Data_607_Assign_6_Web_APIs_rmd

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The New York Times web site provides a rich set of APIs, as described here: https://developer. nytimes.com/apis I need to start by signing up for an API key at https://developer.nytimes. com/apis. My task is to choose one of the New York Times APIs, construct an interface in R to read in the JSON data, and transform it into an R DataFrame.

In the website https://developer.nytimes.com/apis, I chose Books API. This API provides information about book reviews and The New York Times Best Sellers lists. I specifically chose the hardcover fiction books published on 12/19/2015. My API key is, **9Lw2tR3uDWImY2ScuKheW7cBa49SrOrG** and my url is https://api.nytimes.com/svc/ books/v3/lists/2015-12-19/hardcover-fiction.json.

```
# Uploaded libraries.

library(httr)
library(RCurl)
library(jsonlite)
library(RJSONIO)
```

```
##
## Attaching package: 'RJSONIO'
```

```
## The following objects are masked from 'package:jsonlite':
##
##     fromJSON, toJSON
```

```
library(rjson)
```

```
##
## Attaching package: 'rjson'
```

```
## The following objects are masked from 'package:RJSONIO':
##
##     fromJSON, toJSON
```

```
## The following objects are masked from 'package:jsonlite':
##
##     fromJSON, toJSON
```

```r
library(tidyverse)
```

```
## -- Attaching packages ------------------------------------- tidyverse 1.3.2 --
```

```
## v ggplot2 3.3.6      v purrr   0.3.4
## v tibble  3.1.8      v dplyr   1.0.9
## v tidyr   1.2.0      v stringr 1.4.1
## v readr   2.1.2      v forcats 0.5.2
## -- Conflicts ----------------------------------------- tidyverse_conflicts() --
## x tidyr::complete() masks RCurl::complete()
## x dplyr::filter()   masks stats::filter()
## x purrr::flatten()  masks jsonlite::flatten()
## x rjson::fromJSON() masks RJSONIO::fromJSON(), jsonlite::fromJSON()
## x dplyr::lag()      masks stats::lag()
## x rjson::toJSON()   masks RJSONIO::toJSON(), jsonlite::toJSON()
```

Using The NY Time Books API I created the url for the best seller hardcover fiction books published on 12/19/2015 and added the access key and combined url and the key with the paste function.

```r
enid_url <- 'https://api.nytimes.com/svc/books/v3/lists/2015-12-19/hardcover-fiction.json'

enid_api_key <- '9Lw2tR3uDWImY2ScuKheW7cBa49SrOrG'

enid_paste <- paste(enid_url,'?api-key=',enid_api_key, sep = '')

# Calling the API.

raw_review <- httr::GET(enid_paste)

# Checking if API was called in successful.
raw_review$status_code
```

```
## [1] 200
```

```r
# Checked current raw state.

api_raw <- rawToChar(raw_review$content)

api_raw
```

```
## [1] "{\"status\":\"OK\",\"copyright\":\"Copyright (c) 2022 The New York Times Company.  All Rights R
```

```r
# Read content in JSON format and de-serializes it into R objects. Flattening function remove a level h

api_json_list <- jsonlite::fromJSON(api_raw, flatten=TRUE)

api_json_list
```

```
## $status
## [1] "OK"
##
## $copyright
## [1] "Copyright (c) 2022 The New York Times Company.  All Rights Reserved."
##
## $num_results
## [1] 20
##
## $last_modified
## [1] "2019-08-29T20:54:03-04:00"
##
## $results
## $results$list_name
## [1] "Hardcover Fiction"
##
## $results$list_name_encoded
## [1] "hardcover-fiction"
##
## $results$bestsellers_date
## [1] "2015-12-05"
##
## $results$published_date
## [1] "2015-12-20"
##
## $results$published_date_description
## [1] ""
##
## $results$next_published_date
## [1] "2015-12-27"
##
## $results$previous_published_date
## [1] "2015-12-13"
##
## $results$display_name
## [1] "Hardcover Fiction"
##
## $results$normal_list_ends_at
## [1] 15
##
## $results$updated
## [1] "WEEKLY"
##
## $results$books
##     rank rank_last_week weeks_on_list asterisk dagger primary_isbn10
## 1      1              3             7        0      0     0385539436
## 2      2              1             2        0      0     0316407046
## 3      3              0             1        0      0     0399176764
## 4      4              5             5        0      0     1501111671
## 5      5              4             3        1      0     1455586420
## 6      6              6             8        0      0     1455520616
## 7      7              2             3        0      0     0345542967
## 8      8              8            83        0      0     1476746583
## 9      9              7             4        0      0     0062294415
```

```
## 10   10          11      47     0      0   1594633665
## 11   11          10      20     0      0   0062409859
## 12   12           9       5     0      0   0316225886
## 13   13          16      40     0      0   0312577222
## 14   14           0       1     0      0   0345531035
## 15   15           0       6     0      0   0345533488
## 16   16           0       0     0      0   1501108557
## 17   17           0       0     0      0   1476798842
## 18   18           0       0     0      0   0385354282
## 19   19           0       0     0      0   1501116975
## 20   20           0       0     0      0   0399174117
##    primary_isbn13                                 publisher
## 1   9780385539432                                 Doubleday
## 2   9780316407045                             Little, Brown
## 3   9780399176760                                    Putnam
## 4   9781501111679                                  Scribner
## 5   9781455586424                             Grand Central
## 6   9781455520619                             Grand Central
## 7   9780345542960                                    Bantam
## 8   9781476746586                                  Scribner
## 9   9780062294418                                    Harper
## 10  9781594633669                                 Riverhead
## 11  9780062409850                                    Harper
## 12  9780316225885                             Little, Brown
## 13  9780312577223                               St. Martin's
## 14  9780345531032                                  Delacorte
## 15  9780345533487                                    Bantam
## 16  9781501108556                           Simon & Schuster
## 17  9781476798844 Threshold Editions/Mercury Radio Arts
## 18  9780385354288                                     Knopf
## 19  9781501116971                                     Atria
## 20  9780399174117                                    Putnam
##
## 1
## 2                                                                       Detective Alex Cross returns t
## 3              President Jack Ryan detects a pattern in outbreaks of violence around the world that p
## 4
## 5                                                                                              The go
## 6
## 7                                                                            The New Jersey bounty
## 8
## 9
## 10
## 11                                                                                      In the mid
## 12
## 13                                                                                       Two siste
## 14 When a wealthy, charming man who has been an absent father dies, he leaves bequests specifically
## 15
## 16
## 17
## 18
## 19                                                                                      A young refug
## 20                                                                            When the NUMA crew
##    price                            title
```

4

```
## 1   0.00                            ROGUE LAWYER
## 2   0.00                            CROSS JUSTICE
## 3   0.00        TOM CLANCY: COMMANDER IN CHIEF
## 4   0.00                  THE BAZAAR OF BAD DREAMS
## 5   0.00                              THE GUILTY
## 6   0.00                                  SEE ME
## 7   0.00                       TRICKY TWENTY-TWO
## 8   0.00              ALL THE LIGHT WE CANNOT SEE
## 9   0.00 THE MAGIC STRINGS OF FRANKIE PRESTO
## 10  0.00                    THE GIRL ON THE TRAIN
## 11  0.00                       GO SET A WATCHMAN
## 12  0.00                            THE CROSSING
## 13  0.00                          THE NIGHTINGALE
## 14  0.00                          PRECIOUS GIFTS
## 15  0.00        A KNIGHT OF THE SEVEN KINGDOMS
## 16  0.00                    ALL DRESSED IN WHITE
## 17  0.00                    THE IMMORTAL NICHOLAS
## 18  0.00              THE GIRL IN THE SPIDER'S WEB
## 19  0.00                      THE JAPANESE LOVER
## 20  0.00                      THE PHARAOH'S SECRET
##                                     author                              contributor
## 1                            John Grisham                          by John Grisham
## 2                         James Patterson                       by James Patterson
## 3                            Mark Greaney                          by Mark Greaney
## 4                            Stephen King                          by Stephen King
## 5                           David Baldacci                        by David Baldacci
## 6                          Nicholas Sparks                       by Nicholas Sparks
## 7                          Janet Evanovich                       by Janet Evanovich
## 8                            Anthony Doerr                         by Anthony Doerr
## 9                             Mitch Albom                           by Mitch Albom
## 10                           Paula Hawkins                         by Paula Hawkins
## 11                              Harper Lee                           by Harper Lee
## 12                        Michael Connelly                      by Michael Connelly
## 13                           Kristin Hannah                        by Kristin Hannah
## 14                           Danielle Steel                        by Danielle Steel
## 15                        George R R Martin                    by George R. R. Martin
## 16 Mary Higgins Clark and Alafair Burke by Mary Higgins Clark and Alafair Burke
## 17                               Glenn Beck                            by Glenn Beck
## 18                        David Lagercrantz                     by David Lagercrantz
## 19                           Isabel Allende                        by Isabel Allende
## 20      Clive Cussler and Graham Brown    by Clive Cussler and Graham Brown
##     contributor_note
## 1
## 2
## 3
## 4
## 5
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## 8
## 9
## 10
## 11
## 12
```

```
## 13
## 14
## 15
## 16
## 17
## 18
## 19
## 20
##                                                             book_image
## 1  https://storage.googleapis.com/du-prd/books/images/9780385539449.jpg
## 2  https://storage.googleapis.com/du-prd/books/images/9780316407045.jpg
## 3  https://storage.googleapis.com/du-prd/books/images/9780399176760.jpg
## 4  https://storage.googleapis.com/du-prd/books/images/9781501111686.jpg
## 5  https://storage.googleapis.com/du-prd/books/images/9781455586431.jpg
## 6  https://storage.googleapis.com/du-prd/books/images/9781455520619.jpg
## 7  https://storage.googleapis.com/du-prd/books/images/9780345542984.jpg
## 8  https://storage.googleapis.com/du-prd/books/images/9781476746586.jpg
## 9  https://storage.googleapis.com/du-prd/books/images/9780062294418.jpg
## 10 https://storage.googleapis.com/du-prd/books/images/9781594633669.jpg
## 11 https://storage.googleapis.com/du-prd/books/images/9780062409850.jpg
## 12 https://storage.googleapis.com/du-prd/books/images/9780316225892.jpg
## 13 https://storage.googleapis.com/du-prd/books/images/9781466850606.jpg
## 14 https://storage.googleapis.com/du-prd/books/images/9780345531032.jpg
## 15 https://storage.googleapis.com/du-prd/books/images/9780345539113.jpg
## 16 https://storage.googleapis.com/du-prd/books/images/9781501108570.jpg
## 17 https://storage.googleapis.com/du-prd/books/images/9781476798844.jpg
## 18 https://storage.googleapis.com/du-prd/books/images/9780385354288.jpg
## 19 https://storage.googleapis.com/du-prd/books/images/9781501117008.jpg
## 20 https://storage.googleapis.com/du-prd/books/images/9780399174117.jpg
##    book_image_width book_image_height
## 1               326               495
## 2               318               495
## 3               328               495
## 4               326               495
## 5               329               495
## 6               328               495
## 7               326               495
## 8               128               192
## 9               330               467
## 10              312               495
## 11              328               495
## 12              320               495
## 13              128               195
## 14              326               495
## 15              326               495
## 16              328               495
## 17              330               466
## 18              330               476
## 19              329               495
## 20              328               495
##                                                            amazon_product_url
## 1           http://www.amazon.com/Rogue-Lawyer-John-Grisham-ebook/dp/B00UEKRTW8?tag=NYTBSREV-20
## 2         http://www.amazon.com/Cross-Justice-Alex-James-Patterson/dp/0316407046?tag=NYTBSREV-20
## 3        http://www.amazon.com/Tom-Clancy-Commander-Chief-Novel/dp/0399176764?tag=NYTBSREV-20
```

```
## 4                  http://www.amazon.com/The-Bazaar-Bad-Dreams-Stories-ebook/dp/B00UDCI1AG?tag=NYTBSREV-20
## 5                    http://www.amazon.com/Guilty-Will-Robie-David-Baldacci/dp/1455586439?tag=NYTBSREV-20
## 6                          http://www.amazon.com/See-Me-Nicholas-Sparks/dp/1455520616?tag=NYTBSREV-20
## 7   http://www.amazon.com/Tricky-Twenty-Two-Stephanie-Plum-Novel-ebook/dp/B00TND3N7C?tag=NYTBSREV-20
## 8                       http://www.amazon.com/All-Light-We-Cannot-See/dp/1476746583?tag=NYTBSREV-20
## 9              http://www.amazon.com/The-Magic-Strings-Frankie-Presto/dp/0062294415?tag=NYTBSREV-20
## 10                 http://www.amazon.com/The-Girl-Train-A-Novel-ebook/dp/B00L9B7IKE?tag=NYTBSREV-20
## 11                   http://www.amazon.com/Go-Set-Watchman-A-Novel/dp/0062409859?tag=NYTBSREV-20
## 12         http://www.amazon.com/The-Crossing-Harry-Bosch-Novel-ebook/dp/B00U6DNZOY?tag=NYTBSREV-20
## 13              http://www.amazon.com/The-Nightingale-Kristin-Hannah/dp/0312577222?tag=NYTBSREV-20
## 14          http://www.amazon.com/Precious-Gifts-Novel-Danielle-Steel/dp/0345531035?tag=NYTBSREV-20
## 15             http://www.amazon.com/Knight-Seven-Kingdoms-Song-Fire/dp/0345533488?tag=NYTBSREV-20
## 16      http://www.amazon.com/All-Dressed-White-Under-Suspicion-ebook/dp/B00UDCI30E?tag=NYTBSREV-20
## 17             http://www.amazon.com/The-Immortal-Nicholas-Glenn-Beck/dp/1476798842?tag=NYTBSREV-20
## 18              http://www.amazon.com/The-Girl-Spiders-Web-continuing/dp/0385354282?tag=NYTBSREV-20
## 19             http://www.amazon.com/The-Japanese-Lover-A-Novel-ebook/dp/B00URY5CE8?tag=NYTBSREV-20
## 20               http://www.amazon.com/The-Pharaohs-Secret-NUMA-Files/dp/0399174117?tag=NYTBSREV-20
##    age_group
## 1
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## 20
##
## 1
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## 7
## 8
## 9
## 10                            https://www.nytimes.com/2015/01/05/books/the-girl-on-the-train-by-p
## 11 https://www.nytimes.com/2015/07/11/books/review-harper-lees-go-set-a-watchman-gives-atticus-finch-
## 12
## 13
## 14
## 15
```

```
## 16
## 17
## 18
## 19
## 20
##    first_chapter_link
## 1
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## 8
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## 10
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## 15
## 16
## 17
## 18
## 19
## 20
##                                                                      sunday_review_link
## 1
## 2
## 3
## 4
## 5
## 6
## 7
## 8  https://www.nytimes.com/2014/05/11/books/review/all-the-light-we-cannot-see-by-anthony-doerr.html
## 9
## 10        https://www.nytimes.com/2015/02/01/books/review/the-girl-on-the-train-by-paula-hawkins.html
## 11               https://www.nytimes.com/2015/07/14/books/review/harper-lees-go-set-a-watchman.html
## 12
## 13
## 14
## 15
## 16
## 17
## 18
## 19
## 20
##    article_chapter_link
## 1
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## 6
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## 7
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## 17
## 18
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## 20
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## 1
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## 7
## 8
## 9
## 10 1594633665, 0698185390, 1410477762, 0857522329, 1448171687, 1594634122, 038568231X, 1594634025, 07
## 11
## 12
## 13
## 14
## 15
## 16
## 17
## 18
## 19
## 20
##
## 1
## 2
## 3                                          Amazon, Apple Books, Barnes and Noble, Books-A-Mil
## 4                                                               Amazon, Ap
## 5
## 6
## 7
## 8                                              Amazon, Apple Books, Bar
## 9                           Amazon, Apple Books, Barnes and Noble, Books-A-Million, Bool
## 10
## 11
## 12
## 13
## 14
## 15                 Amazon, Apple Books, Barnes and Noble, Books-A-Million, Bookshop, IndieBound
## 16 Amazon, Apple Books, Barnes and Noble, Books-A-Million, Bookshop, IndieBound, http://www.amazon.co
## 17
## 18                           Amazon, Apple Books, Barnes and Noble, Books-A-Million, Bookshop, Ind
```

```
## 19
## 20                                   Amazon, Apple Books, Barnes and Noble, Books-A-Million, Bookshop, Inc
##                                        book_uri
## 1  nyt://book/df3f64c8-e770-595f-be3c-814d9fd18692
## 2  nyt://book/8da3bd63-51a0-54d7-85c4-cf43224158a5
## 3  nyt://book/1e7b221a-d4fb-582a-901c-85b356fd9cfa
## 4  nyt://book/922a8d30-fc5f-5657-9790-c99de7a7b402
## 5  nyt://book/235dee2d-709b-5e45-944a-4c0e2ba660e7
## 6  nyt://book/442797ed-4a47-559a-85db-8a74b2f0685d
## 7  nyt://book/caadc21c-4817-5a08-b543-84e5c4f171d0
## 8  nyt://book/46388231-0afe-5714-a126-b7ccde32e08f
## 9  nyt://book/be64da90-8a55-5c4f-a4a2-d1e8c8d6a8e7
## 10 nyt://book/9175e255-5120-5fc3-b446-e34ec85e088c
## 11 nyt://book/c37f6bd6-349d-56a6-b4d9-8b394e56f8b0
## 12 nyt://book/034bee07-6bb0-5fb2-a82a-dfa0961afdd7
## 13 nyt://book/9360c03f-7000-5298-954b-3ec3c875a131
## 14 nyt://book/a6de037e-0180-52aa-874a-5d0bdc55205c
## 15 nyt://book/def22d1b-3da7-5519-b6a8-49162b5f8ed5
## 16 nyt://book/c5bde194-0f91-5d4f-a260-874a89b50cc1
## 17 nyt://book/19df35b6-4b7d-5007-92de-c19548b3eedc
## 18 nyt://book/839b18a0-63e5-52e6-a4fb-dde57b9391b7
## 19 nyt://book/2d8927e3-38df-566a-ad57-23805b880135
## 20 nyt://book/e55831ac-1d27-598b-a30a-e9fe2d0769e9
##
## $results$corrections
## list()
```

```
# Created dataframe from json format and checked class for success.

df_book <- data.frame(api_json_list$results$books)
class(df_book)
```

```
## [1] "data.frame"
```

```
df_book
```

```
##    rank rank_last_week weeks_on_list asterisk dagger primary_isbn10
## 1     1              3             7        0      0     0385539436
## 2     2              1             2        0      0     0316407046
## 3     3              0             1        0      0     0399176764
## 4     4              5             5        0      0     1501111671
## 5     5              4             3        1      0     1455586420
## 6     6              6             8        0      0     1455520616
## 7     7              2             3        0      0     0345542967
## 8     8              8            83        0      0     1476746583
## 9     9              7             4        0      0     0062294415
## 10   10             11            47        0      0     1594633665
## 11   11             10            20        0      0     0062409859
## 12   12              9             5        0      0     0316225886
## 13   13             16            40        0      0     0312577222
## 14   14              0             1        0      0     0345531035
## 15   15              0             6        0      0     0345533488
## 16   16              0             0        0      0     1501108557
```

```
## 17   17              0              0        0        0   1476798842
## 18   18              0              0        0        0   0385354282
## 19   19              0              0        0        0   1501116975
## 20   20              0              0        0        0   0399174117
##     primary_isbn13                               publisher
## 1    9780385539432                               Doubleday
## 2    9780316407045                           Little, Brown
## 3    9780399176760                                  Putnam
## 4    9781501111679                                Scribner
## 5    9781455586424                           Grand Central
## 6    9781455520619                           Grand Central
## 7    9780345542960                                  Bantam
## 8    9781476746586                                Scribner
## 9    9780062294418                                  Harper
## 10   9781594633669                               Riverhead
## 11   9780062409850                                  Harper
## 12   9780316225885                           Little, Brown
## 13   9780312577223                             St. Martin's
## 14   9780345531032                               Delacorte
## 15   9780345533487                                  Bantam
## 16   9781501108556                        Simon & Schuster
## 17   9781476798844 Threshold Editions/Mercury Radio Arts
## 18   9780385354288                                   Knopf
## 19   9781501116971                                   Atria
## 20   9780399174117                                  Putnam
##
## 1
## 2                                                             Detective Alex Cross returns t
## 3            President Jack Ryan detects a pattern in outbreaks of violence around the world that po
## 4
## 5                                                                                       The gov
## 6
## 7                                                                        The New Jersey bounty
## 8
## 9
## 10
## 11                                                                                 In the mid
## 12
## 13                                                                                   Two sister
## 14 When a wealthy, charming man who has been an absent father dies, he leaves bequests specifically
## 15
## 16
## 17
## 18
## 19                                                                                   A young refug
## 20                                                               When the NUMA crew
##     price                                title
## 1    0.00                          ROGUE LAWYER
## 2    0.00                         CROSS JUSTICE
## 3    0.00      TOM CLANCY: COMMANDER IN CHIEF
## 4    0.00             THE BAZAAR OF BAD DREAMS
## 5    0.00                             THE GUILTY
## 6    0.00                                SEE ME
## 7    0.00                       TRICKY TWENTY-TWO
```

```
## 8   0.00            ALL THE LIGHT WE CANNOT SEE
## 9   0.00 THE MAGIC STRINGS OF FRANKIE PRESTO
## 10  0.00                  THE GIRL ON THE TRAIN
## 11  0.00                     GO SET A WATCHMAN
## 12  0.00                          THE CROSSING
## 13  0.00                        THE NIGHTINGALE
## 14  0.00                         PRECIOUS GIFTS
## 15  0.00         A KNIGHT OF THE SEVEN KINGDOMS
## 16  0.00                   ALL DRESSED IN WHITE
## 17  0.00                   THE IMMORTAL NICHOLAS
## 18  0.00              THE GIRL IN THE SPIDER'S WEB
## 19  0.00                     THE JAPANESE LOVER
## 20  0.00                     THE PHARAOH'S SECRET
##                                      author                         contributor
## 1                              John Grisham                       by John Grisham
## 2                           James Patterson                    by James Patterson
## 3                              Mark Greaney                      by Mark Greaney
## 4                              Stephen King                      by Stephen King
## 5                             David Baldacci                    by David Baldacci
## 6                            Nicholas Sparks                   by Nicholas Sparks
## 7                            Janet Evanovich                   by Janet Evanovich
## 8                             Anthony Doerr                     by Anthony Doerr
## 9                               Mitch Albom                       by Mitch Albom
## 10                             Paula Hawkins                     by Paula Hawkins
## 11                               Harper Lee                       by Harper Lee
## 12                          Michael Connelly                  by Michael Connelly
## 13                            Kristin Hannah                    by Kristin Hannah
## 14                            Danielle Steel                    by Danielle Steel
## 15                          George R R Martin              by George R. R. Martin
## 16 Mary Higgins Clark and Alafair Burke by Mary Higgins Clark and Alafair Burke
## 17                               Glenn Beck                       by Glenn Beck
## 18                          David Lagercrantz                 by David Lagercrantz
## 19                            Isabel Allende                    by Isabel Allende
## 20       Clive Cussler and Graham Brown    by Clive Cussler and Graham Brown
##    contributor_note
## 1
## 2
## 3
## 4
## 5
## 6
## 7
## 8
## 9
## 10
## 11
## 12
## 13
## 14
## 15
## 16
## 17
## 18
## 19
```

```
## 20
##                                                                   book_image
## 1  https://storage.googleapis.com/du-prd/books/images/9780385539449.jpg
## 2  https://storage.googleapis.com/du-prd/books/images/9780316407045.jpg
## 3  https://storage.googleapis.com/du-prd/books/images/9780399176760.jpg
## 4  https://storage.googleapis.com/du-prd/books/images/9781501111686.jpg
## 5  https://storage.googleapis.com/du-prd/books/images/9781455586431.jpg
## 6  https://storage.googleapis.com/du-prd/books/images/9781455520619.jpg
## 7  https://storage.googleapis.com/du-prd/books/images/9780345542984.jpg
## 8  https://storage.googleapis.com/du-prd/books/images/9781476746586.jpg
## 9  https://storage.googleapis.com/du-prd/books/images/9780062294418.jpg
## 10 https://storage.googleapis.com/du-prd/books/images/9781594633669.jpg
## 11 https://storage.googleapis.com/du-prd/books/images/9780062409850.jpg
## 12 https://storage.googleapis.com/du-prd/books/images/9780316225892.jpg
## 13 https://storage.googleapis.com/du-prd/books/images/9781466850606.jpg
## 14 https://storage.googleapis.com/du-prd/books/images/9780345531032.jpg
## 15 https://storage.googleapis.com/du-prd/books/images/9780345539113.jpg
## 16 https://storage.googleapis.com/du-prd/books/images/9781501108570.jpg
## 17 https://storage.googleapis.com/du-prd/books/images/9781476798844.jpg
## 18 https://storage.googleapis.com/du-prd/books/images/9780385354288.jpg
## 19 https://storage.googleapis.com/du-prd/books/images/9781501117008.jpg
## 20 https://storage.googleapis.com/du-prd/books/images/9780399174117.jpg
##    book_image_width book_image_height
## 1               326               495
## 2               318               495
## 3               328               495
## 4               326               495
## 5               329               495
## 6               328               495
## 7               326               495
## 8               128               192
## 9               330               467
## 10              312               495
## 11              328               495
## 12              320               495
## 13              128               195
## 14              326               495
## 15              326               495
## 16              328               495
## 17              330               466
## 18              330               476
## 19              329               495
## 20              328               495
##                                                                             amazon_product_url
## 1               http://www.amazon.com/Rogue-Lawyer-John-Grisham-ebook/dp/B00UEKRTW8?tag=NYTBSREV-20
## 2             http://www.amazon.com/Cross-Justice-Alex-James-Patterson/dp/0316407046?tag=NYTBSREV-20
## 3            http://www.amazon.com/Tom-Clancy-Commander-Chief-Novel/dp/0399176764?tag=NYTBSREV-20
## 4          http://www.amazon.com/The-Bazaar-Bad-Dreams-Stories-ebook/dp/B00UDCI1AG?tag=NYTBSREV-20
## 5            http://www.amazon.com/Guilty-Will-Robie-David-Baldacci/dp/1455586439?tag=NYTBSREV-20
## 6                      http://www.amazon.com/See-Me-Nicholas-Sparks/dp/1455520616?tag=NYTBSREV-20
## 7  http://www.amazon.com/Tricky-Twenty-Two-Stephanie-Plum-Novel-ebook/dp/B00TND3N7C?tag=NYTBSREV-20
## 8                    http://www.amazon.com/All-Light-We-Cannot-See/dp/1476746583?tag=NYTBSREV-20
## 9           http://www.amazon.com/The-Magic-Strings-Frankie-Presto/dp/0062294415?tag=NYTBSREV-20
## 10             http://www.amazon.com/The-Girl-Train-A-Novel-ebook/dp/B00L9B7IKE?tag=NYTBSREV-20
```

```
## 11                                  http://www.amazon.com/Go-Set-Watchman-A-Novel/dp/0062409859?tag=NYTBSREV-20
## 12            http://www.amazon.com/The-Crossing-Harry-Bosch-Novel-ebook/dp/B00U6DNZOY?tag=NYTBSREV-20
## 13                 http://www.amazon.com/The-Nightingale-Kristin-Hannah/dp/0312577222?tag=NYTBSREV-20
## 14            http://www.amazon.com/Precious-Gifts-Novel-Danielle-Steel/dp/0345531035?tag=NYTBSREV-20
## 15                http://www.amazon.com/Knight-Seven-Kingdoms-Song-Fire/dp/0345533488?tag=NYTBSREV-20
## 16      http://www.amazon.com/All-Dressed-White-Under-Suspicion-ebook/dp/B00UDCI30E?tag=NYTBSREV-20
## 17             http://www.amazon.com/The-Immortal-Nicholas-Glenn-Beck/dp/1476798842?tag=NYTBSREV-20
## 18              http://www.amazon.com/The-Girl-Spiders-Web-continuing/dp/0385354282?tag=NYTBSREV-20
## 19            http://www.amazon.com/The-Japanese-Lover-A-Novel-ebook/dp/B00URY5CE8?tag=NYTBSREV-20
## 20                http://www.amazon.com/The-Pharaohs-Secret-NUMA-Files/dp/0399174117?tag=NYTBSREV-20
##    age_group
## 1
## 2
## 3
## 4
## 5
## 6
## 7
## 8
## 9
## 10
## 11
## 12
## 13
## 14
## 15
## 16
## 17
## 18
## 19
## 20
##
## 1
## 2
## 3
## 4
## 5
## 6
## 7
## 8
## 9
## 10                            https://www.nytimes.com/2015/01/05/books/the-girl-on-the-train-by-pa
## 11 https://www.nytimes.com/2015/07/11/books/review-harper-lees-go-set-a-watchman-gives-atticus-finch-
## 12
## 13
## 14
## 15
## 16
## 17
## 18
## 19
## 20
##    first_chapter_link
## 1
```

```
## 2
## 3
## 4
## 5
## 6
## 7
## 8
## 9
## 10
## 11
## 12
## 13
## 14
## 15
## 16
## 17
## 18
## 19
## 20
##                                                                           sunday_review_link
## 1
## 2
## 3
## 4
## 5
## 6
## 7
## 8   https://www.nytimes.com/2014/05/11/books/review/all-the-light-we-cannot-see-by-anthony-doerr.html
## 9
## 10          https://www.nytimes.com/2015/02/01/books/review/the-girl-on-the-train-by-paula-hawkins.html
## 11               https://www.nytimes.com/2015/07/14/books/review/harper-lees-go-set-a-watchman.html
## 12
## 13
## 14
## 15
## 16
## 17
## 18
## 19
## 20
##    article_chapter_link
## 1
## 2
## 3
## 4
## 5
## 6
## 7
## 8
## 9
## 10
## 11
## 12
## 13
```

```
## 14
## 15
## 16
## 17
## 18
## 19
## 20
##
## 1
## 2
## 3
## 4
## 5
## 6
## 7
## 8
## 9
## 10 1594633665, 0698185390, 1410477762, 0857522329, 1448171687, 1594634122, 038568231X, 1594634025, 0
## 11
## 12
## 13
## 14
## 15
## 16
## 17
## 18
## 19
## 20
##
## 1
## 2
## 3                                                Amazon, Apple Books, Barnes and Noble, Books-A-Mil
## 4                                                            Amazon, A
## 5
## 6
## 7
## 8                                                Amazon, Apple Books, Bar
## 9                            Amazon, Apple Books, Barnes and Noble, Books-A-Million, Bool
## 10
## 11
## 12
## 13
## 14
## 15                  Amazon, Apple Books, Barnes and Noble, Books-A-Million, Bookshop, IndieBound
## 16 Amazon, Apple Books, Barnes and Noble, Books-A-Million, Bookshop, IndieBound, http://www.amazon.c
## 17
## 18                            Amazon, Apple Books, Barnes and Noble, Books-A-Million, Bookshop, Ind
## 19
## 20                            Amazon, Apple Books, Barnes and Noble, Books-A-Million, Bookshop, Ind
##                                                book_uri
## 1  nyt://book/df3f64c8-e770-595f-be3c-814d9fd18692
## 2  nyt://book/8da3bd63-51a0-54d7-85c4-cf43224158a5
## 3  nyt://book/1e7b221a-d4fb-582a-901c-85b356fd9cfa
## 4  nyt://book/922a8d30-fc5f-5657-9790-c99de7a7b402
```

```
## 5  nyt://book/235dee2d-709b-5e45-944a-4c0e2ba660e7
## 6  nyt://book/442797ed-4a47-559a-85db-8a74b2f0685d
## 7  nyt://book/caadc21c-4817-5a08-b543-84e5c4f171d0
## 8  nyt://book/46388231-0afe-5714-a126-b7ccde32e08f
## 9  nyt://book/be64da90-8a55-5c4f-a4a2-d1e8c8d6a8e7
## 10 nyt://book/9175e255-5120-5fc3-b446-e34ec85e088c
## 11 nyt://book/c37f6bd6-349d-56a6-b4d9-8b394e56f8b0
## 12 nyt://book/034bee07-6bb0-5fb2-a82a-dfa0961afdd7
## 13 nyt://book/9360c03f-7000-5298-954b-3ec3c875a131
## 14 nyt://book/a6de037e-0180-52aa-874a-5d0bdc55205c
## 15 nyt://book/def22d1b-3da7-5519-b6a8-49162b5f8ed5
## 16 nyt://book/c5bde194-0f91-5d4f-a260-874a89b50cc1
## 17 nyt://book/19df35b6-4b7d-5007-92de-c19548b3eedc
## 18 nyt://book/839b18a0-63e5-52e6-a4fb-dde57b9391b7
## 19 nyt://book/2d8927e3-38df-566a-ad57-23805b880135
## 20 nyt://book/e55831ac-1d27-598b-a30a-e9fe2d0769e9
```

```
# Checked columns name to see which I would need to keep.
```

```
colnames(df_book)
```

```
##  [1] "rank"               "rank_last_week"      "weeks_on_list"
##  [4] "asterisk"           "dagger"              "primary_isbn10"
##  [7] "primary_isbn13"     "publisher"           "description"
## [10] "price"              "title"               "author"
## [13] "contributor"        "contributor_note"    "book_image"
## [16] "book_image_width"   "book_image_height"   "amazon_product_url"
## [19] "age_group"          "book_review_link"    "first_chapter_link"
## [22] "sunday_review_link" "article_chapter_link" "isbns"
## [25] "buy_links"          "book_uri"
```

```
# Limited the columns I wanted to use.
```

```
df_books <- df_book[, c("rank", "title", "author", "publisher", "primary_isbn13", "amazon_product_url")]
```

```
df_books
```

```
##    rank                             title
## 1     1                      ROGUE LAWYER
## 2     2                      CROSS JUSTICE
## 3     3     TOM CLANCY: COMMANDER IN CHIEF
## 4     4              THE BAZAAR OF BAD DREAMS
## 5     5                         THE GUILTY
## 6     6                             SEE ME
## 7     7                  TRICKY TWENTY-TWO
## 8     8            ALL THE LIGHT WE CANNOT SEE
## 9     9 THE MAGIC STRINGS OF FRANKIE PRESTO
## 10   10                 THE GIRL ON THE TRAIN
## 11   11                   GO SET A WATCHMAN
## 12   12                       THE CROSSING
## 13   13                     THE NIGHTINGALE
## 14   14                      PRECIOUS GIFTS
## 15   15       A KNIGHT OF THE SEVEN KINGDOMS
```

```
## 16   16                    ALL DRESSED IN WHITE
## 17   17                    THE IMMORTAL NICHOLAS
## 18   18              THE GIRL IN THE SPIDER'S WEB
## 19   19                       THE JAPANESE LOVER
## 20   20                     THE PHARAOH'S SECRET
##                                        author                          publisher
## 1                               John Grisham                          Doubleday
## 2                            James Patterson                      Little, Brown
## 3                              Mark Greaney                             Putnam
## 4                              Stephen King                           Scribner
## 5                             David Baldacci                      Grand Central
## 6                            Nicholas Sparks                      Grand Central
## 7                            Janet Evanovich                             Bantam
## 8                              Anthony Doerr                           Scribner
## 9                               Mitch Albom                             Harper
## 10                             Paula Hawkins                           Riverhead
## 11                               Harper Lee                             Harper
## 12                           Michael Connelly                      Little, Brown
## 13                             Kristin Hannah                         St. Martin's
## 14                             Danielle Steel                          Delacorte
## 15                           George R R Martin                           Bantam
## 16 Mary Higgins Clark and Alafair Burke                    Simon & Schuster
## 17                                 Glenn Beck Threshold Editions/Mercury Radio Arts
## 18                          David Lagercrantz                             Knopf
## 19                             Isabel Allende                             Atria
## 20         Clive Cussler and Graham Brown                             Putnam
##    primary_isbn13
## 1   9780385539432
## 2   9780316407045
## 3   9780399176760
## 4   9781501111679
## 5   9781455586424
## 6   9781455520619
## 7   9780345542960
## 8   9781476746586
## 9   9780062294418
## 10  9781594633669
## 11  9780062409850
## 12  9780316225885
## 13  9780312577223
## 14  9780345531032
## 15  9780345533487
## 16  9781501108556
## 17  9781476798844
## 18  9780385354288
## 19  9781501116971
## 20  9780399174117
##                                                               amazon_product_url
## 1        http://www.amazon.com/Rogue-Lawyer-John-Grisham-ebook/dp/B00UEKRTW8?tag=NYTBSREV-20
## 2          http://www.amazon.com/Cross-Justice-Alex-James-Patterson/dp/0316407046?tag=NYTBSREV-20
## 3          http://www.amazon.com/Tom-Clancy-Commander-Chief-Novel/dp/0399176764?tag=NYTBSREV-20
## 4        http://www.amazon.com/The-Bazaar-Bad-Dreams-Stories-ebook/dp/B00UDCI1AG?tag=NYTBSREV-20
## 5          http://www.amazon.com/Guilty-Will-Robie-David-Baldacci/dp/1455586439?tag=NYTBSREV-20
## 6                http://www.amazon.com/See-Me-Nicholas-Sparks/dp/1455520616?tag=NYTBSREV-20
```

```
## 7   http://www.amazon.com/Tricky-Twenty-Two-Stephanie-Plum-Novel-ebook/dp/B00TND3N7C?tag=NYTBSREV-20
## 8                        http://www.amazon.com/All-Light-We-Cannot-See/dp/1476746583?tag=NYTBSREV-20
## 9                http://www.amazon.com/The-Magic-Strings-Frankie-Presto/dp/0062294415?tag=NYTBSREV-20
## 10                http://www.amazon.com/The-Girl-Train-A-Novel-ebook/dp/B00L9B7IKE?tag=NYTBSREV-20
## 11                     http://www.amazon.com/Go-Set-Watchman-A-Novel/dp/0062409859?tag=NYTBSREV-20
## 12           http://www.amazon.com/The-Crossing-Harry-Bosch-Novel-ebook/dp/B00U6DNZOY?tag=NYTBSREV-20
## 13                  http://www.amazon.com/The-Nightingale-Kristin-Hannah/dp/0312577222?tag=NYTBSREV-20
## 14            http://www.amazon.com/Precious-Gifts-Novel-Danielle-Steel/dp/0345531035?tag=NYTBSREV-20
## 15              http://www.amazon.com/Knight-Seven-Kingdoms-Song-Fire/dp/0345533488?tag=NYTBSREV-20
## 16      http://www.amazon.com/All-Dressed-White-Under-Suspicion-ebook/dp/B00UDCI30E?tag=NYTBSREV-20
## 17              http://www.amazon.com/The-Immortal-Nicholas-Glenn-Beck/dp/1476798842?tag=NYTBSREV-20
## 18              http://www.amazon.com/The-Girl-Spiders-Web-continuing/dp/0385354282?tag=NYTBSREV-20
## 19            http://www.amazon.com/The-Japanese-Lover-A-Novel-ebook/dp/B00URY5CE8?tag=NYTBSREV-20
## 20              http://www.amazon.com/The-Pharaohs-Secret-NUMA-Files/dp/0399174117?tag=NYTBSREV-20
```

Obtaing an API key from a website is a necessary skill to learn in data analysis. Without an API key there is no path to collect the data that is needed. It is quite challenging to learn the steps to obtain an API key but with a couple of tutorials I was able to accomplish in getting the API I needed. Getting the url format correctly was also a challenge. Using the flatten function to change the content from raw to dataframe was also a challenge. Using obtaining the APIs on the website, https://developer.nytimes.com/apis, was simple and instructions was easy to follow.