Scraping top 250 movies on IMDB

Filippo Chiarello, Ph.D.

Top 250 movies on IMDB

Top 250 movies on IMDB

Take a look at the source code, look for the tag `table` tag:
http://www.imdb.com/chart/top


```
599           <div class="desc">Showing <span>250</span> Titles</div>
600         </div>
601       </div>
602       <br class="clear">
603       <table class="chart full-width" data-caller-name="chart-top250movie">
604         <colgroup>
605           <col class="chartTableColumnPoster"/>
606           <col class="chartTableColumnTitle"/>
607           <col class="chartTableColumnIMDbRating"/>
608           <col class="chartTableColumnYourRating"/>
609           <col class="chartTableColumnWatchlistRibbon"/>
610         </colgroup>
611         <thead>
612         <tr>
613           <th></th>
614           <th>Rank &amp;amp; Title</th>
615           <th>IMDb Rating</th>
616           <th>Your Rating</th>
617           <th></th>
618         </tr>
619         </thead>
620         <tbody class="lister-list">
621
622   <tr>
623     <td class="posterColumn">
624
625     <span name="rk" data-value="1"></span>
626     <span name="ir" data-value="9.222796866017044"></span>
627     <span name="us" data-value="7.791552E11"></span>
628     <span name="nv" data-value="2297666"></span>
629     <span name="ur" data-value="-1.7772031339829564"></span>
630 <a href="/title/tt0111161/?pf_rd_m=A2FGELUUNOQJNL&pf_rd_p=e31d89dd-322d-4646-8962-
    327b42fe94b1&pf_rd_r=RP41R6C3PS7J108DDRNN&pf_rd_s=center-
    1&pf_rd_t=15506&pf_rd_i=top&ref_=chttp_tt_1"
631 > <img src="https://m.media-
    amazon.com/images/M/MV5BMDFkYTc0MGEtZmNhMC00ZDIzLWFmNTEtODM1ZmRlYWMwMWFmXkEyXkFqcGde
    QXVyMTMxODk2OTU@._V1_UY67_CR0,0,45,67_AL_.jpg" width="45" height="67" alt="The
    Shawshank Redemption"/>
632 </a>     </td>
```

First check if you're allowed!

```
library(robotstxt)
paths_allowed("http://www.imdb.com")
```

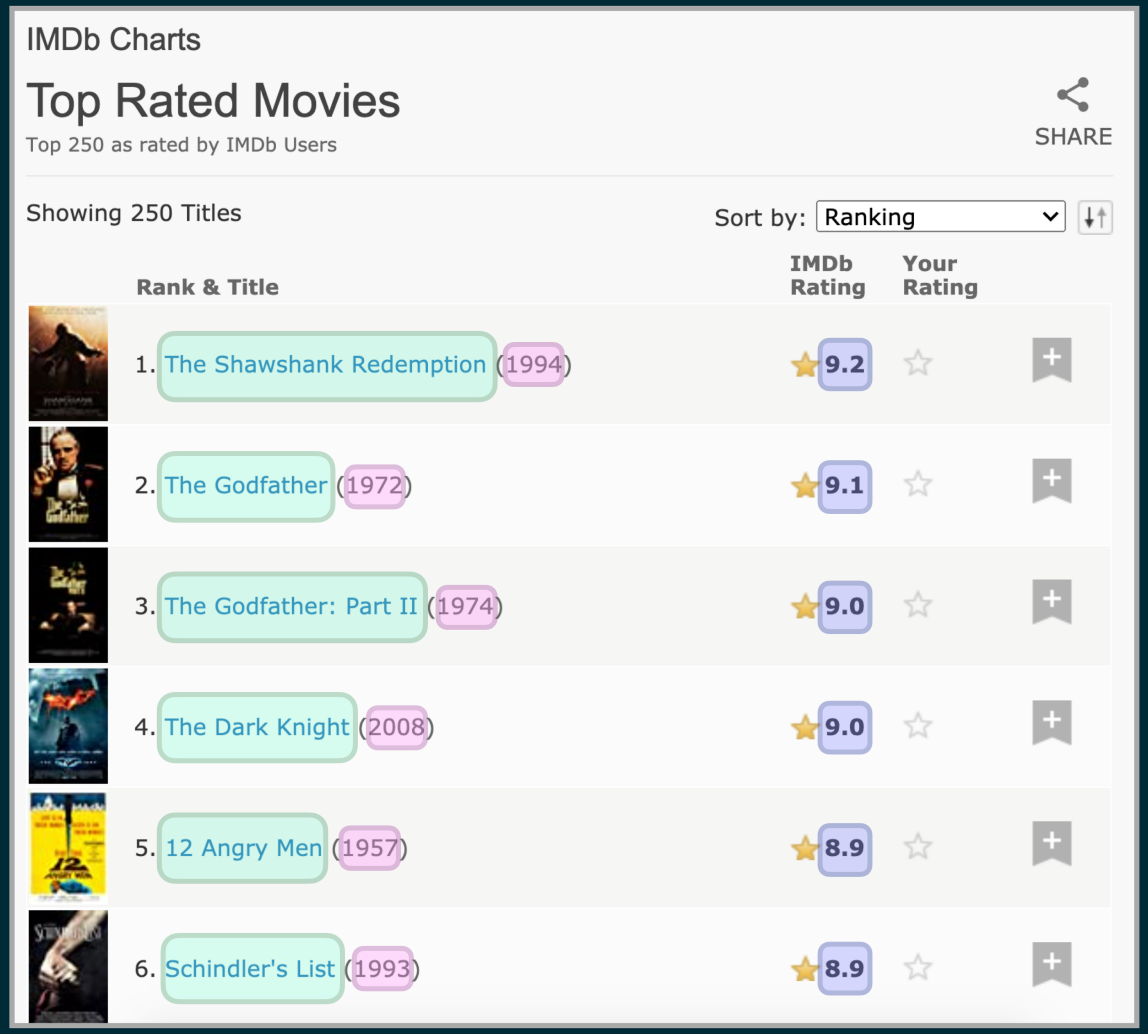
```
## [1] TRUE
```

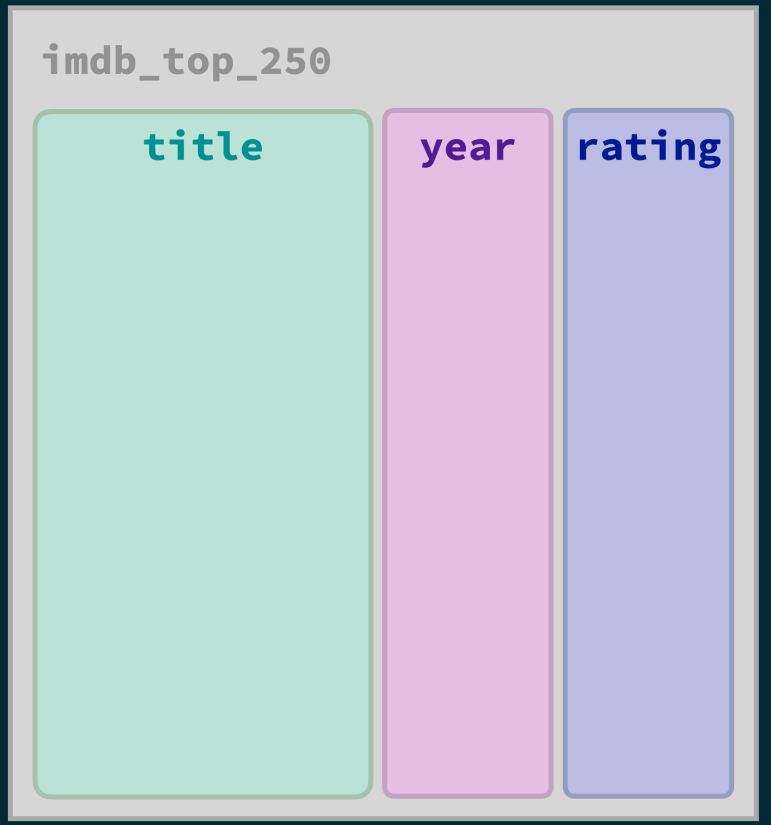
vs. e.g.

```
paths_allowed("http://www.facebook.com")
```

```
## [1] FALSE
```

Plan


IMDb Charts
Top Rated Movies
Top 250 as rated by IMDb Users
SHARE
Showing 250 Titles
Sort by: Ranking
Rank & Title
IMDb Rating
Your Rating
1. The Shawshank Redemption (1994) 9.2
2. The Godfather (1972) 9.1
3. The Godfather: Part II (1974) 9.0
4. The Dark Knight (2008) 9.0
5. 12 Angry Men (1957) 8.9
6. Schindler's List (1993) 8.9


imdb_top_250
title
year
rating

Plan

1. Read the whole page
2. Scrape movie titles and save as `titles`
3. Scrape years movies were made in and save as `years`
4. Scrape IMDB ratings and save as `ratings`
5. Create a data frame called `imdb_top_250` with variables `title`, `year`, and `rating`

CODE on RStudio Cloud

Step 1. Read the whole page

Read the whole page

```
page <- read_html("https://www.imdb.com/chart/top/")
page
```

```
## {html_document}
## <html xmlns:og="http://ogp.me/ns#" xmlns:fb="http://www.facebook.com/2008/fbml">
## [1] <head>\n<meta http-equiv="Content-Type" content="text/html ...
## [2] <body id="styleguide-v2" class="fixed">\n            <img  ...
```

A webpage in R

- Result is a list with 2 elements

```
typeof(page)
```

```
## [1] "list"
```

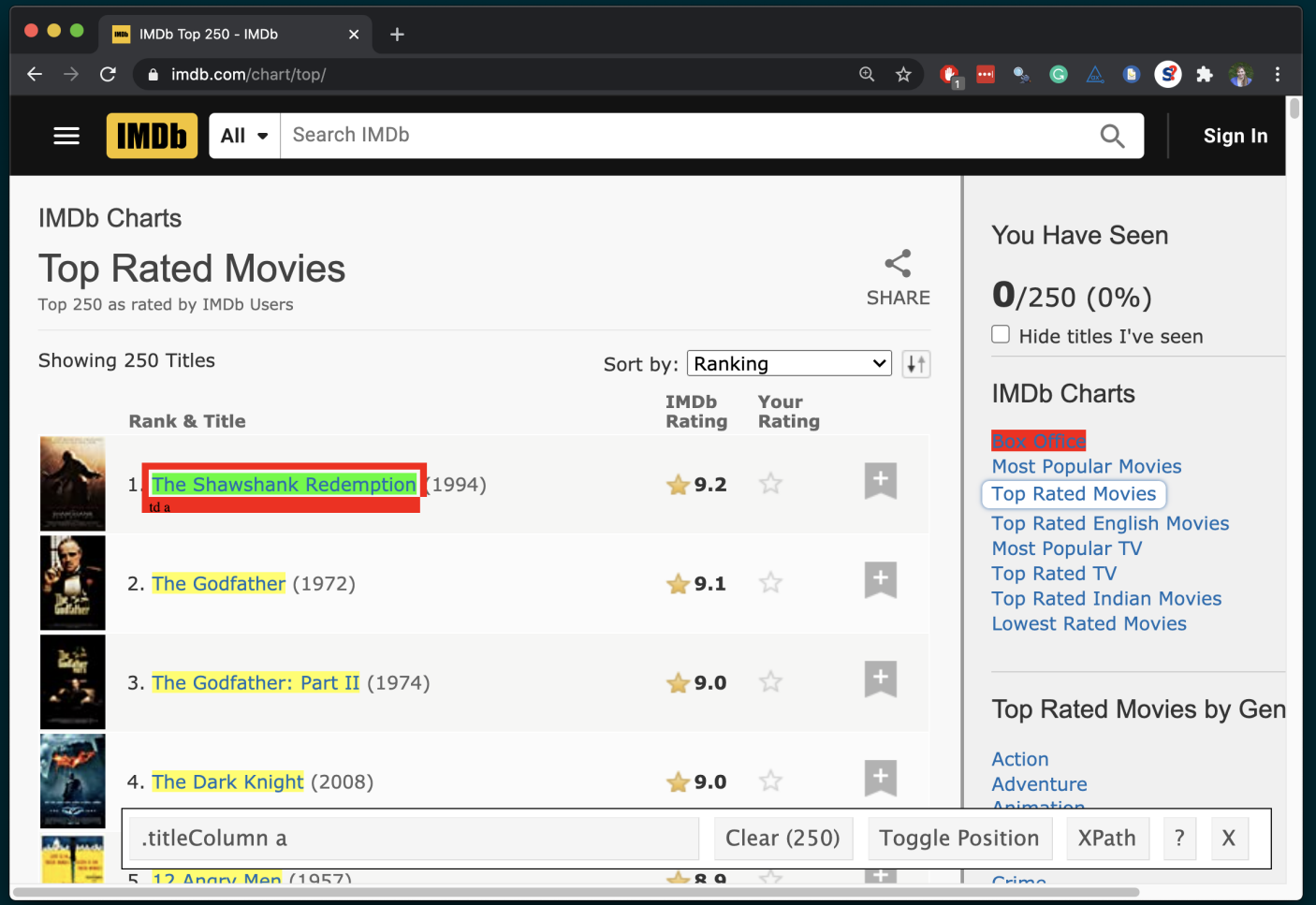
- that we need to convert to something more familiar, like a data frame....

```
class(page)
```

```
## [1] "xml_document" "xml_node"
```

Step 2. Scrape movie titles and save as `titles`

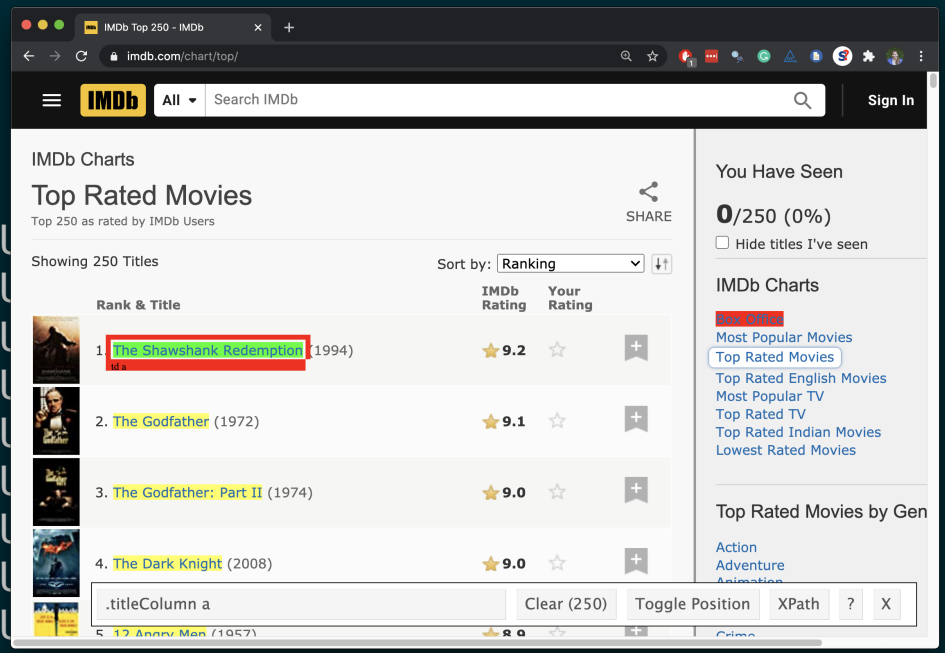
Scrape movie titles



Scrape the nodes

```
page %>%
  html_nodes(".titleColumn a")
```

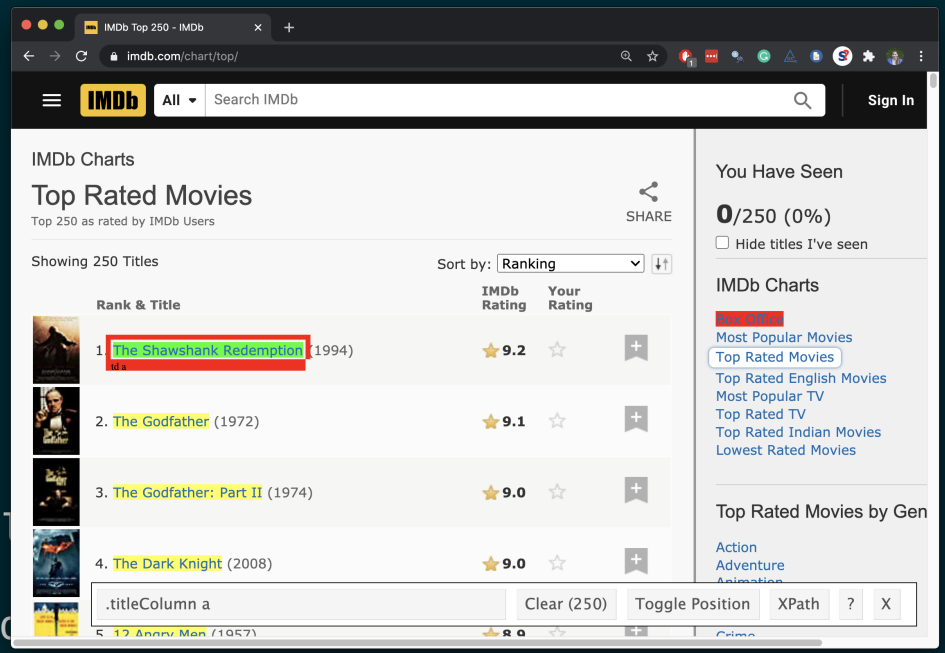
```
## {xml_nodeset (250)}
##  [1] <a href="/title/tt0111161/?pf_rd_m=A2FGELU
##  [2] <a href="/title/tt0068646/?pf_rd_m=A2FGELU
##  [3] <a href="/title/tt0468569/?pf_rd_m=A2FGELU
##  [4] <a href="/title/tt0071562/?pf_rd_m=A2FGELU
##  [5] <a href="/title/tt0050083/?pf_rd_m=A2FGELU
##  [6] <a href="/title/tt0108052/?pf_rd_m=A2FGELU
##  [7] <a href="/title/tt0167260/?pf_rd_m=A2FGELU
##  [8] <a href="/title/tt0110912/?pf_rd_m=A2FGELU
##  [9] <a href="/title/tt0120737/?pf_rd_m=A2FGELU
## [10] <a href="/title/tt0060196/?pf_rd_m=A2FGELUUNOQJNL&amp;pf_ ...
## [11] <a href="/title/tt0109830/?pf_rd_m=A2FGELUUNOQJNL&amp;pf_ ...
## [12] <a href="/title/tt0137523/?pf_rd_m=A2FGELUUNOQJNL&amp;pf_ ...
## [13] <a href="/title/tt1375666/?pf_rd_m=A2FGELUUNOQJNL&amp;pf_ ...
## [14] <a href="/title/tt0167261/?pf_rd_m=A2FGELUUNOQJNL&amp;pf_ ...
## [15] <a href="/title/tt0080684/?pf_rd_m=A2FGELUUNOQJNL&amp;pf_ ...
## [16] <a href="/title/tt0133093/?pf_rd_m=A2FGELUUNOQJNL&amp;pf_ ...
...
```



Extract the text from the nodes

```
page %>%
  html_nodes(".titleColumn a") %>%
  html_text()
```

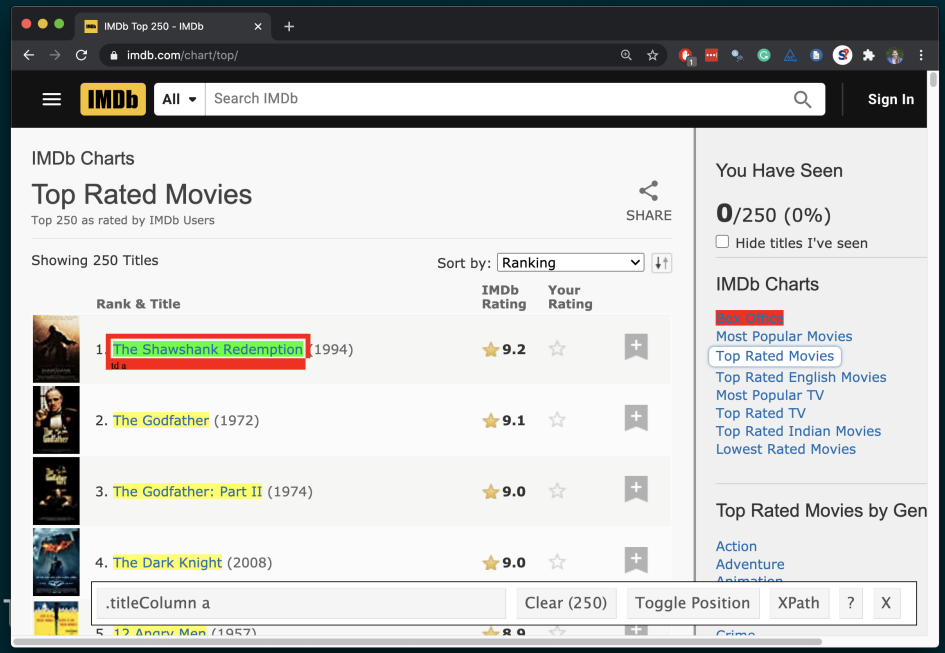
```
##   [1] "Le ali della libertà"
##   [2] "Il padrino"
##   [3] "Il cavaliere oscuro"
##   [4] "Il padrino - Parte II"
##   [5] "La parola ai giurati"
##   [6] "Schindler's List"
##   [7] "Il Signore degli Anelli - Il ritorno del
##   [8] "Pulp Fiction"
##   [9] "Il Signore degli Anelli - La compagnia d
##  [10] "Il buono, il brutto, il cattivo"
##  [11] "Forrest Gump"
##  [12] "Fight Club"
##  [13] "Inception"
##  [14] "Il Signore degli Anelli - Le due torri"
##  [15] "L'Impero colpisce ancora"
##  [16] "Matrix"
...
```



Save as `titles`

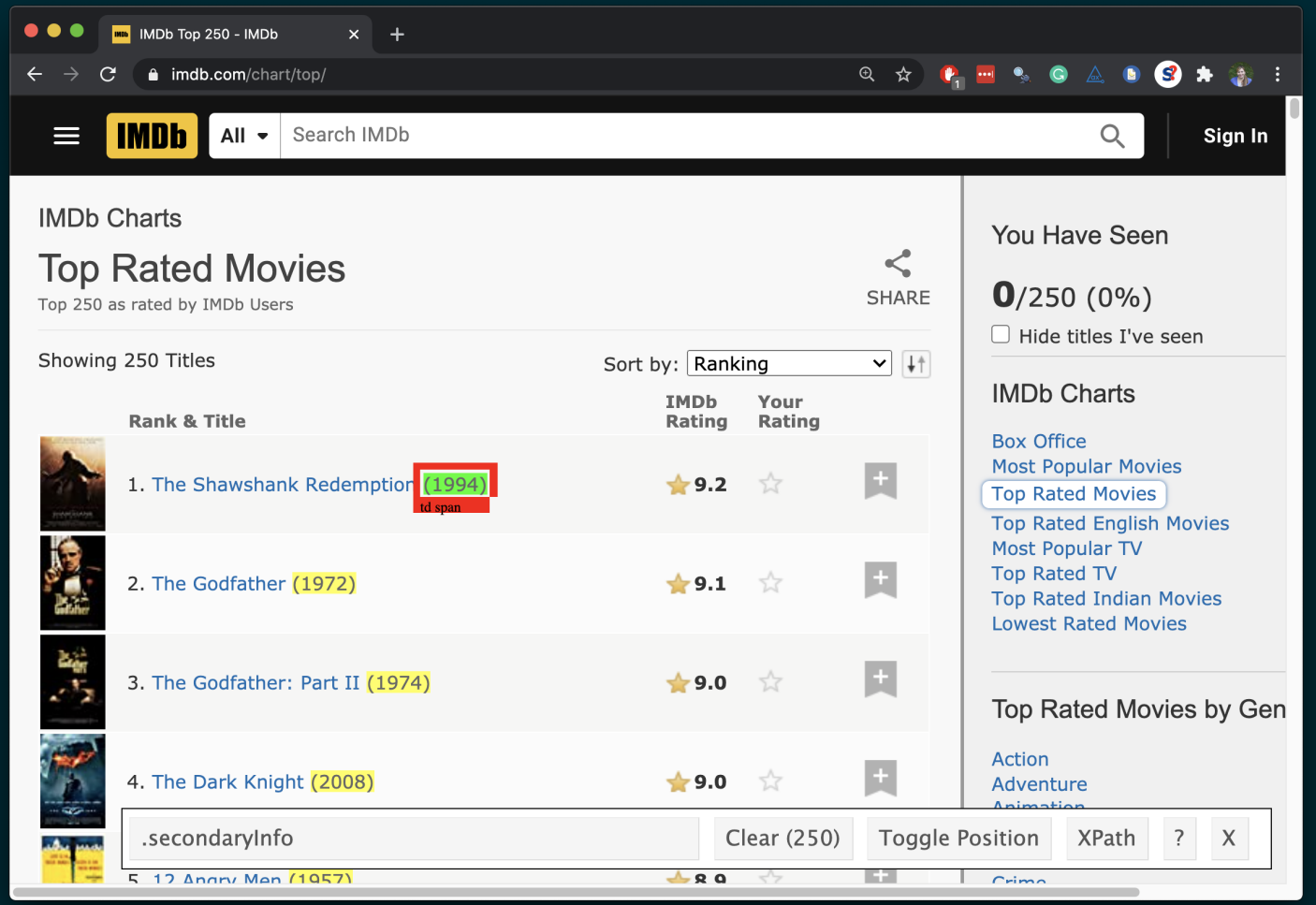
```
titles <- page %>%
  html_nodes(".titleColumn a") %>%
  html_text()

titles
```

```
##   [1] "Le ali della libertà"
##   [2] "Il padrino"
##   [3] "Il cavaliere oscuro"
##   [4] "Il padrino - Parte II"
##   [5] "La parola ai giurati"
##   [6] "Schindler's List"
##   [7] "Il Signore degli Anelli - Il ritorno del
##   [8] "Pulp Fiction"
##   [9] "Il Signore degli Anelli - La compagnia dell'Anello"
##  [10] "Il buono, il brutto, il cattivo"
##  [11] "Forrest Gump"
##  [12] "Fight Club"
##  [13] "Inception"
##  [14] "Il Signore degli Anelli - Le due torri"
...
```



Step 3. Scrape year movies were made and save as `years`

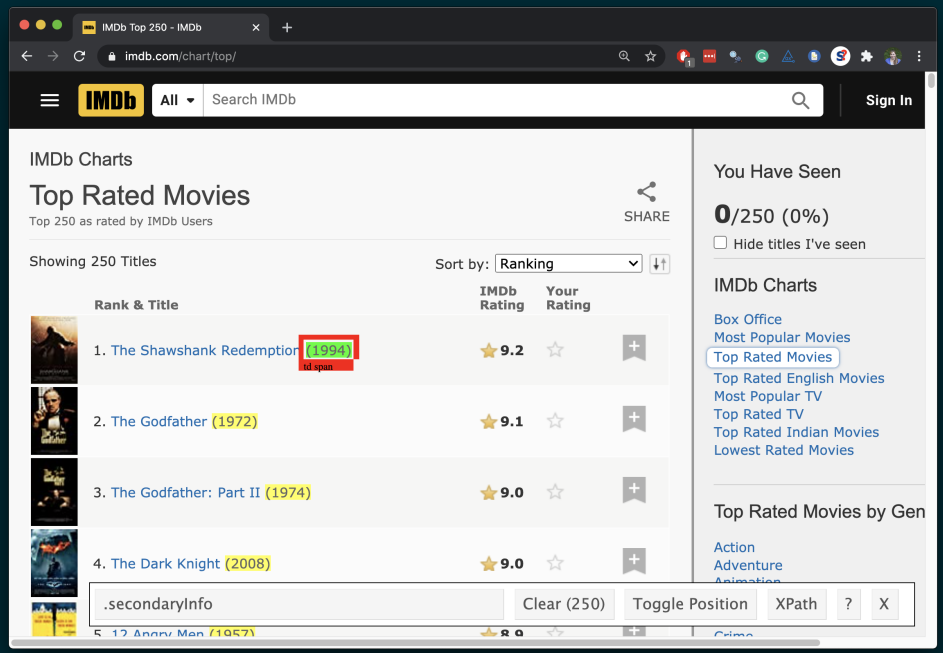
Scrape years movies were made in



Scrape the nodes

```
page %>%
  html_nodes(".secondaryInfo")
```

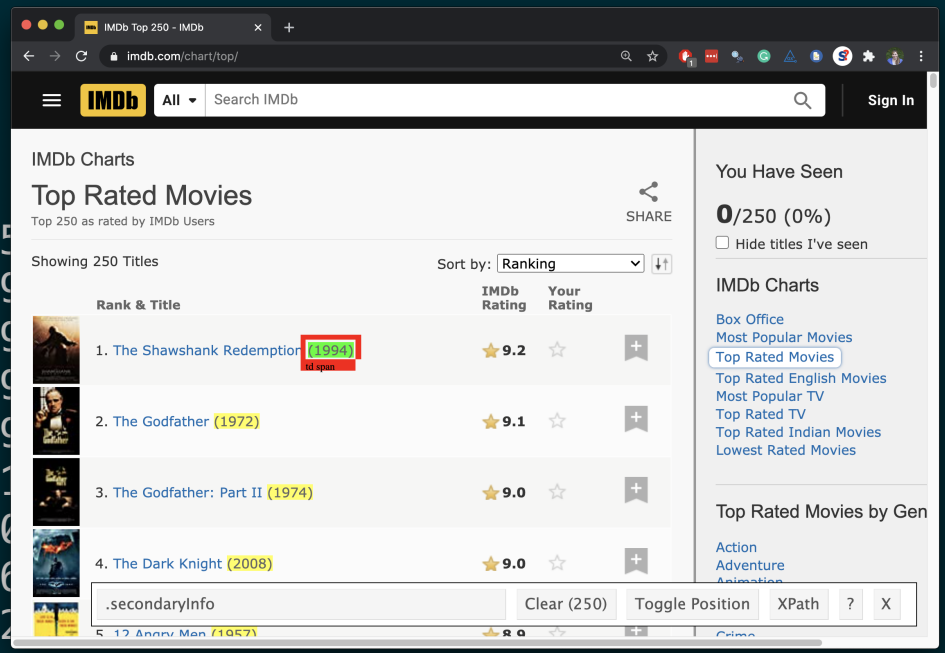
```
## {xml_nodeset (250)}
##  [1] <span class="secondaryInfo">(1994)</span>
##  [2] <span class="secondaryInfo">(1972)</span>
##  [3] <span class="secondaryInfo">(2008)</span>
##  [4] <span class="secondaryInfo">(1974)</span>
##  [5] <span class="secondaryInfo">(1957)</span>
##  [6] <span class="secondaryInfo">(1993)</span>
##  [7] <span class="secondaryInfo">(2003)</span>
##  [8] <span class="secondaryInfo">(1994)</span>
##  [9] <span class="secondaryInfo">(2001)</span>
## [10] <span class="secondaryInfo">(1966)</span>
## [11] <span class="secondaryInfo">(1994)</span>
## [12] <span class="secondaryInfo">(1999)</span>
## [13] <span class="secondaryInfo">(2010)</span>
## [14] <span class="secondaryInfo">(2002)</span>
## [15] <span class="secondaryInfo">(1980)</span>
## [16] <span class="secondaryInfo">(1999)</span>
...
```



Extract the text from the nodes

```
page %>%
  html_nodes(".secondaryInfo") %>%
  html_text()
```

```
##   [1] "(1994)" "(1972)" "(2008)" "(1974)" "(195
##   [7] "(2003)" "(1994)" "(2001)" "(1966)" "(199
##  [13] "(2010)" "(2002)" "(1980)" "(1999)" "(199
##  [19] "(1995)" "(1954)" "(1946)" "(1991)" "(199
##  [25] "(1997)" "(1999)" "(1977)" "(2014)" "(199
##  [31] "(2001)" "(1960)" "(1994)" "(2002)" "(201
##  [37] "(2000)" "(1998)" "(1995)" "(2006)" "(200
##  [43] "(2014)" "(2011)" "(1936)" "(1968)" "(196
##  [49] "(1979)" "(1954)" "(1931)" "(2000)" "(202
##  [55] "(1988)" "(1981)" "(2012)" "(2008)" "(2006)" "(1950)"
##  [61] "(1980)" "(1957)" "(1940)" "(2018)" "(1957)" "(1986)"
##  [67] "(1999)" "(2012)" "(1964)" "(2019)" "(2018)" "(2003)"
##  [73] "(1995)" "(1995)" "(1984)" "(2017)" "(2009)" "(1981)"
##  [79] "(2019)" "(1997)" "(1984)" "(1997)" "(2010)" "(2000)"
##  [85] "(2009)" "(2016)" "(1952)" "(1983)" "(1992)" "(2004)"
##  [91] "(1968)" "(2022)" "(1963)" "(1941)" "(1962)" "(2018)"
...
```



Clean up the text

We need to go from `"(1994)"` to `1994`:

- Remove `(` and `)`: string manipulation
- Convert to numeric: `as.numeric()`

stringr

- **stringr** provides a cohesive set of functions designed to make working with strings as easy as possible
- Functions in stringr start with `str_*()`, e.g.
  - `str_remove()` to remove a pattern from a string

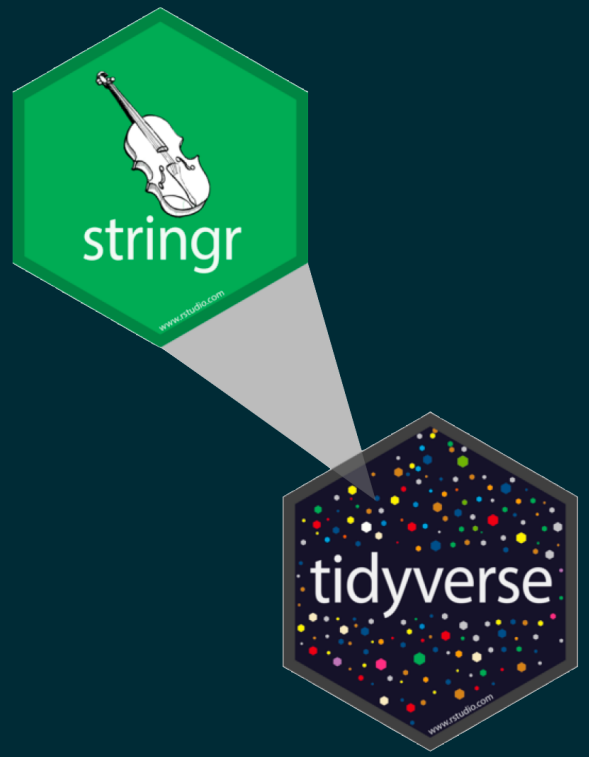
```
str_remove(string = "jello", pattern = "el")
```

```
## [1] "jlo"
```

  - `str_replace()` to replace a pattern with another

```
str_replace(string = "jello", pattern = "j", replacement =
```

```
## [1] "hello"
```



Clean up the text

```
page %>%
  html_nodes(".secondaryInfo") %>%
  html_text() %>%
  str_remove("\\(") # remove (
```

```
##   [1] "1994)" "1972)" "2008)" "1974)" "1957)" "1993)" "2003)"
##   [8] "1994)" "2001)" "1966)" "1994)" "1999)" "2010)" "2002)"
##  [15] "1980)" "1999)" "1990)" "1975)" "1995)" "1954)" "1946)"
##  [22] "1991)" "1998)" "2002)" "1997)" "1999)" "1977)" "2014)"
##  [29] "1991)" "1985)" "2001)" "1960)" "1994)" "2002)" "2019)"
##  [36] "1994)" "2000)" "1998)" "1995)" "2006)" "2006)" "1942)"
##  [43] "2014)" "2011)" "1936)" "1968)" "1962)" "1988)" "1979)"
##  [50] "1954)" "1931)" "2000)" "2021)" "1979)" "1988)" "1981)"
##  [57] "2012)" "2008)" "2006)" "1950)" "1980)" "1957)" "1940)"
##  [64] "2018)" "1957)" "1986)" "1999)" "2012)" "1964)" "2019)"
##  [71] "2018)" "2003)" "1995)" "1995)" "1984)" "2017)" "2009)"
##  [78] "1981)" "2019)" "1997)" "1984)" "1997)" "2010)" "2000)"
##  [85] "2009)" "2016)" "1952)" "1983)" "1992)" "2004)" "1968)"
##  [92] "2022)" "1963)" "1941)" "1962)" "2018)" "1931)" "1959)"
##  [99] "2012)" "1958)" "2001)" "1971)" "1987)" "1983)" "1944)"
...
```

Clean up the text

```
page %>%
  html_nodes(".secondaryInfo") %>%
  html_text() %>%
  str_remove("\\(") %>% # remove (
  str_remove("\\)") # remove )
```

```
##   [1] "1994" "1972" "2008" "1974" "1957" "1993" "2003" "1994"
##   [9] "2001" "1966" "1994" "1999" "2010" "2002" "1980" "1999"
##  [17] "1990" "1975" "1995" "1954" "1946" "1991" "1998" "2002"
##  [25] "1997" "1999" "1977" "2014" "1991" "1985" "2001" "1960"
##  [33] "1994" "2002" "2019" "1994" "2000" "1998" "1995" "2006"
##  [41] "2006" "1942" "2014" "2011" "1936" "1968" "1962" "1988"
##  [49] "1979" "1954" "1931" "2000" "2021" "1979" "1988" "1981"
##  [57] "2012" "2008" "2006" "1950" "1980" "1957" "1940" "2018"
##  [65] "1957" "1986" "1999" "2012" "1964" "2019" "2018" "2003"
##  [73] "1995" "1995" "1984" "2017" "2009" "1981" "2019" "1997"
##  [81] "1984" "1997" "2010" "2000" "2009" "2016" "1952" "1983"
##  [89] "1992" "2004" "1968" "2022" "1963" "1941" "1962" "2018"
##  [97] "1931" "1959" "2012" "1958" "2001" "1971" "1987" "1983"
## [105] "1944" "1985" "1960" "1976" "1962" "1973" "2009" "2020"
...
```

Convert to numeric

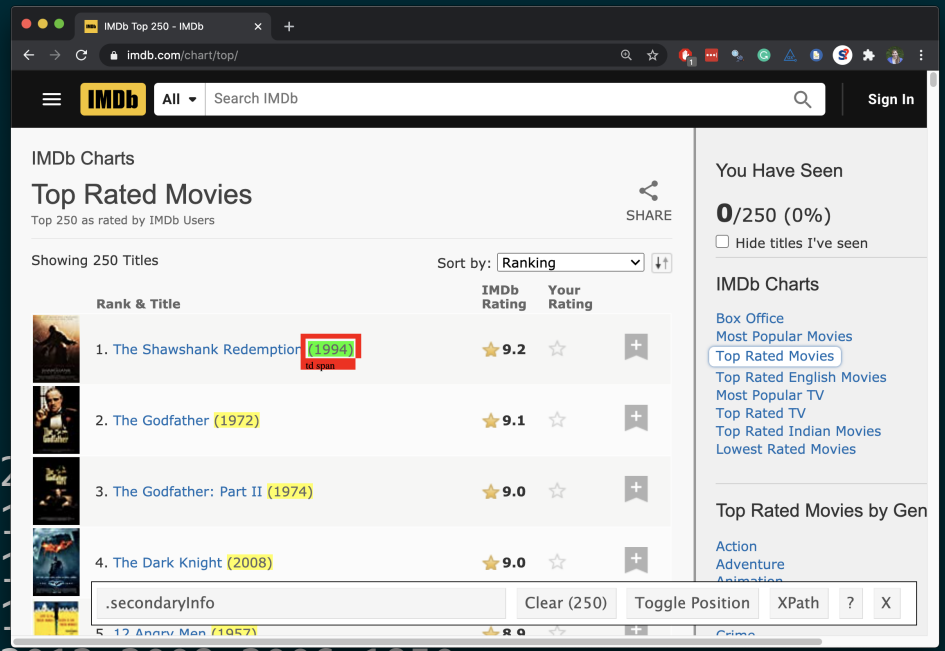
```
page %>%
  html_nodes(".secondaryInfo") %>%
  html_text() %>%
  str_remove("\\(") %>% # remove (
  str_remove("\\)") %>% # remove )
  as.numeric()
```

```
##   [1] 1994 1972 2008 1974 1957 1993 2003 1994 2001 1966 1994 1999
##  [13] 2010 2002 1980 1999 1990 1975 1995 1954 1946 1991 1998 2002
##  [25] 1997 1999 1977 2014 1991 1985 2001 1960 1994 2002 2019 1994
##  [37] 2000 1998 1995 2006 2006 1942 2014 2011 1936 1968 1962 1988
##  [49] 1979 1954 1931 2000 2021 1979 1988 1981 2012 2008 2006 1950
##  [61] 1980 1957 1940 2018 1957 1986 1999 2012 1964 2019 2018 2003
##  [73] 1995 1995 1984 2017 2009 1981 2019 1997 1984 1997 2010 2000
##  [85] 2009 2016 1952 1983 1992 2004 1968 2022 1963 1941 1962 2018
##  [97] 1931 1959 2012 1958 2001 1971 1987 1983 1944 1985 1960 1976
## [109] 1962 1973 2009 2020 1997 1995 1952 2000 1988 1989 2011 1927
## [121] 1948 2010 2019 2007 2005 1965 2016 2004 1921 1959 2020 1950
## [133] 2018 2013 1992 1995 2006 1961 1985 2001 1999 1975 2007 1998
## [145] 1961 1948 2010 1963 1950 1993 2003 2003 2007 1980 1980 2005
...
```

Save as years

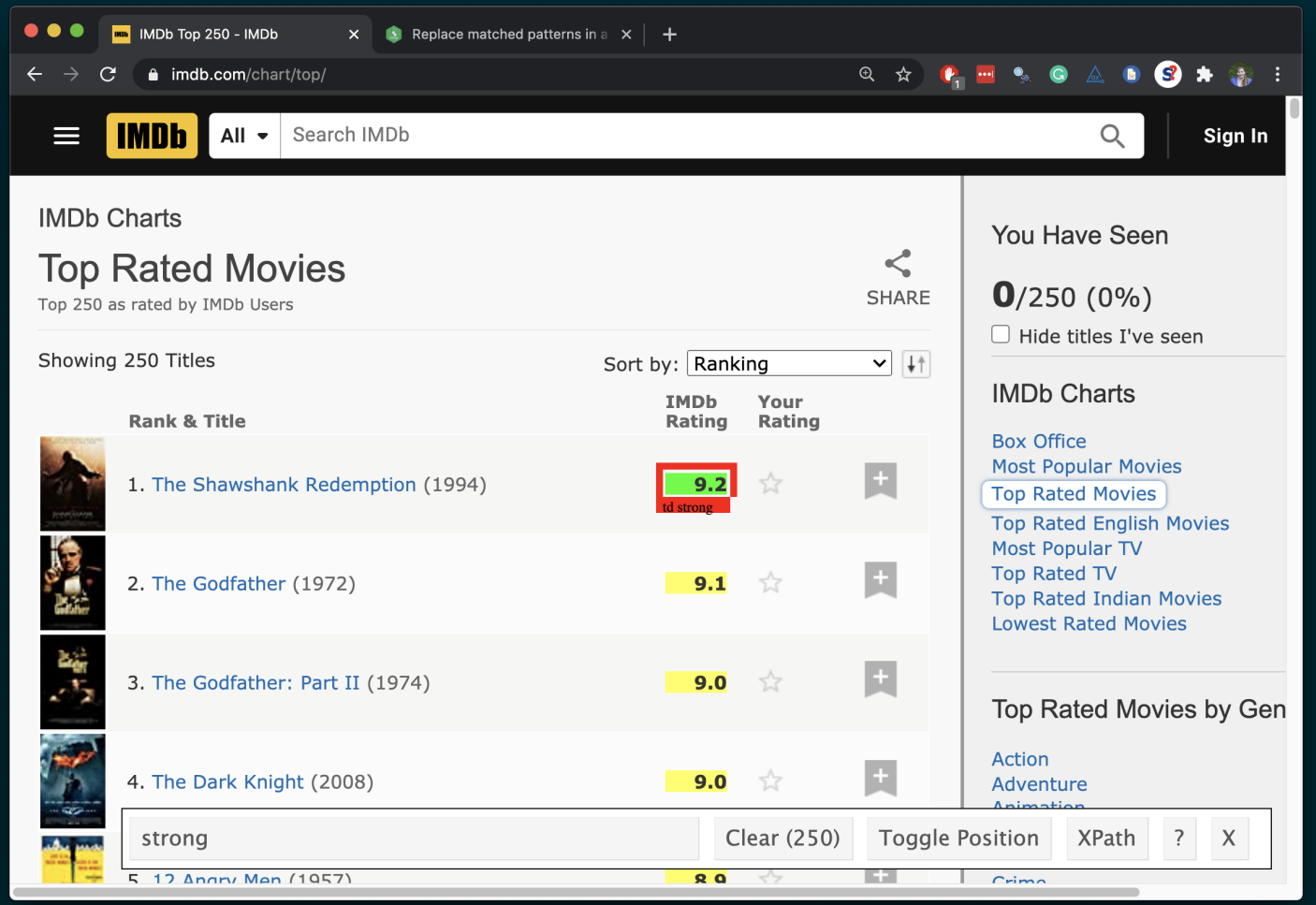
```
years <- page %>%
  html_nodes(".secondaryInfo") %>%
  html_text() %>%
  str_remove("\\(") %>% # remove (
  str_remove("\\)") %>% # remove )
  as.numeric()

years
```

```
##   [1] 1994 1972 2008 1974 1957 1993 2003 1994 2
##  [13] 2010 2002 1980 1999 1990 1975 1995 1954 1
##  [25] 1997 1999 1977 2014 1991 1985 2001 1960 1
##  [37] 2000 1998 1995 2006 2006 1942 2014 2011 1
##  [49] 1979 1954 1931 2000 2021 1979 1988 1981 2012 2008 2006 1950
##  [61] 1980 1957 1940 2018 1957 1986 1999 2012 1964 2019 2018 2003
##  [73] 1995 1995 1984 2017 2009 1981 2019 1997 1984 1997 2010 2000
##  [85] 2009 2016 1952 1983 1992 2004 1968 2022 1963 1941 1962 2018
##  [97] 1931 1959 2012 1958 2001 1971 1987 1983 1944 1985 1960 1976
## [109] 1962 1973 2009 2020 1997 1995 1952 2000 1988 1989 2011 1927
## [121] 1948 2010 2019 2007 2005 1965 2016 2004 1921 1959 2020 1950
...
```



Step 4. Scrape IMDB ratings and save as `ratings`

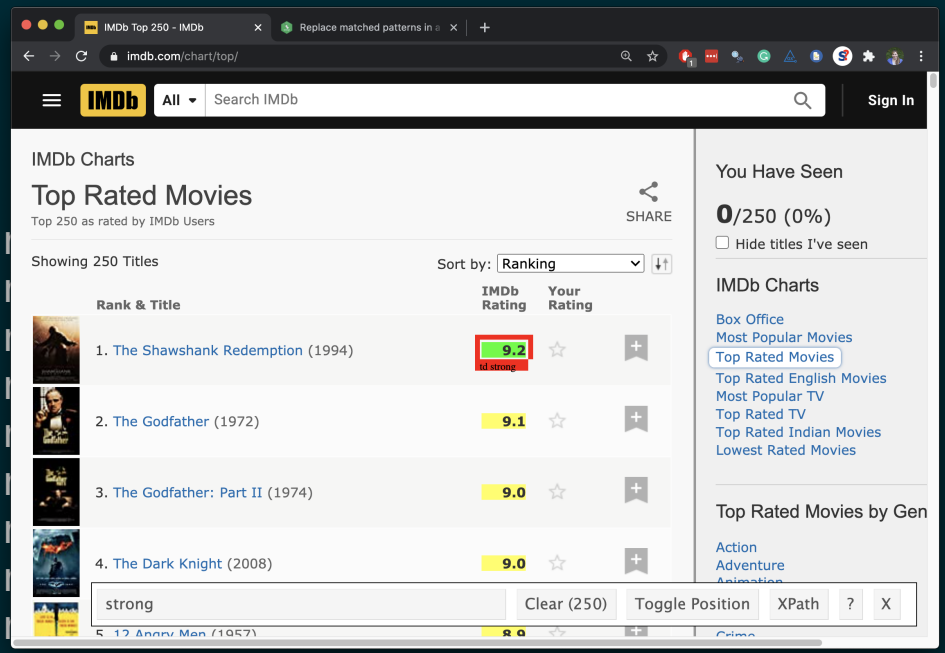
Scrape IMDB ratings



Scrape the nodes

```
page %>%
  html_nodes("strong")
```

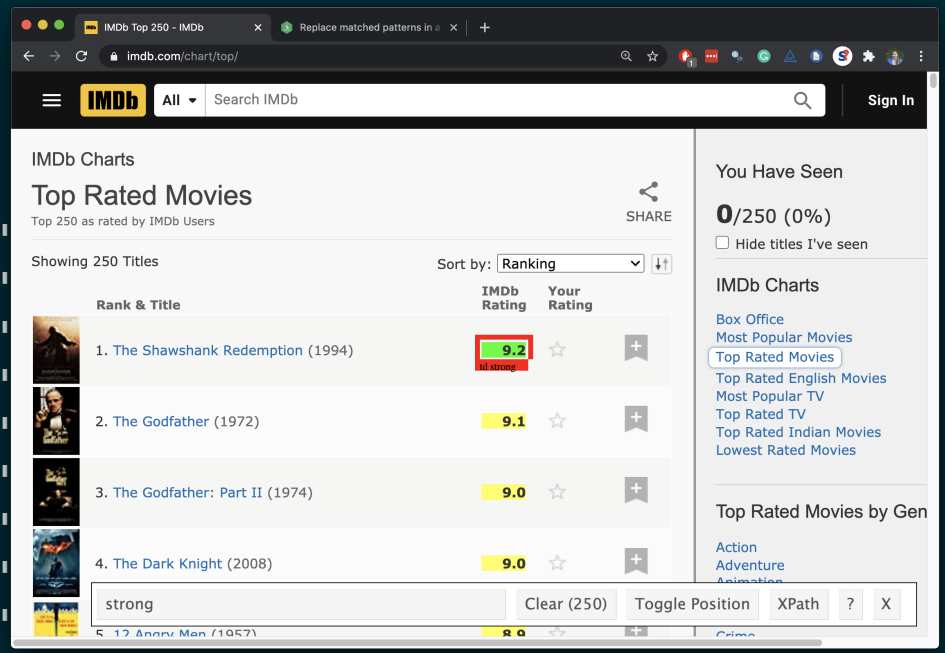
```
## {xml_nodeset (250)}
##  [1] <strong title="9.2 based on 2,558,546 use
##  [2] <strong title="9.2 based on 1,761,325 use
##  [3] <strong title="9.0 based on 2,517,692 use
##  [4] <strong title="9.0 based on 1,219,807 use
##  [5] <strong title="9.0 based on 755,995 user
##  [6] <strong title="8.9 based on 1,304,902 use
##  [7] <strong title="8.9 based on 1,762,297 use
##  [8] <strong title="8.9 based on 1,966,034 use
##  [9] <strong title="8.8 based on 1,784,202 use
## [10] <strong title="8.8 based on 737,009 user ratings">8.8</st ...
## [11] <strong title="8.8 based on 1,974,403 user ratings">8.8</ ...
## [12] <strong title="8.8 based on 2,014,071 user ratings">8.8</ ...
## [13] <strong title="8.7 based on 2,246,746 user ratings">8.7</ ...
## [14] <strong title="8.7 based on 1,592,153 user ratings">8.7</ ...
## [15] <strong title="8.7 based on 1,239,388 user ratings">8.7</ ...
## [16] <strong title="8.7 based on 1,843,856 user ratings">8.7</ ...
...
```



Extract the text from the nodes

```
page %>%
  html_nodes("strong") %>%
  html_text()
```

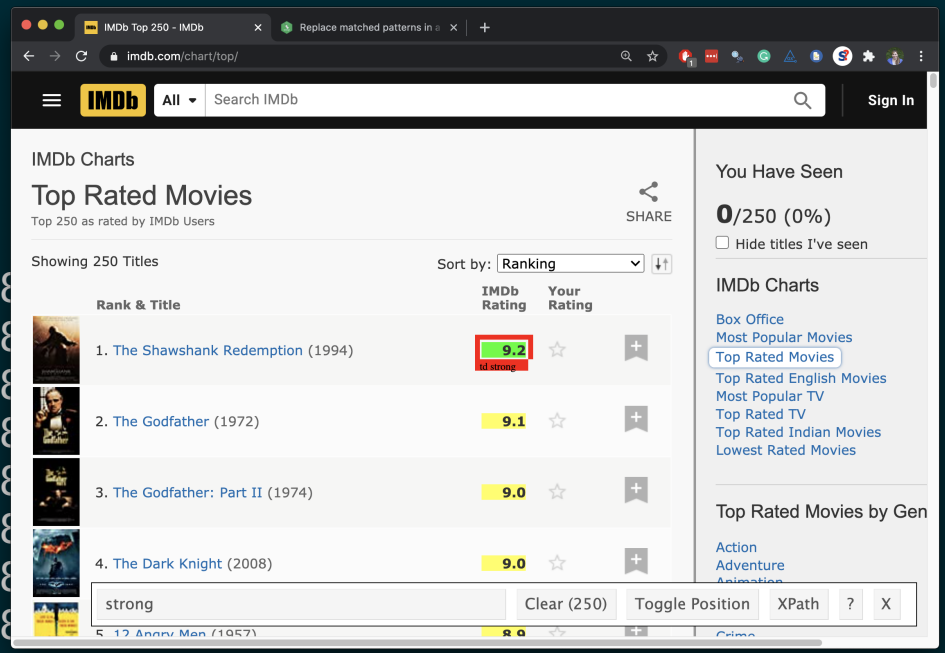
```
##   [1] "9.2" "9.2" "9.0" "9.0" "9.0" "8.9" "8.9"
##  [11] "8.8" "8.8" "8.7" "8.7" "8.7" "8.7" "8.7"
##  [21] "8.6" "8.6" "8.6" "8.6" "8.6" "8.6" "8.6"
##  [31] "8.5" "8.5" "8.5" "8.5" "8.5" "8.5" "8.5"
##  [41] "8.5" "8.5" "8.5" "8.5" "8.5" "8.5" "8.5"
##  [51] "8.4" "8.4" "8.4" "8.4" "8.4" "8.4" "8.4"
##  [61] "8.4" "8.4" "8.4" "8.4" "8.4" "8.4" "8.3"
##  [71] "8.3" "8.3" "8.3" "8.3" "8.3" "8.3" "8.3"
##  [81] "8.3" "8.3" "8.3" "8.3" "8.3" "8.3" "8.3"
##  [91] "8.3" "8.3" "8.3" "8.3" "8.3" "8.3" "8.3" "8.3" "8.3" "8.3"
## [101] "8.3" "8.3" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2"
## [111] "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2"
## [121] "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2"
## [131] "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2"
## [141] "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.2" "8.1" "8.1"
## [151] "8.1" "8.1" "8.1" "8.1" "8.1" "8.1" "8.1" "8.1" "8.1" "8.1"
...
```



Convert to numeric

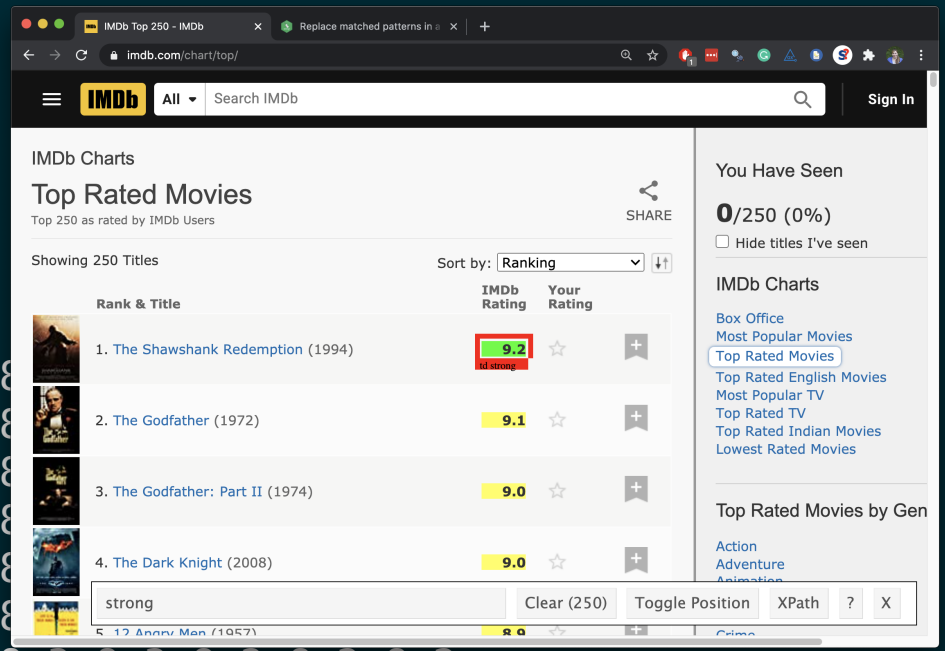
```
page %>%
  html_nodes("strong") %>%
  html_text() %>%
  as.numeric()
```

```
##   [1] 9.2 9.2 9.0 9.0 9.0 8.9 8.9 8.9 8.8 8.8 8
##  [16] 8.7 8.7 8.6 8.6 8.6 8.6 8.6 8.6 8.6 8.6 8
##  [31] 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8
##  [46] 8.5 8.5 8.5 8.4 8.4 8.4 8.4 8.4 8.4 8.4 8
##  [61] 8.4 8.4 8.4 8.4 8.4 8.4 8.3 8.3 8.3 8.3 8
##  [76] 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8
##  [91] 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8
## [106] 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8
## [121] 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2
## [136] 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.1 8.1
## [151] 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1
## [166] 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1
## [181] 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1
## [196] 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1
## [211] 8.1 8.1 8.1 8.1 8.1 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0
...
```



Save as `ratings`

```
ratings <- page %>%
  html_nodes("strong") %>%
  html_text() %>%
  as.numeric()

ratings
```




```
##   [1] 9.2 9.2 9.0 9.0 9.0 8.9 8.9 8.9 8.8 8.8 8
##  [16] 8.7 8.7 8.6 8.6 8.6 8.6 8.6 8.6 8.6 8.6 8
##  [31] 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8.5 8
##  [46] 8.5 8.5 8.5 8.4 8.4 8.4 8.4 8.4 8.4 8.4 8
##  [61] 8.4 8.4 8.4 8.4 8.4 8.4 8.3 8.3 8.3 8.3 8
##  [76] 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8
##  [91] 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8.3 8.2 8.2 8.2
## [106] 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2
## [121] 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2
## [136] 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.2 8.1 8.1
## [151] 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1
## [166] 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1 8.1
...
```

Step 5. Create a data frame called `imdb_top_250`

Create a data frame: imdb_top_250

```
imdb_top_250 <- tibble(
  title = titles,
  year = years,
  rating = ratings
  )

imdb_top_250
```

```
## # A tibble: 250 × 3
##   title                    year rating
##   <chr>                   <dbl>  <dbl>
## 1 Le ali della libertà     1994    9.2
## 2 Il padrino               1972    9.2
## 3 Il cavaliere oscuro      2008    9
## 4 Il padrino - Parte II    1974    9
## 5 La parola ai giurati     1957    9
## 6 Schindler's List         1993    8.9
## # … with 244 more rows
```

Show 10 entries Search:

	title	year	rating
1	Le ali della libertà	1994	9.2
2	Il padrino	1972	9.2
3	Il cavaliere oscuro	2008	9
4	Il padrino - Parte II	1974	9
5	La parola ai giurati	1957	9
6	Schindler's List	1993	8.9
7	Il Signore degli Anelli - Il ritorno del re	2003	8.9
8	Pulp Fiction	1994	8.9
9	Il Signore degli Anelli - La compagnia dell'Anello	2001	8.8
10	Il buono, il brutto, il cattivo	1966	8.8

Clean up / enhance

May or may not be a lot of work depending on how messy the data are

- See if you like what you got:

```
glimpse(imdb_top_250)
```

```
## Rows: 250
## Columns: 3
## $ title  <chr> "Le ali della libertà", "Il padrino", "Il cavali…
## $ year   <dbl> 1994, 1972, 2008, 1974, 1957, 1993, 2003, 1994, …
## $ rating <dbl> 9.2, 9.2, 9.0, 9.0, 9.0, 8.9, 8.9, 8.9, 8.8, 8.8…
```

- Add a variable for rank

```
imdb_top_250 <- imdb_top_250 %>%
  mutate(rank = 1:nrow(imdb_top_250)) %>%
  relocate(rank)
```

```
## # A tibble: 250 × 4
##     rank title                                    year rating
##    <int> <chr>                                   <dbl>  <dbl>
##  1     1 Le ali della libertà                     1994    9.2
##  2     2 Il padrino                               1972    9.2
##  3     3 Il cavaliere oscuro                      2008    9
##  4     4 Il padrino - Parte II                    1974    9
##  5     5 La parola ai giurati                     1957    9
##  6     6 Schindler's List                         1993    8.9
##  7     7 Il Signore degli Anelli - Il ritorno del re  2003    8.9
##  8     8 Pulp Fiction                             1994    8.9
##  9     9 Il Signore degli Anelli - La compagnia del…  2001    8.8
## 10    10 Il buono, il brutto, il cattivo          1966    8.8
## 11    11 Forrest Gump                             1994    8.8
## 12    12 Fight Club                               1999    8.8
## 13    13 Inception                                2010    8.7
## 14    14 Il Signore degli Anelli - Le due torri   2002    8.7
## 15    15 L'Impero colpisce ancora                 1980    8.7
## 16    16 Matrix                                   1999    8.7
## 17    17 Quei bravi ragazzi                       1990    8.7
## 18    18 Qualcuno volò sul nido del cuculo        1975    8.6
## 19    19 Seven                                    1995    8.6
## 20    20 I sette samurai                          1954    8.6
## # … with 230 more rows
```

What next?

Which years have the most movies on the list?

```
imdb_top_250 %>%
  count(year, sort = TRUE)
```

```
## # A tibble: 86 × 2
##    year     n
##   <dbl> <int>
## 1  1995     8
## 2  2004     7
## 3  1957     6
## 4  2003     6
## 5  2009     6
## 6  2019     6
## # … with 80 more rows
```

Which 1995 movies made the list?

```
imdb_top_250 %>%
  filter(year == 1995) %>%
  print(n = 8)
```

```
## # A tibble: 8 × 4
##    rank title                                 year rating
##   <int> <chr>                                <dbl>  <dbl>
## 1    19 Seven                                 1995    8.6
## 2    39 I soliti sospetti                     1995    8.5
## 3    73 Braveheart - Cuore impavido           1995    8.3
## 4    74 Toy Story - Il mondo dei giocattoli   1995    8.3
## 5   114 Heat - La sfida                       1995    8.2
## 6   136 Casinò                                1995    8.2
## 7   187 Prima dell'alba                       1995    8.1
## 8   244 L'odio                                1995    8
```

Visualize the average yearly rating for movies that made it on the top 250 list over time.

Plot Code