Data 607 Assignment 9 – Web APIs

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In this assignment, I will use The New York Times APIs, which provide a variety of data. First, I will sign up for an API key. Then, I'll choose one API to work with and create an interface in R to fetch and read the JSON data from it. Finally, I will convert this data into an R DataFrame, making it easier to analyze and manipulate. This will help me learn how to work with web APIs and handle data in R.

```
library(httr)
library(jsonlite)
library(dplyr)
```

API Connection

```
##
## 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
```

```
# API Key
apikey <- "IsXIAthPjA6e9jFJJevYb5xrlSfecGDf"

# Construct the URL with the API key as a query parameter
theURL <- paste0("https://api.nytimes.com/svc/topstories/v2/world.json?api-key=", apikey)

# Make the GET request
stories <- GET(theURL)

# Check the status code
print(stories$status_code)
```

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

```r
summary(stories)
```

Converting API into DataFrame

```
##             Length Class       Mode
## url             1  -none-      character
## status_code     1  -none-      numeric
## headers        23  insensitive list
## all_headers     1  -none-      list
## cookies         7  data.frame  list
## content     77089  -none-      raw
## date            1  POSIXct     numeric
## times           6  -none-      numeric
## request         7  request     list
## handle          1  curl_handle externalptr
```

```r
#Parse data
parsed_data <- content(stories, "text", encoding = "UTF-8")
stories_df <- fromJSON(parsed_data)

#Extract relevant parts of the data
  articles <- stories_df$results

#Convert to DataFrame
  articles_df <- as.data.frame(articles, stringsAsFactors = FALSE)

# Rename the byline column to author
articles_df <- articles_df %>%
  rename(author = byline)

# Remove "By " from the author column
articles_df$author <- gsub("^By ", "", articles_df$author)

# Select and print the title and author columns
selected_columns <- articles_df[, c("title", "author")]
print(selected_columns)
```

```
##                                                                                                title
## 1                     Iran's Supreme Leader Threatens Israel With 'Crushing Response' to Strikes
## 2                                 Israel Says Elite Naval Commandos Abducted Hezbollah Operative
## 3                         Split on Economic Policy Puts Germany's Government at Risk of Collapse
## 4                   Kemi Badenoch Becomes First Black Woman to Lead Britain's Conservative Party
## 5                                                   How Missile Defense Works (and Why It Fails)
## 6                  A Way Out of Mexico's Constitutional Crisis? One Idea for Compromise Emerges.
## 7                       Amid Flood Cleanup in Spain, Residents Try to Make Sense of the Disaster
## 8                                    Behind a Wall of Trees, Archaeologists Discover a Maya City
## 9                                To Join This Club, a Member Must Die. And You Must Adore Verdi.
## 10        Russia Showers Cash on Men Enlisting in Ukraine War, Bringing Prosperity to Some Towns
## 11                           Young African Voters Sour on the Parties That Ushered in Liberation
## 12                                        Israel's Peace Talks in Gaza and Lebanon: What to Know
## 13                                                  Can Iran and Israel Find a New Equilibrium?
```

```
## 14                                                Scenes of Trench Warfare in the Age of Drones
## 15                           Global Summit on Nature Adopts a Novel Way to Pay for Conservation
## 16                                                                                Taking Time
## 17                                 Abortion Rights Issue Surfaces in Canada Before U.S. Election
## 18                                Canadian Police Say They Dismantled Country's Largest Drug Lab
## 19                                     How a Year of Rain Fell on Parts of Spain in Eight Hours
## 20                   All Trick, No Treat: Dublin Crowds Turn Up for Halloween Parade That Wasn't
## 21                                  How to Keep Traffic Moving? An Airport Puts Hugs on a Timer.
## 22                        Israel Strikes Near Beirut as Diplomatic Push Shows No Sign of Success
## 23                                As Russia Advances, U.S. Fears Ukraine Has Entered a Grim Phase
## 24                                                Rúben Amorim and the Unhelpful Burden of History
## 25                                              Death Toll Rises to 205 as More Rain Batters Spain
## 26                                Destructive Israeli Raid in West Bank Kills 5, Palestinians Say
## 27                                        As Famine Stalks Gaza, Farmers Lament Their Many Losses
## 28                                                   How Wagner's Ruthless Image Crumbled in Mali
## 29                         Repression Intensifies in the Country Hosting a Major Climate Meeting
## 30                She Was the First Nicaraguan to Be Crowned Miss Universe. Can She Ever Go Home?
## 31                                                                 Can Axions Save the Universe?
## 32                                         Botswana Voters Hand Governing Party a Stunning Rebuke
## 33                                                                                Friday Briefing
## 34                                 In Spanish Town Devastated by Flood, a Grim Search for Bodies
## 35                                            Mexico's New President Faces Her First Major Crisis
## 36 Trump Had an 'America First' Foreign Policy. But It Was a Breakdown in American Policymaking.
## 37                                        Friday Briefing: The Global Stakes of the U.S. Election
##                                                                                author
## 1                                                                          Liam Stack
## 2                          Euan Ward, Aaron Boxerman and Maria Abi-Habib
## 3                            Steven Erlanger and Christopher F. Schuetze
## 4                                          Mark Landler and Stephen Castle
## 5                                          Agnes Chang and Samuel Granados
## 6                                        Simon Romero and Paulina Villegas
## 7                                                                      Emma Bubola
## 8                                                                       Alan Yuhas
## 9                                                            Elisabetta Povoledo
## 10                                     Neil MacFarquhar and Milana Mazaeva
## 11                                             John Eligon and Yvonne Mooka
## 12                                                                    Ephrat Livni
## 13                                                                     Amanda Taub
## 14                                                                     Tyler Hicks
## 15                                                                  Catrin Einhorn
## 16                                                                  Melissa Kirsch
## 17                                                                      Vjosa Isai
## 18                                                                      Vjosa Isai
## 19                                                                   Raymond Zhong
## 20                                           Claire Moses and Victor Mather
## 21                                                                     Eve Sampson
## 22                                                                  Aaron Boxerman
## 23          Julian E. Barnes, Eric Schmitt, Helene Cooper and Kim Barker
## 24                                                                      Rory Smith
## 25                                          José Bautista and Lynsey Chutel
## 26                                         Liam Stack and Fatima AbdulKarim
## 27                                           Liam Stack and Abu Bakr Bashir
## 28 Christiaan Triebert, Elian Peltier, Riley Mellen and Sanjana Varghese
## 29                                                            Anton Troianovski
```

```
## 30                                    James Wagner and Kirsten Luce
## 31                                 Dennis Overbye and Katrina Miller
## 32                                      Yvonne Mooka and John Eligon
## 33                                                  Natasha Frost
## 34                                                    Emma Bubola
## 35                        Natalie Kitroeff and Emiliano Rodríguez Mega
## 36                                                 David E. Sanger
## 37                                                      Gaya Gupta
```

In this assignment, I faced challenges when attempting to create a DataFrame before properly parsing the JSON data. Parsing is essential when working with JSON because it converts the structured text into a format that R can easily manipulate. Through this process, I learned the importance of extracting relevant information from the API response and transforming it into a usable DataFrame.