Web APIs - IS607 Week10

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October 30, 2016

Introduction The New York Times web site provides a rich set of APIs, as described here: http://developer.nytimes.com/docs You'll need to start by signing up for an API key.

Your 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 to an R dataframe.

Search the top stories list of articles and associated images by the sections

```r
# Load library
library(jsonlite)
library(dplyr)
```

```
##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```r
articleUrl <- "http://api.nytimes.com/svc/search/v2/articlesearch.json?q=%s&sort=newest&api-key=82badbe8

out <- fromJSON(articleUrl)
out
```

```
## $response
## $response$meta
## $response$meta$hits
## [1] 6125215
##
## $response$meta$time
## [1] 529
##
## $response$meta$offset
## [1] 0
##
##
## $response$docs
##
## 1                                          http://www.nytimes.com/2016/10/29/opinion/endorsements-in-
## 2                http://www.nytimes.com/2016/10/29/sports/baseball/new-trend-in-baseball-custom-cleats-
## 3                                            http://www.nytimes.com/2016/10/29/us/politics/fbi-cli
## 4                  http://www.nytimes.com/reuters/2016/10/28/sports/autoracing/28reuters-mot
## 5  http://www.nytimes.com/2016/10/29/business/media/telecoms-ambitions-on-targeted-ads-seen-curbed-by
## 6                                            http://www.nytimes.com/2016/10/29/us/politics/donal
## 7                  http://www.nytimes.com/aponline/2016/10/28/world/middleeast/ap-un-united-na
## 8                http://www.nytimes.com/2016/10/29/business/media/founder-says-rolling-stone-erred-in-
## 9                http://www.nytimes.com/2016/10/30/arts/design/barnes-foundations-director-aims-to-unpa
```

```
## 10                                                                  http://www.nytimes.com/aponline/2016/10/28/us/ap
##
## 1                                                                                              There are a number of
## 2                                                                 Over the past few years, players have increasingly show
## 3     Mr. Comey faced a dilemma: Inform Congress of the new developments, and be accused of harming
## 4                                            Force India could take weeks to decide who partners Mexican Serg
## 5                    AT&T's and Verizon's hopes of collecting and analyzing customer data to sell adv
## 6   The F.B.I. director's disclosure of an investigation of new emails interrupted Mrs. Clinton's mome
## 7                       A United Nations expert said Friday that he will examine the Israeli government's
## 8                      "We did everything reasonable, appropriate up to the highest standards of journalism
## 9       Thomas Collins, the organization's new leader, is pursuing its founder's educational goals w
## 10                              Federal prosecutors charged two California men with conspiring to smuggl
##
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## 2                                                                 Over the past few years, players have increasingly show
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## 7                       A United Nations expert said Friday that he will examine the Israeli government's
## 8                      "We did everything reasonable, appropriate up to the highest standards of journalism
## 9       Thomas Collins, the organization's new leader, is pursuing its founder's educational goals w
## 10                              Federal prosecutors charged two California men with conspiring to smuggl
##    abstract print_page blog           source
## 1        NA         18 NULL The New York Times
## 2        NA         14 NULL The New York Times
## 3        NA          1 NULL The New York Times
## 4        NA       <NA> NULL            Reuters
## 5        NA       <NA> NULL The New York Times
## 6        NA       <NA> NULL The New York Times
## 7        NA       <NA> NULL                 AP
## 8        NA          7 NULL The New York Times
## 9        NA       <NA> NULL The New York Times
## 10       NA       <NA> NULL                 AP
##
## 1
## 2                                                   190, 600, 75, images/2016/10/29/sport
## 3
## 4
## 5                                                                                        19
## 6                                                   190, 600, 75, images/2016/10/29/
## 7
## 8   190, 600, 75, images/2016/10/17/business/17ROLLINGSTONEjp2/17ROLLINGSTONEjp2-thumbWide.jpg, image
## 9
## 10
##                                                               headline.main
## 1                                       Endorsements in New York and New Jersey
## 2                         New Trend in Baseball: Custom Cleats for the Polished Player
## 3                F.B.I. Chief James Comey Is in Political Crossfire Again Over Emails
## 4                                        Force India Could Take Time Over Second Driver
## 5      Telecoms' Ambitions on Targeted Ads Seen Curbed by F.C.C.'s New Privacy Rules
## 6   'This Changes Everything': Donald Trump Exults as Hillary Clinton's Team Scrambles
## 7                              UN Expert to Examine Israeli Human Rights Groups
## 8                  Founder Says Rolling Stone Erred in Retracting Rape Article
```

```
## 9                   Barnes Foundation's Director Aims 'to Unpack the Ideas' in the Art
## 10                     Prosecutors: 2 US Men Tried to Export Military Parts to Iran
##     headline.content_kicker headline.kicker
## 1               Editorial       Editorial
## 2                    <NA>            <NA>
## 3                    <NA>            <NA>
## 4                    <NA>            <NA>
## 5                    <NA>            <NA>
## 6                    <NA>            <NA>
## 7                    <NA>            <NA>
## 8                    <NA>            <NA>
## 9                    <NA>            <NA>
## 10                   <NA>            <NA>
##                                           headline.print_headline
## 1                             Endorsements in New York and New Jersey
## 2                                  Custom Cleats for the Polished Player
## 3     Decision Pulls F.B.I.'s Leader Back Down Into Political Fray
## 4                   Force India Could Take Time Over Second Driver
## 5                         U.S. Rules May Curb Telecoms' Ambitions
## 6   With 1 1 Days to Go, Trump Says Revelation 'Changes Everything'
## 7                 UN Expert to Examine Israeli Human Rights Groups
## 8                       Rolling Stone Founder Rejects Retraction
## 9                                                          <NA>
## 10     Prosecutors: 2 US Men Tried to Export Military Parts to Iran
##
## 1  1, 11, 12, 13, 15, 16, 17, 18, 3, 4, 5, 6, 7, 8, N, N, N, N, N, N, N, N, N, N, N, N, N, N, persons
## 2
## 3
## 4
## 5
## 6
## 7
## 8
## 9
## 10
##                pub_date document_type news_desk section_name
## 1  2016-10-29T01:40:42Z       article Editorial       Opinion
## 2  2016-10-29T01:25:36Z       article    Sports        Sports
## 3  2016-10-29T01:08:33Z       article  National          U.S.
## 4  2016-10-29T00:33:36Z       article      <NA>        Sports
## 5  2016-10-29T00:08:39Z       article  Business  Business Day
## 6  2016-10-28T23:53:25Z       article  National          U.S.
## 7  2016-10-28T22:07:03Z       article      <NA>         World
## 8  2016-10-28T22:01:54Z       article  Business  Business Day
## 9  2016-10-28T21:24:03Z       article   Culture          Arts
## 10 2016-10-28T21:16:39Z       article      <NA>          U.S.
##    subsection_name
## 1             <NA>
## 2         Baseball
## 3         Politics
## 4      Auto Racing
## 5            Media
## 6         Politics
## 7      Middle East
```

```
## 8             Media
## 9      Art & Design
## 10            <NA>
##                                                                       byline
## 1
## 2                                                     , reported, James, 1,
## 3   , , , reported, reported, reported, Eric, Michael, Matt, 1, 2, 3, LICHTBLAU, SCHMIDT, APUZZO, NA,
## 4
## 5                                  , , reported, reported, Sapna, Cecilia, 1, 2, MAHESHWARI
## 6                                  , , reported, reported, Amy, Patrick, 1, 2, CHOZICK
## 7
## 8                                                     , reported, Hawes, 1,
## 9                                                       , reported, Ted,
## 10
##                                               byline.original
## 1                                        By THE EDITORIAL BOARD
## 2                                               By JAMES WAGNER
## 3   By ERIC LICHTBLAU, MICHAEL S. SCHMIDT and MATT APUZZO
## 4                                                    By REUTERS
## 5                      By SAPNA MAHESHWARI and CECILIA KANG
## 6                        By AMY CHOZICK and PATRICK HEALY
## 7                                        By THE ASSOCIATED PRESS
## 8                                              By HAWES SPENCER
## 9                                                   By TED LOOS
## 10                                       By THE ASSOCIATED PRESS
##      byline.organization type_of_material                      _id
## 1    THE EDITORIAL BOARD        Editorial 5813fe227c459f606398c69b
## 2                   <NA>             News 5813fa977c459f606398c699
## 3                   <NA>             News 5813f69a7c459f606398c696
## 4                 REUTERS             News 5813ee6a7c459f606398c691
## 5                   <NA>             News 5813e88d7c459f606398c682
## 6                   <NA>             News 5813e4fe7c459f606398c67c
## 7    THE ASSOCIATED PRESS             News 5813cc097c459f606398c649
## 8                   <NA>             News 5813cad77c459f606398c647
## 9                   <NA>             News 5813c1fa7c459f606398c62b
## 10 THE ASSOCIATED PRESS             News 5813c03f7c459f606398c625
##    word_count slideshow_credits
## 1        1144                NA
## 2        1283                NA
## 3        1187                NA
## 4         298                NA
## 5        1091                NA
## 6        1419                NA
## 7         252                NA
## 8         555                NA
## 9        1039                NA
## 10        248                NA
##
##
## $status
## [1] "OK"
##
## $copyright
## [1] "Copyright (c) 2013 The New York Times Company.  All Rights Reserved."
```

```r
# Display column names in data frame
outDf <- data.frame(out[[1]]$docs)
variable.names(outDf)
```

```
##  [1] "web_url"          "snippet"          "lead_paragraph"
##  [4] "abstract"         "print_page"       "blog"
##  [7] "source"           "multimedia"       "headline"
## [10] "keywords"         "pub_date"         "document_type"
## [13] "news_desk"        "section_name"     "subsection_name"
## [16] "byline"           "type_of_material" "X_id"
## [19] "word_count"       "slideshow_credits"
```

```r
length(outDf)
```

```
## [1] 20
```

```r
# Select subset of columns in data frame
outSub <- select(outDf, snippet, lead_paragraph, headline, pub_date, section_name)

# Identify the widest column
outWidth <- max(sapply(names(outSub), nchar))
format(outSub, width = outWidth, justify = "left")
```

```
##
## 1  There are a number of congressional and state races where voters can make a difference.
## 2  Over the past few years, players have increasingly shown their personality by what they wear on tl
## 3  Mr. Comey faced a dilemma: Inform Congress of the new developments, and be accused of harming Hill
## 4  Force India could take weeks to decide who partners Mexican Sergio Perez next season, deputy princ
## 5  AT&T's and Verizon's hopes of collecting and analyzing customer data to sell advertising may be da
## 6  The F.B.I. director's disclosure of an investigation of new emails interrupted Mrs. Clinton's mome
## 7  A United Nations expert said Friday that he will examine the Israeli government's treatment of hur
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## 9  Thomas Collins, the organization's new leader, is pursuing its founder's educational goals with a
## 10 Federal prosecutors charged two California men with conspiring to smuggle fighter-jet parts to Ira
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```
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##    headline.content_kicker headline.kicker
## 1            Editorial       Editorial
## 2                   NA              NA
## 3                   NA              NA
## 4                   NA              NA
## 5                   NA              NA
## 6                   NA              NA
## 7                   NA              NA
## 8                   NA              NA
## 9                   NA              NA
## 10                  NA              NA
##                                          headline.print_headline
## 1   Endorsements in New York and New Jersey
## 2   Custom Cleats for the Polished Player
## 3   Decision Pulls F.B.I.'s Leader Back Down Into Political Fray
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## 7   UN Expert to Examine Israeli Human Rights Groups
## 8   Rolling Stone Founder Rejects Retraction
## 9   NA
## 10 Prosecutors: 2 US Men Tried to Export Military Parts to Iran
##                pub_date   section_name
## 1  2016-10-29T01:40:42Z Opinion
## 2  2016-10-29T01:25:36Z Sports
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## 8  2016-10-28T22:01:54Z Business Day
## 9  2016-10-28T21:24:03Z Arts
## 10 2016-10-28T21:16:39Z U.S.
```