MET CS688 C1

WEB ANALYTICS AND MINING

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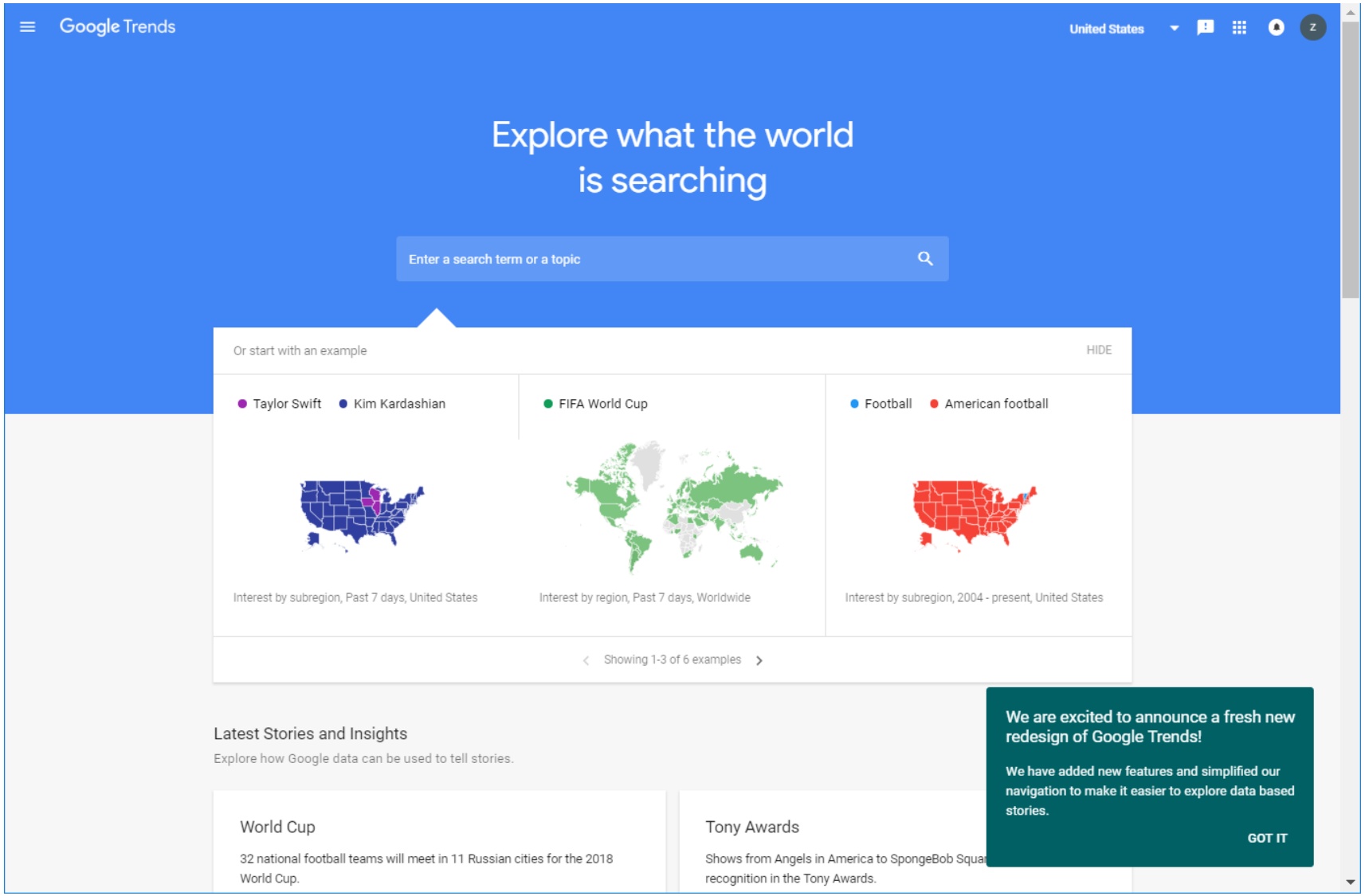
GOOGLE TRENDS

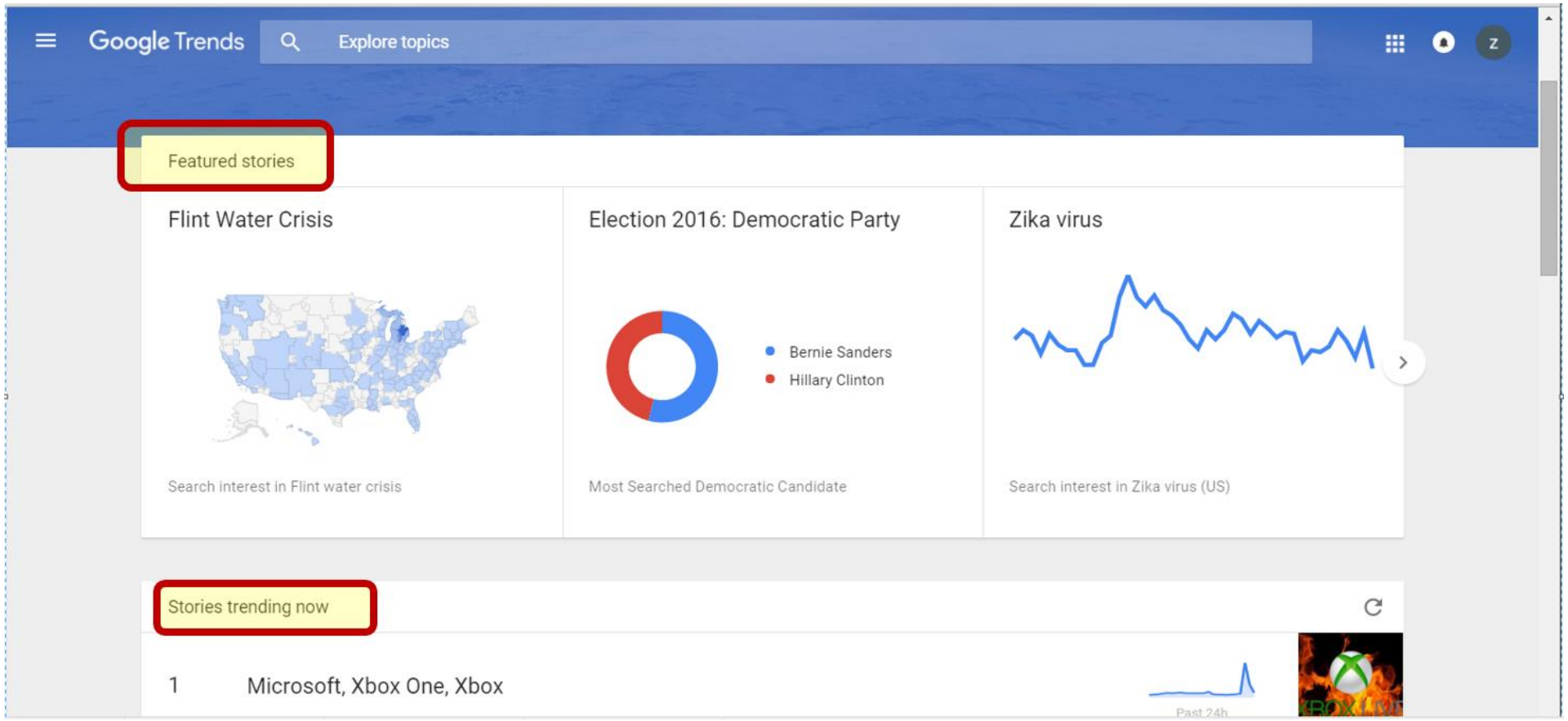
Google Trends

Google Trends (https://www.google.com/trends/) shows the ups-and-downs of the public's interest in a particular topic.



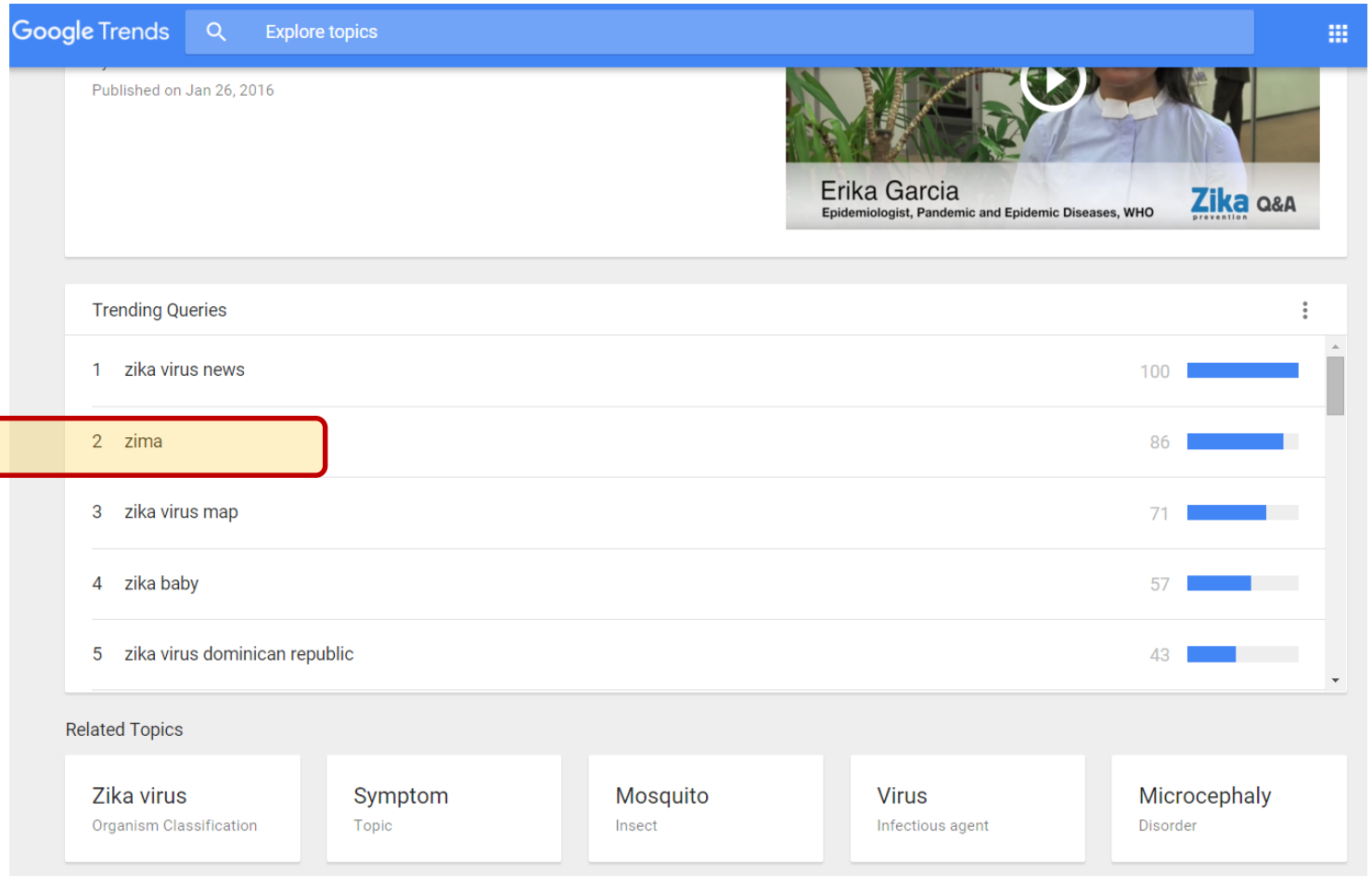
Google Trends

- This website contains featured stories that you can select from, such as the 2016 Elections or the US search interest in Zika virus, as illustrated here in the past, as well as many new trending stories at the moment.



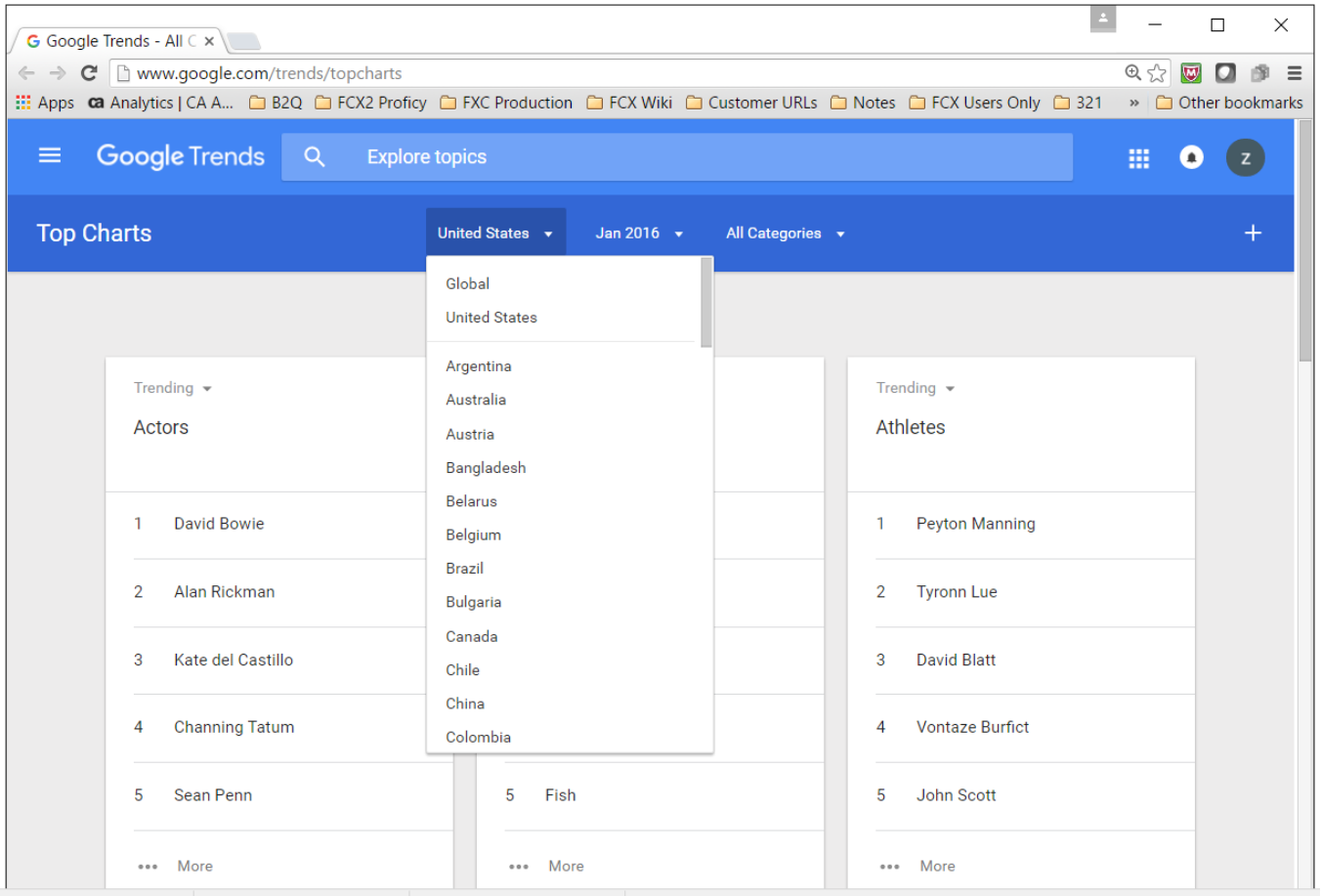
Google Trends

- The same page also includes the trending queries people used related to this particular topic. Note #2!

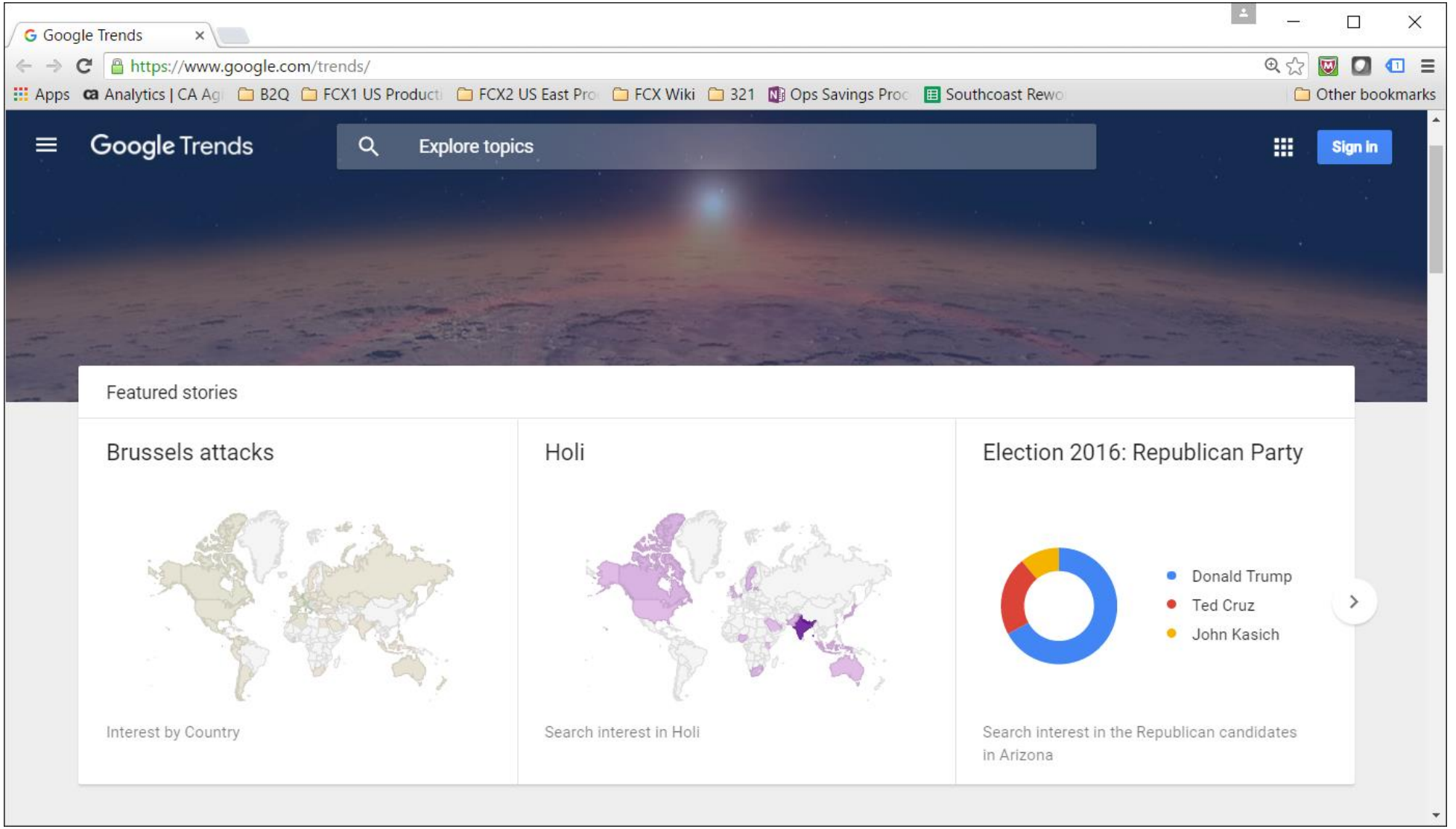


Google Trends

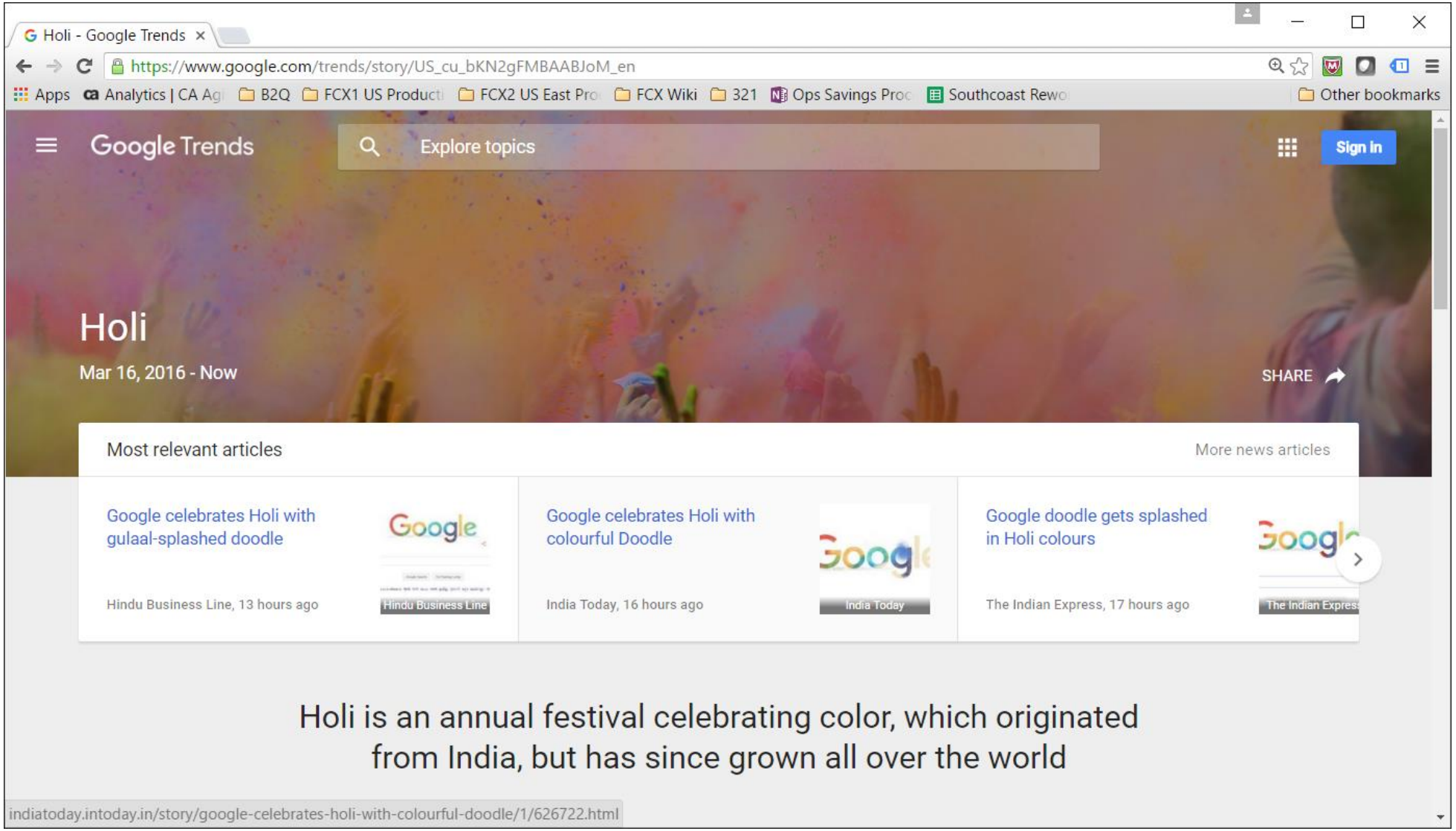
- Trends can be searched and trending keywords per category shown.



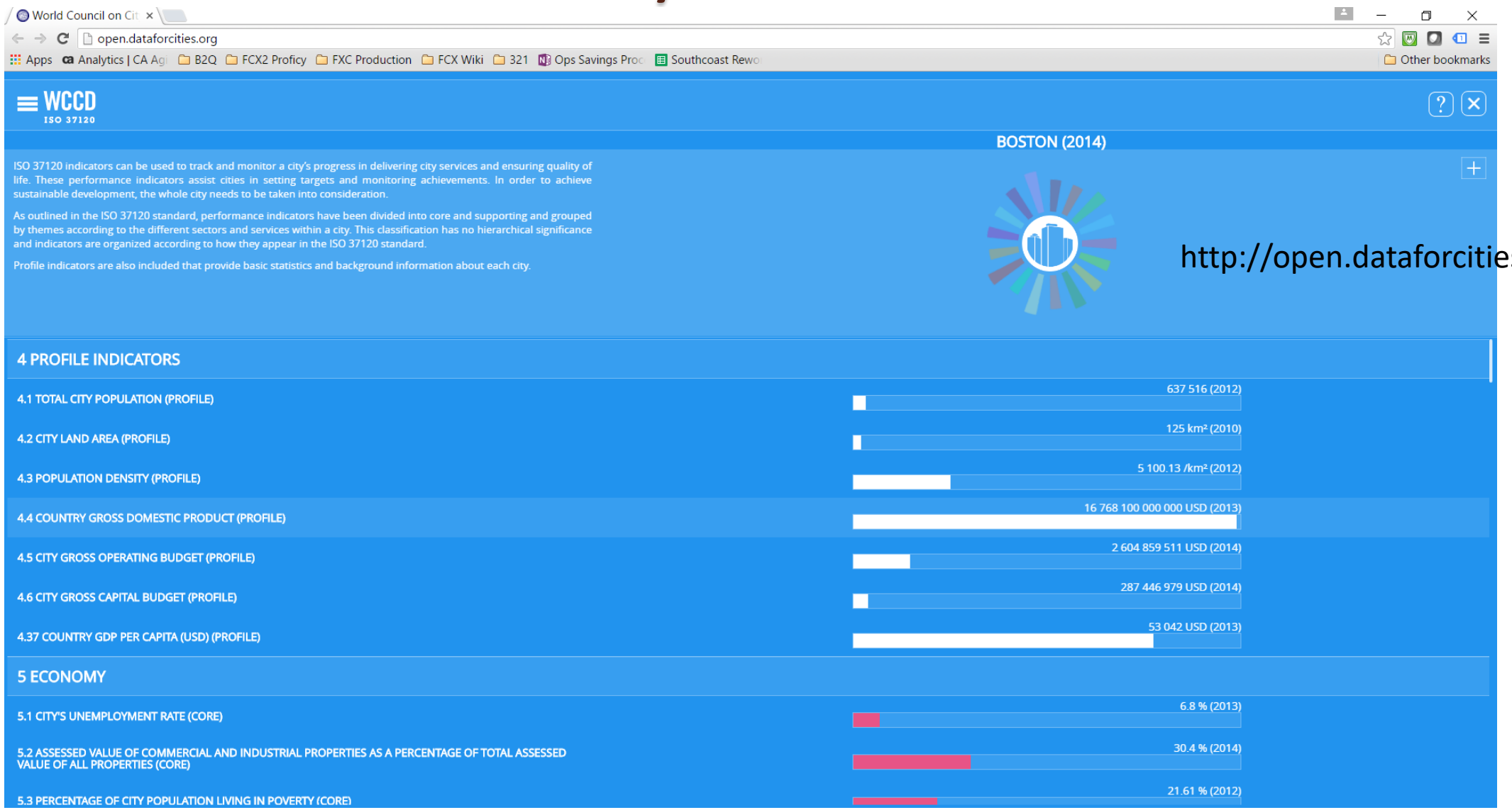
Google Trends – What is Holi?



Interesting to lean what is Holi



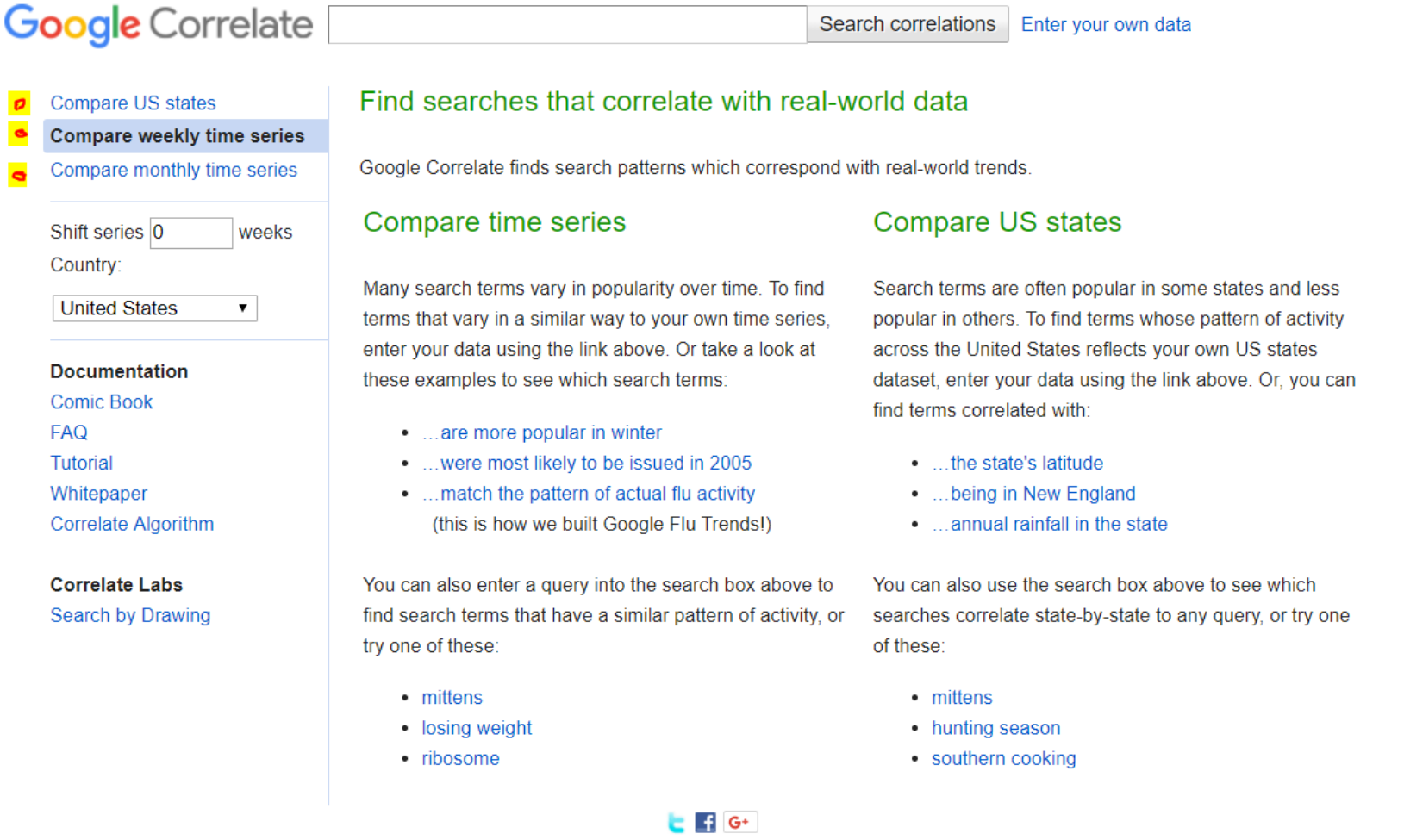
Useful for City Indicators studies



http://open.dataforcities.org/

Google Correlate

Google Correlate (https://www.google.com/trends/correlate).



Google Correlate

Google introduced in 2011, inverse form Google Trends.

1. Compare US States – terms popularity per state
   - Gives you the best correlated terms and the state distribution
   - Marketing campaigns and content strategies can be built around this

2. Time Series – terms popularity change over time
   - Seasonal changes, holidays etc. in trending pattern
   - Interesting to notice how a US holiday such as Halloween becomes trendier in other countries such as Portugal.

Lab project: Google Correlate

- Select what do you want to use:
  1. **Compare US States** – terms popularity per state
     - Analyze in which US state is most appropriate to advertise your type of business based on your key words.
  2. **Time Series** – terms popularity change over time
     - Create a seasonal business marketing campaign for a foreign country

- Submit your result (screenshots & description of your small business) as PowerPoint or similar. Show:
  - Screenshots of your term search (including the other most correlated terms).
  - Screenshots of the geographical area.
  - Marketing campaign conclusion you may draw.

Lab project: Google Correlate - Compare US States

Choose this project or the one on the next slide

- Task: Create small company (startup) marketing campaign based on data analysis from Google Correlate. Focus your marketing efforts on particular geographic areas and find out where to start with the introduction of your new type of product.
  - Invent a small business (Type, and distinctive product)
  - Select (1 or 2) terms (key words) that distinct your product from the others (Note these common terms are the ones people typically do Google search for other reasons than your company)
  - Compare US States – terms popularity per state
    - Analyze in which US state is most appropriate to advertise your type of business based on your key words.

- Submit your result (screenshots & description of your small business) as PowerPoint. Show
  - Screenshots of your term search (including the other most correlated terms)
  - Screenshots of the geographical area
  - Marketing campaign conclusion

Lab project: Google Correlate - Time Series

Choose this project or the one on the previous slide

- Task: Create small company (startup) marketing campaign based on data analysis from Google Correlate. Focus your marketing efforts on particular geographic areas and find out where to start with the introduction of your new type of product.
  - Invent a small business (Type, and distinctive product)
  - Select (1 or 2) terms (key words) that distinct your product from the others (Note these common terms are the ones people typically do Google search for other reasons than your company)
  - Time Series – terms popularity change over time
    - Create a seasonal business marketing campaign for a foreign country

- Submit your result (screenshots & description of your small business) as PowerPoint. Show
  - Screenshots of your term search (including an offset of few weeks before and after)
  - Marketing campaign conclusion

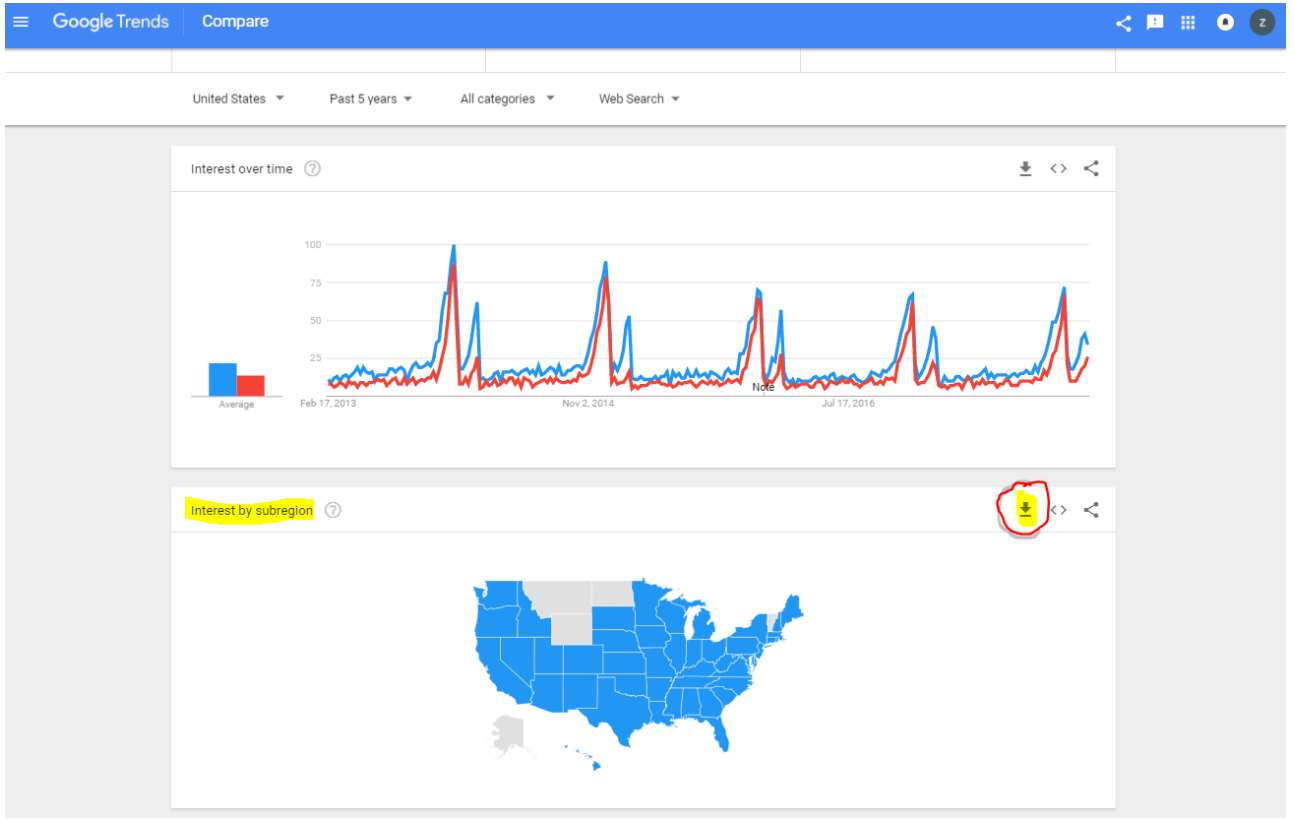
Lab project: Google Trends

Task: Using Google Trends data and R code to explore the following topic:

- Compare US interest in “gift for boyfriend”(GB) vs. “gift for girlfriend”(GG) over the last 5 years.
  - Q1: Which are the states where GG is smaller than 1? Find those and replace them with zero.
  - Q2: For How Many States GB > GG?
  - Q3: Find any states where GG+10 > GB
  - Q4: What is the % of states for which GG+10 > GB?
  - Q5: What is the ratio GG/GB for the state of New Hampshire?
  - Q6: Create a Bar Plot of GG & GB values for each state.
- Create R Project called “Google Trends”
  - Create a folder called “Data” in it.
  - Download from Blackboard the “geoMap.csv” and place it in the folder “Data”.
  - Create a R script file in which you will use the code for this analysis.
- Submit your result.
  - The R project folder with your code in it.

R Lab project with Google Trends

- Explore the CVS data and note that you need to skip the first 2 lines.
  - Use the R package “readr” to read the CSV file.
  - Rename the columns as "Region", "GB“ and "GG“.
  - Convert "GB“ and "GG“ data to numeric.
  - Replace NA with zero.
  - Answer the questions



R Lab project with Google Trends

- Here is an example of the code that you can use

```
# Google Trends
rm(list=ls()); cat("\014") # clear all
library(readr)

GT.Data <- read.csv(paste0('Data/','geoMap.csv'),
                    stringsAsFactors = FALSE,
                    skip = 2,blank.lines.skip = TRUE,header=T) #
colnames(GT.Data) <- c("Region","GB","GG")

GT.Data[1:5,]

# Convert to numerc values
zGB <- as.numeric(GT.Data$GB) # gift for boyfriend
zGG <- as.numeric(GT.Data$GG) # gift for girlfriend

# Place back to dataframe
GT.Data$GB <- zGB
GT.Data$GG <- zGG

# Find NA and replace with zero
ix1 <- which(is.na(GT.Data$GB))
GT.Data$GB[ix1] <- 0
ix2 <- which(is.na(GT.Data$GG))
GT.Data[ix2,]
GT.Data$GG[ix2] <- 0

```