 47                 Drama, Romance   8.1    75    3759854
## 48                 Drama, Thriller   8.1    35    1241223
## 49       Animation, Drama, Family   8.1   349          0
## 50          Crime, Drama, Mystery   8.1   370          0
## 51       Drama, Romance, Thriller   8.1    76    2006788
## 52                        Drama    8.1   536    3492754
## 53           Action, Crime, Drama   8.1   521     901610
## 54           Action, Drama, Sci-Fi  8.1   210  226277068
## 55                 Drama, Thriller   8.1   291   14677674
## 56        Comedy, Drama, Thriller   8.1    92    3107072
## 57   Animation, Adventure, Comedy   8.1   383          0
## 58                        Drama    8.1   364     165520
## 59        Comedy, Drama, Musical   8.1   397   10616104
## 60        Comedy, Drama, Fantasy   8.1   516     923221
## 61      Adventure, Comedy, Crime   8.1   527   59100318
## 62       Drama, Mystery, Thriller   8.1   102  167767189
## 63       Animation, Drama, Fantasy  8.1   303          0
## 64      Biography, Drama, History   8.1   327   67209615
## 65   Animation, Adventure, Comedy   8.1   383  356461711
## 66        Comedy, Drama, Romance   8.1    40    2804874
## 67      Biography, Drama, History   8.1   471   56671993
## 68       Action, Biography, Drama   8.1   436   26947624
## 69       Action, Biography, Drama   8.1   210  117624028
## 70       Biography, Crime, Drama    8.1   505   45055776
## 71    Animation, Adventure, Drama   8.1   508     857524
## 72              Mystery, Thriller   8.1   476    1035953
## 73                 Comedy, Drama    8.1   548    3108485
## 74          Crime, Drama, Mystery   8.1   112   61002302
## 75       Action, Adventure, Sci-Fi  8.1   161  154058340
## 76       Adventure, Drama, Fantasy  8.1   109  381011219
## 77    Animation, Action, Adventure  8.1   111  217581231
## 78                 Comedy, Drama    8.0    24          0
## 79    Adventure, Biography, Drama   8.0   127          0
## 80                 Drama, History   8.0   396          0
## 81      Action, Adventure, Comedy   8.0   269    8178001
## 82       Action, Crime, Thriller   8.0   351          0
```

```
## 83        Comedy, Drama, Music   8.0    93 151101803
## 84            Biography, Drama   8.0   152  51739495
## 85        Adventure, Drama, Sci-Fi  8.0   414 228433663
## 86  Animation, Adventure, Comedy   8.0    67 341268248
## 87                Action, Drama   8.0   440   6738000
## 88  Animation, Adventure, Drama   8.0   194   1506975
## 89                Drama, Family   8.0   467 132422809
## 90        Drama, Music, Romance   8.0   548   5566534
## 91        Crime, Drama, Thriller  8.0   351   1079369
## 92                        Drama   8.0   115   1010414
## 93        Action, Crime, Thriller  8.0   151   2625803
## 94     Biography, Drama, Thriller  8.0   345  91125683
## 95      Action, Adventure, Comedy  8.0   207 333176600
## 96         Action, Drama, Mystery  8.0   112  92054159
## 97          Drama, Romance, Sci-Fi  8.0   461  25568251
## 98        Biography, Drama, Music  8.0    65 216428042
## 99      Action, Adventure, Drama   8.0    15 183637894
## 100               Drama, Romance   8.0   467  17738570
## 101         Action, Crime, Drama   8.0   259    100119
## 102     Biography, Drama, History  8.0   504 138797449
## 103                       Drama   8.0   482 169708112
## 104    Action, Adventure, Comedy   8.0   499 363070709
## 105                       Drama   8.0   272   4018695
## 106             Drama, Thriller   8.0    99 106954678
## 107     Action, Adventure, Sci-Fi  8.0   265 623279547
## 108            Biography, Drama   8.0   220  27298285
## 109            Biography, Drama   8.0    14   2086345
## 110        Comedy, Crime, Drama   7.9   403 165359751
## 111      Comedy, Drama, Romance   7.9   347         0
## 112                Crime, Drama   7.9   186   3313513
## 113      Comedy, Drama, Romance   7.9   362   2000000
## 114              Drama, Romance   7.9   297  18095701
## 115                       Drama   7.9   275    258168
## 116  Animation, Adventure, Comedy  7.9   527  32015231
## 117     Adventure, Comedy, Drama   7.9   479   5202582
## 118               Comedy, Drama   7.9   321   5875006
## 119        Comedy, Drama, Music   7.9   237   3237118
## 120    Action, Adventure, Comedy   7.9   479 315058289
## 121       Crime, Drama, Thriller  7.9    94  32381218
## 122           Comedy, Drama, War   7.9   479    349555
## 123                  Drama, Sci-Fi  7.9   112 100546139
## 124     Action, Adventure, Sci-Fi  7.9   197 936662225
## 125               Drama, Romance   7.9   411   8114627
## 126     Action, Adventure, Sci-Fi  7.9    65 233921534
## 127                Crime, Drama   7.9   364    138730
## 128      Comedy, Drama, Romance   7.9   337  44671682
## 129     Action, Adventure, Sci-Fi  7.9   119 100206256
## 130               Drama, Romance   7.9   332   6739492
## 131      Biography, Crime, Drama   7.9   315   7000000
## 132                       Drama   7.9   411  25379975
## 133    Adventure, Drama, Fantasy   7.9    34 124987023
## 134        Action, Comedy, Crime   7.8   177         0
## 135       Action, Drama, Thriller  7.8   324         0
## 136                Drama, Music   7.8    98         0
```

```
## 137                          Drama   7.8    43    2402067
## 138     Action, Drama, History   7.8    86  188373161
## 139              Comedy, Drama   7.8   373          0
## 140   Biography, Drama, History   7.8   493  169607287
## 141   Adventure, Comedy, Family   7.8   377   40442052
## 142        Action, Crime, Drama   7.8     4          0
## 143 Animation, Action, Adventure   7.8   512   48023088
## 144     Biography, Drama, Sport   7.8   351    1782795
## 145                      Drama   7.8   277   47695120
## 146        Drama, History, War   7.8   316     435266
## 147   Action, Adventure, Sci-Fi   7.8   150  532177324
## 148   Action, Adventure, Sci-Fi   7.8    37  408084349
## 149       Crime, Drama, Mystery   7.8   394   54117416
## 150             Drama, Romance   7.8   173  108101214
## 151 Animation, Biography, Crime   7.8   118    6735118
## 152    Biography, Comedy, Drama   7.8   323          0
## 153            Drama, Mystery   7.8    43    1330596
## 154                      Drama   7.8   374    2852400
## 155             Drama, Romance   7.8   415    4231500
## 156            Comedy, Romance   7.8   457     169209
## 157 Animation, Action, Adventure   7.8   116  222527828
## 158      Comedy, Drama, Fantasy   7.8   407   15322921
## 159       Comedy, Drama, Family   7.8   154    1670773
## 160  Animation, Biography, Drama   7.8   181    5209580
## 161 Animation, Adventure, Comedy   7.8   264  434038008
## 162       Crime, Drama, Mystery   7.8   169      85433
## 163      Comedy, Drama, Romance   7.8   527   45512466
## 164 Animation, Action, Adventure   7.8   111  177002924
## 165    Biography, Comedy, Drama   7.8     7   70259870
## 166            Drama, Thriller   7.8   492          0
## 167        Action, Crime, Drama   7.8   223     128392
## 168       Crime, Drama, Mystery   7.8   102  102515793
## 169  Adventure, Biography, Crime   7.8   375  107100855
## 170        Action, Crime, Drama   7.8   226       6460
## 171   Biography, Drama, History   7.8   130  161197785
## 172          Adventure, Fantasy   7.8   386  258366855
## 173    Drama, History, Thriller   7.8     2          0
## 174              Comedy, Drama   7.8   496          0
## 175     Biography, Drama, Sport   7.8   108   93617009
## 176          Adventure, Fantasy   7.8   386  303003568
## 177               Crime, Drama   7.8   357   35061555
## 178                      Drama   7.7    21          0
## 179             Drama, Romance   7.7   140     335609
## 180    Action, Adventure, Comedy   7.7   104  324591735
## 181       Crime, Drama, Mystery   7.7   484   33800859
## 182   Horror, Mystery, Thriller   7.7   258  176040665
## 183 Action, Adventure, Thriller   7.7    84  220159104
## 184      Comedy, Drama, Romance   7.7   179    3358518
## 185              Comedy, Horror   7.7   225    3333000
## 186     Animation, Drama, Family   7.7   213     765127
## 187   Biography, Drama, Romance   7.7   211   35893537
## 188    Action, Adventure, Comedy   7.7   322  128261724
## 189             Drama, Romance   7.7   263  124872350
## 190              Comedy, Drama   7.7    22    6743776
```

```
## 191            Comedy, Drama      7.7       15  42340598
## 192           Drama, Romance      7.7        3   2199675
## 193              Drama, Sport     7.7        5   1122527
## 194       Drama, Music, Romance   7.7      136    175058
## 195     Action, Adventure, Sci-Fi 7.7       37 259766572
## 196       Drama, Music, Musical   7.7      191    985912
## 197      Adventure, Comedy, Drama 7.7       20  17654912
## 198 Animation, Adventure, Comedy  7.7      404 189422889
## 199  Animation, Adventure, Drama  7.7      309   1339152
## 200                      Drama    7.7      510     71177
## 201     Comedy, Fantasy, Romance  7.7      535  56816662
## 202 Animation, Action, Adventure  7.7       85 257760692
## 203      Drama, Sci-Fi, Thriller  7.7       21 274092705
## 204     Action, Adventure, Sci-Fi 7.7      197 228778661
## 205                 Drama, War    7.7       73     83861
## 206            Biography, Drama   7.7      102  96962694
## 207     Action, Adventure, Sci-Fi 7.7      322 146408305
## 208  Action, Adventure, Thriller  7.7      441 304360277
## 209       Comedy, Drama, Romance  7.7      108 132092958
## 210   Biography, Drama, Thriller  7.7       46 136025503
## 211    Adventure, Family, Fantasy 7.7      109 295983305
## 212       Comedy, Drama, Romance  7.7      416   1752214
## 213      Drama, Sci-Fi, Thriller  7.7       17  25442958
## 214 Animation, Adventure, Comedy  7.7      350 200821936
## 215    Biography, Drama, History  7.6      501         0
## 216    Drama, Mystery, Thriller   7.6       33  26020957
## 217             Comedy, Drama     7.6      394 142502728
## 218                      Drama    7.6       32    566356
## 219                      Drama    7.6      448   5904366
## 220     Biography, Crime, Drama   7.6      115         0
## 221                      Drama    7.6      307  24801212
## 222      Adventure, Comedy, Drama 7.6      515  13122642
## 223      Crime, Drama, Romance    7.6      450         0
## 224                      Drama    7.6      113    845464
## 225    Action, Adventure, Comedy  7.6      207 389813101
## 226          Action, Crime, Drama 7.6      121 107825862
## 227     Action, Biography, Drama  7.6      260  18340051
## 228     Drama, History, Thriller  7.6      473  72313754
## 229 Animation, Action, Adventure  7.6       59 608581744
## 230 Animation, Adventure, Comedy  7.6      435 248757044
## 231        Action, Crime, Drama   7.6      112  46889293
## 232              Drama, Sport     7.6      439 109767581
## 233               Crime, Drama    7.6       32   1092800
## 234         Action, Crime, Drama  7.6      106  26862450
## 235     Biography, Comedy, Drama  7.6      470  37707719
## 236     Action, Adventure, Drama  7.6      320 208545589
## 237          Mystery, Thriller    7.6      370         0
## 238             Action, Thriller  7.6      151   4105123
## 239         Action, Crime, Drama  7.6      100  41003371
## 240 Animation, Adventure, Family  7.6      187  19202743
## 241       Drama, Music, Romance   7.6       60 215288866
## 242             Drama, Western    7.6      129 171243005
## 243             Drama, Romance    7.6      477   1008098
## 244     Animation, Comedy, Crime  7.6      390 251513985
```
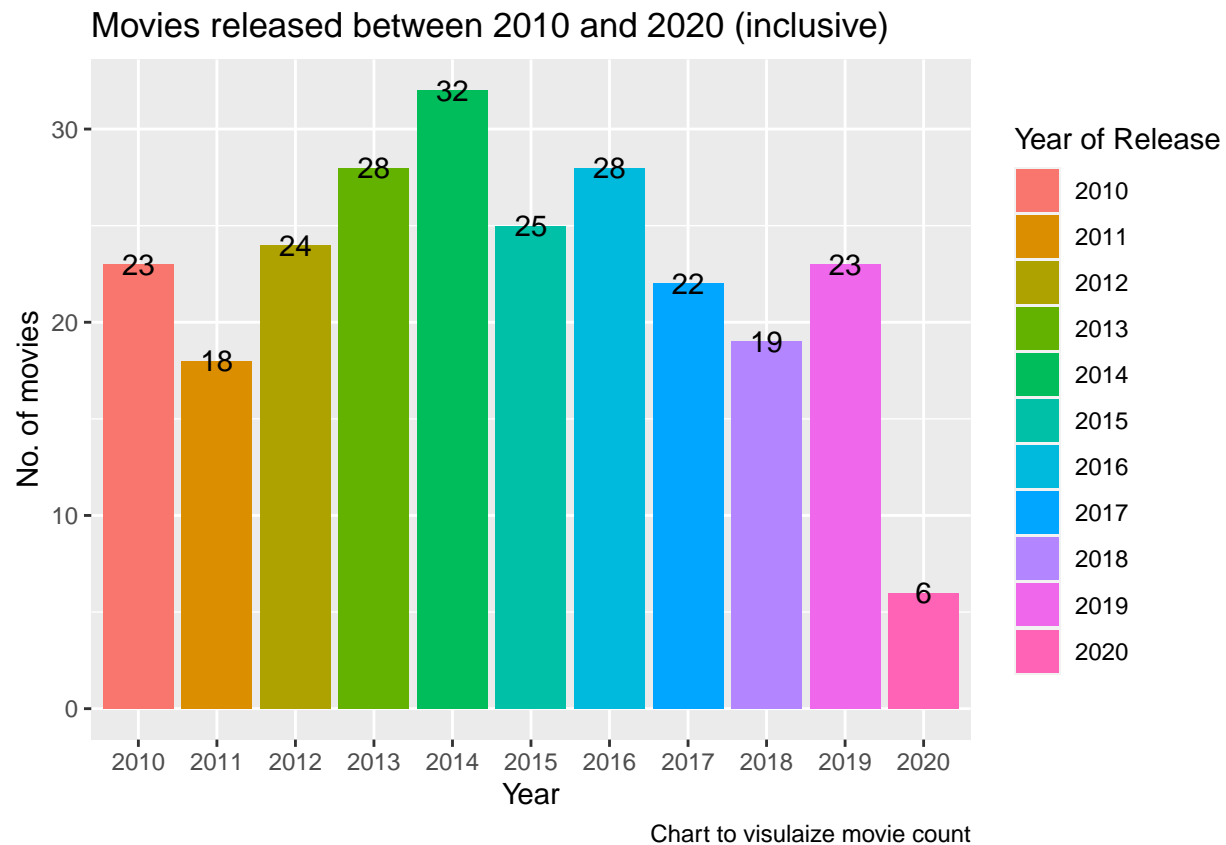
```
## 245        Comedy, Drama, Romance      7.6        256  35014192
## 246         Action, Comedy, Crime      7.6        322  48071303
## 247        Biography, Drama, Sport      7.6         47  75605492
## 248       Drama, Horror, Thriller      7.6        381   3185812
```

```
#248 movies were released between 2010 and 2020 (inclusive)
```

```
# Visualizing the results.
ggplot(data= release, aes(x= Release_Year, y= ..count.., fill= Release_Year)) +
  geom_bar()+
  geom_text(stat= "count", aes(label = ..count..))+
   labs(title= "Movies released between 2010 and 2020 (inclusive)",
        caption = "Chart to visulaize movie count",
        fill= "Year of Release") +
  xlab("Year") + ylab("No. of movies")
```


Movies released between 2010 and 2020 (inclusive)

Chart to visulaize movie count

```
#Year 2014 has the most released movies (32) followed by 2013 and 2016 (28 each) while the lease number
```

```
#Q2
#3 What is the minimum, average and maximum ratings for "Action" movies.  Ensure that you query the gen
action <- dbGetQuery(db, "SELECT * from movie_info WHERE Genre LIKE '%Action%'") #Using wilcard LIKE
```

```
## Warning in result_fetch(res@ptr, n = n): Column 'Gross': mixed type, first seen
## values of type real, coercing other values of type string
```

12

action

```
##         ID                                               Series_Title
## 1    T0003                                            The Dark Knight
## 2    T0006           The Lord of the Rings: The Return of the King
## 3    T0009                                                  Inception
## 4    T0011      The Lord of the Rings: The Fellowship of the Ring
## 5    T0014              The Lord of the Rings: The Two Towers
## 6    T0015                                                 The Matrix
## 7    T0017      Star Wars: Episode V – The Empire Strikes Back
## 8    T0030                                                  Star Wars
## 9    T0031                                                    Seppuku
## 10   T0032                                      Shichinin no samurai
## 11   T0040                                                  Gladiator
## 12   T0043                                                       Léon
## 13   T0045                                 Terminator 2: Judgment Day
## 14   T0056                                               Vikram Vedha
## 15   T0058                                                     Dangal
## 16   T0059                         Spider-Man: Into the Spider-Verse
## 17   T0060                                          Avengers: Endgame
## 18   T0061                                       Avengers: Infinity War
## 19   T0064                                       The Dark Knight Rises
## 20   T0069                                                    Oldeuboi
## 21   T0071                                              Mononoke-hime
## 22   T0073                                  Raiders of the Lost Ark
## 23   T0107                                                     Aliens
## 24   T0110          Star Wars: Episode VI – Return of the Jedi
## 25   T0130                                  Uri: The Surgical Strike
## 26   T0131                                           K.G.F: Chapter 1
## 27   T0135                                 Baahubali 2: The Conclusion
## 28   T0141                                         Gangs of Wasseypur
## 29   T0143                                          Paan Singh Tomar
## 30   T0145                                                    Warrior
## 31   T0153                                             V for Vendetta
## 32   T0156                                              Batman Begins
## 33   T0161                                                 Hera Pheri
## 34   T0162                   Lock, Stock and Two Smoking Barrels
## 35   T0167                                            Andaz Apna Apna
## 36   T0169                   Indiana Jones and the Last Crusade
## 37   T0172                                                   Die Hard
## 38   T0173                                                        Ran
## 39   T0178                                                     Sholay
## 40   T0182                                                    Yôjinbô
## 41   T0195                                               Sherlock Jr.
## 42   T0202                                                     Haider
## 43   T0203                                                      Logan
## 44   T0217                                                       Rush
## 45   T0218                                            Ford v Ferrari
## 46   T0224                                        Mad Max: Fury Road
## 47   T0225                                               A Wednesday
## 48   T0231                                   How to Train Your Dragon
## 49   T0237                                      Taegukgi hwinalrimyeo
## 50   T0242                                            Kill Bill: Vol. 1
## 51   T0247   Shin seiki Evangelion Gekijô-ban: Air/Magokoro wo, kimi ni
```

```
## 52  T0263                                           Jurassic Park
## 53  T0276                                           Blade Runner
## 54  T0295                                               Sanjuro
## 55  T0309                                            White Heat
## 56  T0321                                           The General
## 57  T0326                                      Bajrangi Bhaijaan
## 58  T0327                                                  Baby
## 59  T0332                              Bãhubali: The Beginning
## 60  T0338                              Serbuan maut 2: Berandal
## 61  T0340                              Guardians of the Galaxy
## 62  T0341                                    Blade Runner 2049
## 63  T0344                                          The Revenant
## 64  T0346               Tropa de Elite 2: O Inimigo Agora é Outro
## 65  T0349                                              Deadpool
## 66  T0352                                               Yip Man
## 67  T0354                                 Nefes: Vatan Sagolsun
## 68  T0357                                        Tropa de Elite
## 69  T0358                                          The Avengers
## 70  T0363                                   The Bourne Ultimatum
## 71  T0369                                         Casino Royale
## 72  T0370                                      Kill Bill: Vol. 2
## 73  T0376                                          Mou gaan dou
## 74  T0377    Pirates of the Caribbean: The Curse of the Black Pearl
## 75  T0379                                        The Incredibles
## 76  T0390                                        The Iron Giant
## 77  T0391                            Knockin' on Heaven's Door
## 78  T0395                                        Kôkaku Kidôtai
## 79  T0406                                                 Akira
## 80  T0411                                        The Terminator
## 81  T0432                                Per un pugno di dollari
## 82  T0437                                             Rio Bravo
## 83  T0474                                        Thor: Ragnarok
## 84  T0478              Star Wars: Episode VII - The Force Awakens
## 85  T0480                             X-Men: Days of Future Past
## 86  T0483                                       Edge of Tomorrow
## 87  T0489                                            District 9
## 88  T0494                                             Star Trek
## 89  T0497                                  Letters from Iwo Jima
## 90  T0503                                              Iron Man
## 91  T0508                                            Ying xiong
## 92  T0511                     Cowboy Bebop: Tengoku no tobira
## 93  T0512                                   The Bourne Identity
## 94  T0523                                         Jûbê ninpûchô
## 95  T0533                                     The Blues Brothers
## 96  T0536                                      Dawn of the Dead
## 97  T0541                                Aguirre, der Zorn Gottes
## 98  T0544                                        The Wild Bunch
## 99  T0565                             The Adventures of Robin Hood
## 100 T0570                                         The Gentlemen
## 101 T0571                                                 Raazi
## 102 T0574                                               Dunkirk
## 103 T0578                                           Udta Punjab
## 104 T0579                              Kubo and the Two Strings
## 105 T0583                                              Rogue One
```

```
## 106 T0584                                Captain America: Civil War
## 107 T0593                                            Big Hero 6
## 108 T0600                              How to Train Your Dragon 2
## 109 T0603                                  Ang-ma-reul bo-at-da
## 110 T0606                                               Ajeossi
## 111 T0609                                            Chugyeokja
## 112 T0616                                                 Taken
## 113 T0624                                                Avatar
## 114 T0626                                             Apocalypto
## 115 T0628                                              Hot Fuzz
## 116 T0635                                              Serenity
## 117 T0642                             Gongdong gyeongbi guyeok JSA
## 118 T0643                              The Count of Monte Cristo
## 119 T0646                                       Wo hu cang long
## 120 T0649                                     The Boondock Saints
## 121 T0656                                              The Game
## 122 T0660                                             Tombstone
## 123 T0664                                          The Fugitive
## 124 T0666                            Batman: Mask of the Phantasm
## 125 T0667                                       Lat sau san taam
## 126 T0675                                     Dip huet seung hung
## 127 T0678                                              Predator
## 128 T0679                                           Evil Dead II
## 129 T0686                                          Ghostbusters
## 130 T0697                                              Badlands
## 131 T0703                                       Bonnie and Clyde
## 132 T0706                                        The Longest Day
## 133 T0710                                             Red River
## 134 T0711                                             Key Largo
## 135 T0719                            Scarface: The Shame of the Nation
## 136 T0723                                             Deadpool 2
## 137 T0726                             Mission: Impossible - Fallout
## 138 T0731                             Kingsman: The Secret Service
## 139 T0738                          Captain America: The Winter Soldier
## 140 T0745                                        The Lego Movie
## 141 T0747                              Star Trek Into Darkness
## 142 T0750                                         X: First Class
## 143 T0752                                               Skyfall
## 144 T0769                                  Lucky Number Slevin
## 145 T0775                                          3:10 to Yuma
## 146 T0777                                               Kung fu
## 147 T0778                                  The Bourne Supremacy
## 148 T0783                                           Man on Fire
## 149 T0785                                      The Last Samurai
## 150 T0797                             Vampire Hunter D: Bloodlust
## 151 T0808                                     The Fifth Element
## 152 T0822                                 The Last of the Mohicans
## 153 T0833                                      Empire of the Sun
## 154 T0840                             Star Trek II: The Wrath of Khan
## 155 T0841                                            First Blood
## 156 T0848                          The Taking of Pelham One Two Three
## 157 T0851                                       Enter the Dragon
## 158 T0853                                  The French Connection
## 159 T0854                                            Dirty Harry
```

```
## 160 T0855                                        Where Eagles Dare
## 161 T0857                                         The Dirty Dozen
## 162 T0862                                             Goldfinger
## 163 T0866                                    The Magnificent Seven
## 164 T0888                              Guardians of the Galaxy Vol. 2
## 165 T0889                                            Baby Driver
## 166 T0890                                         Only the Brave
## 167 T0892                                           Incredibles 2
## 168 T0894                                                Sicario
## 169 T0897                                     Hell or High Water
## 170 T0899                            Dawn of the Planet of the Apes
## 171 T0901                                           Serbuan maut
## 172 T0902                                           End of Watch
## 173 T0909                                               Kick-Ass
## 174 T0910                                              Celda 211
## 175 T0915                                        Sherlock Holmes
## 176 T0919                                       Eastern Promises
## 177 T0925                                           Huo Yuan Jia
## 178 T0928                     Harry Potter and the Half-Blood Prince
## 179 T0929                                                    300
## 180 T0931                                               Watchmen
## 181 T0932                                            Lord of War
## 182 T0945                                       Batoru rowaiaru
## 183 T0952                                        Minority Report
## 184 T0964                              Die Hard: With a Vengeance
## 185 T0969                                           Falling Down
## 186 T0980                                         Lethal Weapon
## 187 T0983                                              Mad Max 2
## 188 T0984                                           The Warriors
## 189 T0986                                    Escape from Alcatraz
##      Release_Year Runtime                     Genre IMDB_Rating Director_ID
## 1            2008 152 min        Action, Crime, Drama         9.0          86
## 2            2003 201 min    Action, Adventure, Drama         8.9         386
## 3            2010 148 min    Action, Adventure, Sci-Fi        8.8          86
## 4            2001 178 min    Action, Adventure, Drama         8.8         386
## 5            2002 179 min    Action, Adventure, Drama         8.7         386
## 6            1999 136 min              Action, Sci-Fi         8.7         286
## 7            1980 124 min  Action, Adventure, Fantasy         8.7         193
## 8            1977 121 min  Action, Adventure, Fantasy         8.6         160
## 9            1962 133 min       Action, Drama, Mystery        8.6         318
## 10           1954 207 min    Action, Adventure, Drama         8.6          10
## 11           2000 155 min    Action, Adventure, Drama         8.5         414
## 12           1994 110 min        Action, Crime, Drama         8.5         296
## 13           1991 137 min              Action, Sci-Fi         8.5         204
## 14           2017 147 min        Action, Crime, Drama         8.4         156
## 15           2016 161 min    Action, Biography, Drama         8.4         361
## 16           2018 117 min Animation, Action, Adventure        8.4          56
## 17           2019 181 min    Action, Adventure, Drama         8.4          37
## 18           2018 149 min    Action, Adventure, Sci-Fi        8.4          37
## 19           2012 164 min           Action, Adventure         8.4          86
## 20           2003 101 min       Action, Drama, Mystery        8.4          76
## 21           1997 134 min Animation, Action, Adventure        8.4         181
## 22           1981 115 min           Action, Adventure         8.4         473
## 23           1986 137 min    Action, Adventure, Sci-Fi        8.3         204
```

```
## 24        1983 131 min     Action, Adventure, Fantasy      8.3      412
## 25        2018 138 min           Action, Drama, War        8.2        9
## 26        2018 156 min                 Action, Drama       8.2      392
## 27        2017 167 min                 Action, Drama       8.2      440
## 28        2012 321 min        Action, Comedy, Crime        8.2       41
## 29        2012 135 min     Action, Biography, Crime         8.2      497
## 30        2011 140 min         Action, Drama, Sport        8.2      155
## 31        2005 132 min        Action, Drama, Sci-Fi        8.2      212
## 32        2005 140 min           Action, Adventure         8.2       86
## 33        2000 156 min        Action, Comedy, Crime        8.2      393
## 34        1998 107 min        Action, Comedy, Crime        8.2      177
## 35        1994 160 min      Action, Comedy, Romance         8.2      398
## 36        1989 127 min           Action, Adventure         8.2      473
## 37        1988 132 min            Action, Thriller         8.2      247
## 38        1985 162 min           Action, Drama, War        8.2       10
## 39        1975 204 min     Action, Adventure, Comedy        8.2      400
## 40        1961 110 min        Action, Drama, Thriller       8.2       10
## 41        1924  45 min      Action, Comedy, Romance         8.2       66
## 42        2014 160 min         Action, Crime, Drama        8.1      521
## 43        2017 137 min         Action, Drama, Sci-Fi        8.1      210
## 44        2013 123 min      Action, Biography, Drama        8.1      436
## 45        2019 152 min      Action, Biography, Drama        8.1      210
## 46        2015 120 min      Action, Adventure, Sci-Fi       8.1      161
## 47        2008 104 min         Action, Crime, Drama        8.1      351
## 48        2010  98 min Animation, Action, Adventure         8.1      111
## 49        2004 140 min           Action, Drama, War        8.1      216
## 50        2003 111 min         Action, Crime, Drama        8.1      394
## 51        1997  87 min      Animation, Action, Drama        8.1      185
## 52        1993 127 min      Action, Adventure, Sci-Fi       8.1      473
## 53        1982 117 min      Action, Sci-Fi, Thriller        8.1      414
## 54        1962  96 min        Action, Comedy, Crime        8.1       10
## 55        1949 114 min         Action, Crime, Drama        8.1      401
## 56        1926  67 min     Action, Adventure, Comedy        8.1       88
## 57        2015 163 min     Action, Adventure, Comedy        8.0      269
## 58        2015 159 min       Action, Crime, Thriller        8.0      351
## 59        2015 159 min                 Action, Drama       8.0      440
## 60        2014 150 min       Action, Crime, Thriller        8.0      151
## 61        2014 121 min     Action, Adventure, Comedy        8.0      207
## 62        2017 164 min       Action, Drama, Mystery         8.0      112
## 63        2015 156 min      Action, Adventure, Drama        8.0       15
## 64        2010 115 min         Action, Crime, Drama        8.0      259
## 65        2016 108 min     Action, Adventure, Comedy        8.0      499
## 66        2008 106 min      Action, Biography, Drama        8.0      530
## 67        2009 128 min       Action, Drama, Thriller        8.0      293
## 68        2007 115 min         Action, Crime, Drama        8.0      259
## 69        2012 143 min      Action, Adventure, Sci-Fi       8.0      265
## 70        2007 115 min     Action, Mystery, Thriller        8.0      375
## 71        2006 144 min  Action, Adventure, Thriller         8.0      312
## 72        2004 137 min       Action, Crime, Thriller        8.0      394
## 73        2002 101 min         Action, Crime, Drama        8.0       29
## 74        2003 143 min     Action, Adventure, Fantasy       8.0      170
## 75        2004 115 min Animation, Action, Adventure         8.0       59
## 76        1999  86 min Animation, Action, Adventure         8.0       59
## 77        1997  87 min        Action, Crime, Comedy        8.0      494
```

```
## 78           1995  83 min       Animation, Action, Crime      8.0       304
## 79           1988 124 min      Animation, Action, Sci-Fi      8.0       273
## 80           1984 107 min                  Action, Sci-Fi      8.0       204
## 81           1964  99 min         Action, Drama, Western      8.0       452
## 82           1959 141 min         Action, Drama, Western      8.0       189
## 83           2017 130 min      Action, Adventure, Comedy      7.9       479
## 84           2015 138 min      Action, Adventure, Sci-Fi      7.9       197
## 85           2014 132 min      Action, Adventure, Sci-Fi      7.9        65
## 86           2014 113 min      Action, Adventure, Sci-Fi      7.9       119
## 87           2009 112 min        Action, Sci-Fi, Thriller      7.9       353
## 88           2009 127 min      Action, Adventure, Sci-Fi      7.9       197
## 89           2006 141 min       Action, Adventure, Drama      7.9        87
## 90           2008 126 min      Action, Adventure, Sci-Fi      7.9       253
## 91           2002 120 min     Action, Adventure, History      7.9       542
## 92           2001 115 min       Animation, Action, Crime      7.9       456
## 93           2002 119 min       Action, Mystery, Thriller      7.9       119
## 94           1993  94 min Animation, Action, Adventure      7.9       544
## 95           1980 133 min       Action, Adventure, Comedy      7.9       244
## 96           1978 127 min       Action, Adventure, Horror      7.9       158
## 97           1972  95 min Action, Adventure, Biography      7.9       526
## 98           1969 145 min      Action, Adventure, Western      7.9       442
## 99           1938 102 min      Action, Adventure, Romance      7.9       331
## 100          2019 113 min          Action, Comedy, Crime      7.8       177
## 101          2018 138 min         Action, Drama, Thriller      7.8       324
## 102          2017 106 min         Action, Drama, History      7.8        86
## 103          2016 148 min           Action, Crime, Drama      7.8         4
## 104          2016 101 min Animation, Action, Adventure      7.8       512
## 105          2016 133 min      Action, Adventure, Sci-Fi      7.8       150
## 106          2016 147 min      Action, Adventure, Sci-Fi      7.8        37
## 107          2014 102 min Animation, Action, Adventure      7.8       116
## 108          2014 102 min Animation, Action, Adventure      7.8       111
## 109          2010 144 min           Action, Crime, Drama      7.8       223
## 110          2010 119 min           Action, Crime, Drama      7.8       226
## 111          2008 125 min        Action, Crime, Thriller      7.8       188
## 112          2008  90 min               Action, Thriller      7.8       391
## 113          2009 162 min      Action, Adventure, Fantasy      7.8       204
## 114          2006 139 min       Action, Adventure, Drama      7.8       327
## 115          2007 121 min         Action, Comedy, Mystery      7.8       121
## 116          2005 119 min      Action, Adventure, Sci-Fi      7.8       265
## 117          2000 110 min         Action, Drama, Thriller      7.8        76
## 118          2002 131 min       Action, Adventure, Drama      7.8       281
## 119          2000 120 min     Action, Adventure, Fantasy      7.8        34
## 120          1999 108 min        Action, Crime, Thriller      7.8       514
## 121          1997 129 min         Action, Drama, Mystery      7.8       102
## 122          1993 130 min       Action, Biography, Drama      7.8       162
## 123          1993 130 min           Action, Crime, Drama      7.8        28
## 124          1993  76 min       Animation, Action, Crime      7.8       278
## 125          1992 128 min        Action, Crime, Thriller      7.8       251
## 126          1989 111 min           Action, Crime, Drama      7.8       251
## 127          1987 107 min      Action, Adventure, Sci-Fi      7.8       247
## 128          1987  84 min        Action, Comedy, Fantasy      7.8       443
## 129          1984 105 min        Action, Comedy, Fantasy      7.8       195
## 130          1973  94 min           Action, Crime, Drama      7.8       488
## 131          1967 111 min       Action, Biography, Crime      7.8        42
```

```
## 132          1962 178 min        Action, Drama, History       7.8        274
## 133          1948 133 min     Action, Adventure, Drama        7.8        189
## 134          1948 100 min        Action, Crime, Drama         7.8        243
## 135          1932  93 min        Action, Crime, Drama         7.8        189
## 136          2018 119 min    Action, Adventure, Comedy        7.7        104
## 137          2018 147 min   Action, Adventure, Thriller       7.7         84
## 138          2014 129 min    Action, Adventure, Comedy        7.7        322
## 139          2014 136 min     Action, Adventure, Sci-Fi       7.7         37
## 140          2014 100 min Animation, Action, Adventure        7.7         85
## 141          2013 132 min     Action, Adventure, Sci-Fi       7.7        197
## 142          2011 131 min     Action, Adventure, Sci-Fi       7.7        322
## 143          2012 143 min   Action, Adventure, Thriller       7.7        441
## 144          2006 110 min        Action, Crime, Drama         7.7        378
## 145          2007 122 min        Action, Crime, Drama         7.7        210
## 146          2004  99 min      Action, Comedy, Fantasy        7.7        468
## 147          2004 108 min     Action, Mystery, Thriller       7.7        375
## 148          2004 146 min        Action, Crime, Drama         7.7        511
## 149          2003 154 min                Action, Drama        7.7        122
## 150          2000 103 min    Animation, Action, Fantasy       7.7        544
## 151          1997 126 min     Action, Adventure, Sci-Fi       7.7        296
## 152          1992 112 min     Action, Adventure, Drama        7.7        333
## 153          1987 153 min        Action, Drama, History       7.7        473
## 154          1982 113 min     Action, Adventure, Sci-Fi       7.7        354
## 155          1982  93 min         Action, Adventure           7.7        486
## 156          1974 104 min     Action, Crime, Thriller         7.7        262
## 157          1973 102 min        Action, Crime, Drama         7.7        420
## 158          1971 104 min        Action, Crime, Drama         7.7        528
## 159          1971 102 min     Action, Crime, Thriller         7.7        117
## 160          1968 158 min       Action, Adventure, War        7.7         62
## 161          1967 150 min       Action, Adventure, War        7.7        417
## 162          1964 110 min   Action, Adventure, Thriller       7.7        176
## 163          1960 128 min   Action, Adventure, Western        7.7        250
## 164          2017 136 min    Action, Adventure, Comedy        7.6        207
## 165          2017 113 min        Action, Crime, Drama         7.6        121
## 166          2017 134 min     Action, Biography, Drama        7.6        260
## 167          2018 118 min Animation, Action, Adventure        7.6         59
## 168          2015 121 min        Action, Crime, Drama         7.6        112
## 169          2016 102 min        Action, Crime, Drama         7.6        106
## 170          2014 130 min     Action, Adventure, Drama        7.6        320
## 171          2011 101 min            Action, Thriller         7.6        151
## 172          2012 109 min        Action, Crime, Drama         7.6        100
## 173          2010 117 min      Action, Comedy, Crime          7.6        322
## 174          2009 113 min     Action, Adventure, Crime        7.6         95
## 175          2009 128 min   Action, Adventure, Mystery        7.6        177
## 176          2007 100 min        Action, Crime, Drama         7.6        101
## 177          2006 104 min     Action, Biography, Drama        7.6        437
## 178          2009 153 min     Action, Adventure, Family       7.6        109
## 179          2006 117 min                Action, Drama        7.6        546
## 180          2009 162 min       Action, Drama, Mystery        7.6        546
## 181          2005 122 min        Action, Crime, Drama         7.6         30
## 182          2000 114 min     Action, Adventure, Drama        7.6        284
## 183          2002 145 min      Action, Crime, Mystery         7.6        473
## 184          1995 128 min   Action, Adventure, Thriller       7.6        247
## 185          1993 113 min        Action, Crime, Drama         7.6        234
```

```
## 186          1987 109 min     Action, Crime, Thriller      7.6        408
## 187          1981  96 min   Action, Adventure, Sci-Fi      7.6        161
## 188          1979  92 min     Action, Crime, Thriller      7.6        524
## 189          1979 112 min     Action, Biography, Crime      7.6        117
##          Gross
## 1    534858444
## 2    377845905
## 3    292576195
## 4    315544750
## 5    342551365
## 6    171479930
## 7    290475067
## 8    322740140
## 9            0
## 10      269061
## 11   187705427
## 12    19501238
## 13   204843350
## 14           0
## 15    12391761
## 16   190241310
## 17   858373000
## 18   678815482
## 19   448139099
## 20      707481
## 21     2375308
## 22   248159971
## 23    85160248
## 24   309125409
## 25     4186168
## 26           0
## 27    20186659
## 28           0
## 29       39567
## 30    13657115
## 31    70511035
## 32   206852432
## 33           0
## 34     3897569
## 35           0
## 36   197171806
## 37    83008852
## 38     4135750
## 39           0
## 40           0
## 41      977375
## 42      901610
## 43   226277068
## 44    26947624
## 45   117624028
## 46   154058340
## 47           0
## 48   217581231
## 49     1111061
```

```
## 50    70099045
## 51           0
## 52   402453882
## 53    32868943
## 54           0
## 55           0
## 56     1033895
## 57     8178001
## 58           0
## 59     6738000
## 60     2625803
## 61   333176600
## 62    92054159
## 63   183637894
## 64      100119
## 65   363070709
## 66           0
## 67           0
## 68        8060
## 69   623279547
## 70   227471070
## 71   167445960
## 72    66208183
## 73      169659
## 74   305413918
## 75   261441092
## 76    23159305
## 77        3296
## 78      515905
## 79      553171
## 80    38400000
## 81    14500000
## 82    12535000
## 83   315058289
## 84   936662225
## 85   233921534
## 86   100206256
## 87   115646235
## 88   257730019
## 89    13756082
## 90   318412101
## 91    53710019
## 92     1000045
## 93   121661683
## 94           0
## 95    57229890
## 96     5100000
## 97           0
## 98    12064472
## 99     3981000
## 100          0
## 101          0
## 102  188373161
## 103          0
```

```
## 104  48023088
## 105 532177324
## 106 408084349
## 107 222527828
## 108 177002924
## 109    128392
## 110      6460
## 111         0
## 112 145000989
## 113 760507625
## 114  50866635
## 115  23637265
## 116  25514517
## 117         0
## 118  54234062
## 119 128078872
## 120     25812
## 121  48323648
## 122  56505065
## 123 183875760
## 124   5617391
## 125         0
## 126         0
## 127  59735548
## 128   5923044
## 129 238632124
## 130         0
## 131         0
## 132  39100000
## 133         0
## 134         0
## 135         0
## 136 324591735
## 137 220159104
## 138 128261724
## 139 259766572
## 140 257760692
## 141 228778661
## 142 146408305
## 143 304360277
## 144  22494487
## 145  53606916
## 146  17108591
## 147 176241941
## 148  77911774
## 149 111110575
## 150    151086
## 151  63540020
## 152  75505856
## 153  22238696
## 154  78912963
## 155  47212904
## 156         0
## 157  25000000
```

```
## 158  15630710
## 159  35900000
## 160         0
## 161  45300000
## 162  51081062
## 163   4905000
## 164 389813101
## 165 107825862
## 166  18340051
## 167 608581744
## 168  46889293
## 169  26862450
## 170 208545589
## 171   4105123
## 172  41003371
## 173  48071303
## 174         0
## 175 209028679
## 176  17114882
## 177  24633730
## 178 301959197
## 179 210614939
## 180 107509799
## 181  24149632
## 182         0
## 183 132072926
## 184 100012499
## 185  40903593
## 186  65207127
## 187  12465371
## 188  22490039
## 189  43000000
```

```r
rating <- dbGetQuery(db, "SELECT min(IMDB_Rating) as Min_rating, avg(IMDB_Rating) as Avg_rating, max(IM
rating
```

```
##   Min_rating Avg_rating Max_rating
## 1        7.6   7.948677          9
```

```r
#The minimum rating for Action movies is 7.6 , maximum is 9 with an average rating of ~7.95
```

```r
#Q2.
#4 What are the 25 highest-grossing movies within the dataset? Display the title, genre and gross.

highest <- dbGetQuery(db, "Select Series_Title, Genre, Gross from movie_info WHERE Gross != 'NA' ORDER

tail(highest, 25) #Getting the 25 highest grossing movies
```

```
##                                    Series_Title                        Genre
## 807                                      Joker        Crime, Drama, Thriller
## 808                                   Zootopia Animation, Adventure, Comedy
## 809     The Lord of the Rings: The Two Towers     Action, Adventure, Drama
```

```
## 810                                    Inside Out Animation, Adventure, Comedy
## 811                                    Deadpool     Action, Adventure, Comedy
## 812 The Lord of the Rings: The Return of the King      Action, Adventure, Drama
## 813                                  Finding Nemo Animation, Adventure, Comedy
## 814  Harry Potter and the Deathly Hallows: Part 2    Adventure, Drama, Fantasy
## 815             Guardians of the Galaxy Vol. 2     Action, Adventure, Comedy
## 816                                 Jurassic Park    Action, Adventure, Sci-Fi
## 817                     Captain America: Civil War    Action, Adventure, Sci-Fi
## 818                                   Toy Story 3 Animation, Adventure, Comedy
## 819                               The Lion King  Animation, Adventure, Drama
## 820                                   Toy Story 4 Animation, Adventure, Comedy
## 821                     E.T. the Extra-Terrestrial                Family, Sci-Fi
## 822                         The Dark Knight Rises             Action, Adventure
## 823                                     Rogue One   Action, Adventure, Sci-Fi
## 824                               The Dark Knight          Action, Crime, Drama
## 825                                 Incredibles 2 Animation, Action, Adventure
## 826                                 The Avengers   Action, Adventure, Sci-Fi
## 827                                       Titanic               Drama, Romance
## 828                     Avengers: Infinity War   Action, Adventure, Sci-Fi
## 829                                        Avatar   Action, Adventure, Fantasy
## 830                             Avengers: Endgame    Action, Adventure, Drama
## 831     Star Wars: Episode VII - The Force Awakens    Action, Adventure, Sci-Fi
##          Gross
## 807 335451311
## 808 341268248
## 809 342551365
## 810 356461711
## 811 363070709
## 812 377845905
## 813 380843261
## 814 381011219
## 815 389813101
## 816 402453882
## 817 408084349
## 818 415004880
## 819 422783777
## 820 434038008
## 821 435110554
## 822 448139099
## 823 532177324
## 824 534858444
## 825 608581744
## 826 623279547
## 827 659325379
## 828 678815482
## 829 760507625
## 830 858373000
## 831 936662225
```

```
#Star Wars: Episode VII - The Force Awakens is the top-most grossing movie of Genre Action, Adventure,

#Q2.5 Which directors have the highest-grossing movies. Display the director name and the total gross.
 #Joining the director_info and movie_info
Join_Table <- dbGetQuery(db, "Select di.Director_Name, mo.Gross from movie_info mo
```

```
                join director_info di
                on di.Director_ID= mo.Director_ID
                where Gross != 'NA'
                order by Gross")
head(Join_Table)
```

```
##             Director_Name Gross
## 1 Anders Thomas Jensen  1305
## 2          Thomas Jahn  3296
## 3     Jaco Van Dormael  3600
## 4         Shane Meadows  6013
## 5        Jeong-beom Lee  6460
## 6 Vikramaditya Motwane  7461
```

```
#using library dplyr to calculate total gross for each director
Calc_Gross <- ddply(Join_Table,"Director_Name",numcolwise(sum)) %>%
  arrange(desc(Gross))

colnames(Calc_Gross)[2] <- "Total_Gross"  #Changing column name 2 to Total Gross
Top_Gross <- head(Calc_Gross, 25) #Top 25 directors
Top_Gross
```

```
##         Director_Name Total_Gross
## 1   Steven Spielberg  2478133165
## 2      Anthony Russo  2205039403
## 3  Christopher Nolan  1937454106
## 4      James Cameron  1748236602
## 5       Peter Jackson  1597312443
## 6        J.J. Abrams  1423170905
## 7          Brad Bird  1099627795
## 8    Robert Zemeckis  1049446456
## 9        David Yates   978953721
## 10       Pete Docter   939382131
## 11      Ridley Scott   766711423
## 12 Quentin Tarantino   727034316
## 13        James Gunn   722989701
## 14     David Fincher   713314479
## 15        Sam Mendes   698139284
## 16       Joss Whedon   648794064
## 17       Lee Unkrich   624730895
## 18     Todd Phillips   612773814
## 19    Andrew Stanton   604651425
## 20     Chris Columbus   603336793
## 21     Clint Eastwood   592692644
## 22     Alfonso Cuarón   582645455
## 23      Ron Clements   577650742
## 24    Martin Scorsese   538319198
## 25     Gareth Edwards   532177324
```

```
# Visualizing the results using a Bar chart
ggplot(data= Top_Gross, aes(x= reorder(Director_Name, -Total_Gross), y= Total_Gross)) +
  geom_histogram(stat= "identity") +
```

```
  theme(axis.text.x = element_text(angle= 90, hjust=0))+
   labs(title= "Top 25 directors",
        subtitle= "Directors with highest total gross",
        caption = "Chart to visulaize the top 25 directors") +
   xlab("Director names") + ylab("Total Gross($)")
```

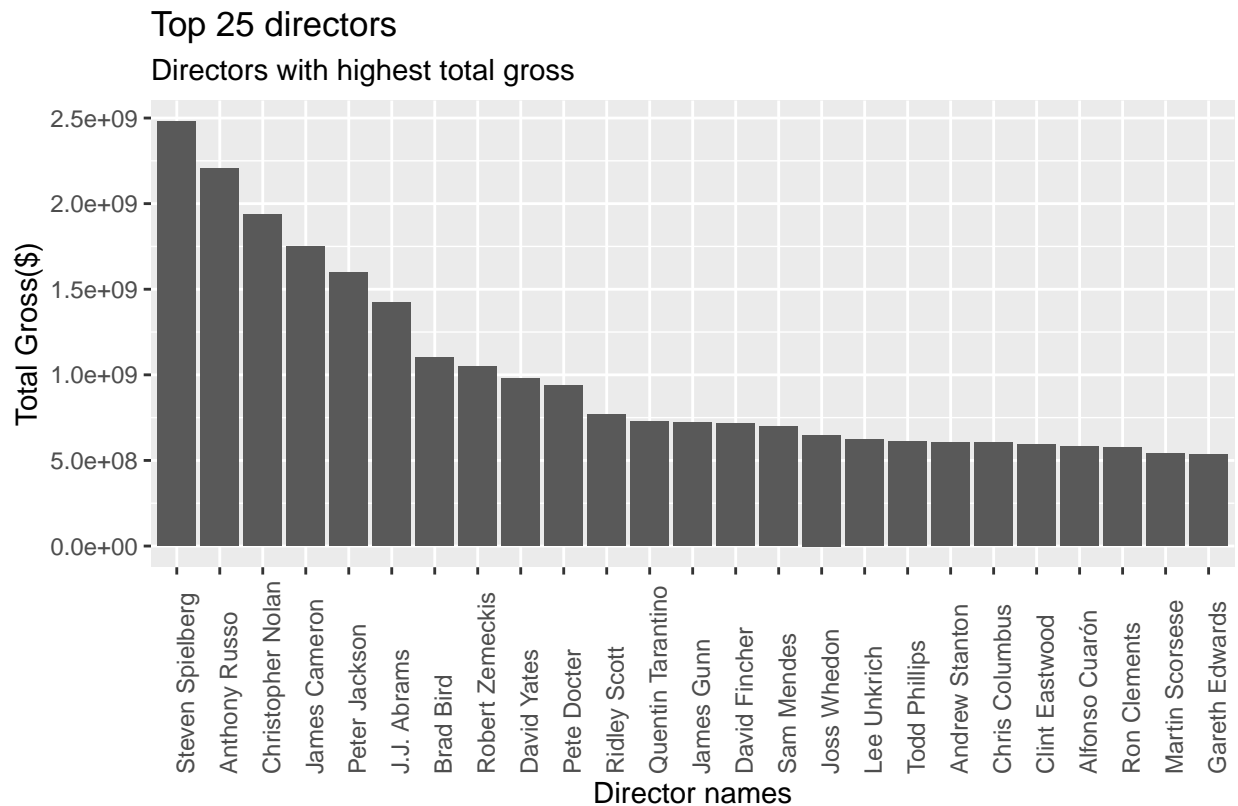## Warning: Ignoring unknown parameters: binwidth, bins, pad

Top 25 directors
Directors with highest total gross

Chart to visulaize the top 25 directors

#The director with the highest gross is Steven Spielberg with a total gross of $2478133165 while the lo...

#Comment

#Q3.5 Create a function called verifyDirector() that takes a director name as its argument, and querie...

```
verifyDirector <- function(x)
{
input <- dbSendQuery(db, "SELECT * FROM director_info WHERE Director_Name = :x")
dbBind(input, params = list(x = x))
output <- dbFetch(input)
if (nrow(output) < 1)
{
print(paste("Oops! Director not found, please check again"))
}
else
```

```
{
dbClearResult(input, output)
combined <- str_c(output$Director_Name, paste(" -Bingo, the director you entered is present in the datas
return(combined)
dbClearResult(combined)
}}

#To verify the vreated function
verifyDirector('Aamir Khan')
```

[1] "Aamir Khan -Bingo, the director you entered is present in the dataset"

```
verifyDirector('Maitri Shah')
```

[1] "Oops! Director not found, please check again"

```
#Question 3 - What is the average runtime for the thriller movie genre.
thriller <- dbGetQuery(db, "Select avg(Runtime) as Average_Runtime_Thriller from movie_info WHERE Genre
```

Warning: Closing open result set, pending rows

```
thriller
```

```
##   Average_Runtime_Thriller
## 1                 119.6423
```

```
#Average runtime for thriller movies is 119.6423
```