# Todd_Garner_Week4_Part2

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FLS Part 2: Freestyle!

1. Install and load one of the packages given in the list for downloading APIs (or another API you have found and are interested in). >>>>>>>>>Initially, I used Intrinio but gave up trying to grab extra data. I am using WDI and am pulling GDP data from Namibia, Nepal and Niger.

2. Download data from that API and create a slide that clearly describes the package and how (the code) to download data from that API. >>>>>>>>Luckily, R has a function built in that acts as an API with "WDI." It doesn't require a key or secret key. I used those when coding in Python and typically put my keys in a .env file which would not translate to GitHub. This is much easier.

3. Clearly describe the data and the columns / variables that are of interest to your presentation. >>>>>>>>I must admit that I'm basically following your example. But, I loaded up various GDP codes and selected one that had three " . " in it. There were numerous lists of data and I picked Namibia, Nepal and Niger. This contracted starkly against the data pulled from the US, Canada and Mexico. These are very poor nations.

4. Perform a small EDA with your data. Use plots and possibly tests, to find 2 interesting characteristics of the data that you accessed through the API. >>>>>>Mainly I varied the time period over which the GDP was measured. 1960-1980 was not that exciting, but the really interesting one was 2000 - 2012 where Namibia's GDP grew at almost 33% over 12 years. That's very impressive growth. Nepal and Niger tracked similarly and only moved a fraction of the amount that Namibia did.

5. Create a PPT presentation to show in the live session.
   a. Show part or all of the data and make sure to show the data are tidy.
   b. Include at least 1 plot or chart from ggplot.

   c. You should have no more than five slides (including the title slide).
   d. Include your code.
   e. Also include a discussion of any obstacles you ran into and went around or over in the process… there will inevitably be one and likely more.
      >>>>>>>>I could not get the code to print to PPT. I spent an indordinate amount of time wrestling with this. I consulted posit.com which solved my issue. Other issues were the API not working on Intrinio. I was able to run the code chunks provided but when I went after additional data sets, it completely failed. I did spend a considerable amount of time on that. I used to be able to pull data in from Alpaca but that was in Python, which I suppose I could have done, but that seems outside of the goal set out at the start. I finally punted and used the similar data set from WDI. Admittedly, this is not my finest work, by far! I found that I spun my wheels significantly. But, I did learn quite a bit.
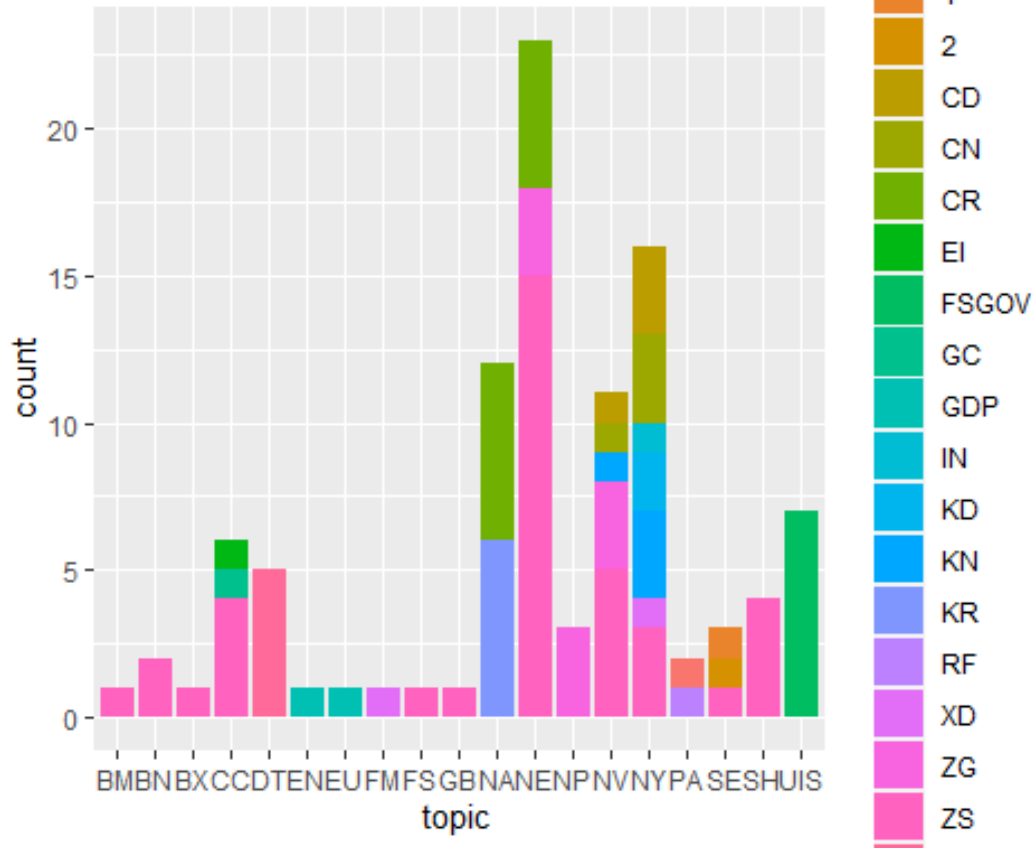
```r
#Goal 1: Create a bar chart of topics relating to gdp.
library(WDI)
library(tidyr)
library(tidyverse)
## ── Attaching packages ───────────────────────────────── tidyverse 1.3.2 ──
## ✔ ggplot2 3.4.0      ✔ dplyr   1.0.10
## ✔ tibble  3.1.8      ✔ stringr 1.5.0
## ✔ readr   2.1.3      ✔ forcats 0.5.2
## ✔ purrr   1.0.0
## ── Conflicts ─────────────────────────────────── tidyverse_conflicts() ──
## ✖ dplyr::filter() masks stats::filter()
## ✖ dplyr::lag()    masks stats::lag()
#search for reports with "gdp" in the description
results = as.data.frame(WDIsearch("gdp"))

#This line will filter the data frame to leave only those with 4 pieces in the indicator.
resultsGoodIndicator = results %>% filter(str_count(indicator,"\\.")==3)

#Check out the new data frame with only 4 piece indicators.  This function worked and I deleted the calling of the variable to save space in the
PPT.


# Break the indicator code up into 4 distinct columns.
resultsGoodIndicator = as.data.frame(resultsGoodIndicator) %>% separate(indicator,c("topic","general","specific","extension"))
head(resultsGoodIndicator)
##    topic general specific extension
## 1     BM     GSR     MRCH        ZS
## 2     BN     CAB     XOTR        ZS
## 3     BN     CUR     GDPM        ZS
## 4     BX     GSR     MRCH        ZS
## 5     CC    ENTX      ENE        ZS
## 6     CC     GHG     MEMG        EI
##                                                                        name
## 1                               Merchandise imports (BOP): percentage of GDP (%)
## 2                              Curr. acc. bal. before official transf. (% of GDP)
## 3                Current account balance excluding net official capital grants (% of GDP)
## 4                               Merchandise exports (BOP): percentage of GDP (%)
## 5                                           Total energy tax revenue (% of GDP)
## 6 Macro drivers of GHG emissions growth in the period 2012-2018 - Emission Intensity of GDP
#compare the expenditure (NE) and the income (NY)
resultsGoodIndicator %>% ggplot(aes(x = topic, fill = extension)) + geom_bar()
```

```
#Goal 2: Plot GDP (NY and GDP) per
capita (PCAP) of Namibia, Nepal and
Niger in constant US dollars (KD)

dat =
WDI(indicator='NY.GDP.PCAP.KD',
country=c('NE','NP','NA'),
start=2000, end=2012)

new_df <- subset(dat, select = -
c(iso2c, iso3c))

#I used the str(dat) function to
illuminate what the character types
were and then proceeded.

library(ggplot2)
knitr::kable(new_df)
```

country	year	NY.GDP.PCAP.KD
Namibia	2012	4476.4217
Namibia	2011	4330.9511
Namibia	2010	4186.0490
Namibia	2009	4007.4918
Namibia	2008	4053.2266
Namibia	2007	4001.7155
Namibia	2006	3845.2946
Namibia	2005	3634.6263
Namibia	2004	3587.8446
Namibia	2003	3235.7520
Namibia	2002	3148.3579
Namibia	2001	3056.4727
Namibia	2000	3082.7642
Niger	2012	460.0322

```
ggplot(new_df, aes(x = year, y =
NY.GDP.PCAP.KD, color=country)) +
geom_point() +
  xlab('Year') + ylab('GDP per
capita')
```

The plot shows the explosive growth in Namibia in
the past 12 years.