

## Lab 3 - Marcos Falcone

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#Install jsonlite
install.packages("jsonlite")
#Load Package
library(jsonlite)

# Installing and loading the rtweet package:
install.packages("rtweet")
# Although rtweet on CRAN is functional, the latest version on github has many bug fixes
install.packages("githubinstall")
githubinstall::gh_install_packages("rtweet", ref = "5ef897e",dependencies=TRUE, ask= FALSE)
#Load package
library("rtweet")
#Inputting my Twitter credentials:
my_tokens <- create_token(app = "hiperfalcon_fwp", #whatever you named your app
  consumer_key = "rF8Wz0oK90vZ04uZSCSI6naWm",
  consumer_secret = "XZYj3Bm4IgrZEUxssjb2rGGMVZJVXFKvm4HRrvYXLSVEupatL8",
  access_token = "933719301294641157-CrYLjwPSP7suy06Q9hVDrTR49oR3SpT",
  access_secret = "Atwf3Ny2P6bYLt80ggLdbxnEcDjuCz49tUodjc0AnowBv"
)

# Firstly we need to search for the user
hf <- lookup_users("hiperfalcon", token = my_tokens)
# Getting my followers
followers_hiperfalcon <- get_followers("hiperfalcon", n = 'all',token = my_tokens)
# Getting further details from those followers:
followers_hf_Details <- lookup_users(followers_hiperfalcon,token = my_tokens)
head(followers_hf_Details)

# Identifying users who do not provide location data on their profiles:
table(!is.na(followers_hf_Details$location))

# Limiting the dataset to just these records:
followers_hf_Details_GEO <-followers_hf_Details[!is.na(followers_hf_Details$location),]

# Installing and loading ggmap:
install.packages("ggmap")
library(ggmap)

# Creating a frequency table of locations:
sample_locations <- data.frame(table(followers_hf_Details_GEO$location))

# Inputting my Google credentials:
register_google(key = "AIzaSyDM6vfuwzWycqb-6J9Uy1a01aZKUJlh1CM")

# Geocoding:
U_Locations_Geocode <- geocode(sample_locations,output="latlon",source="google")
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# Joining the locations to the sample locations:
sample_locations_geocoded <- cbind(sample_locations,U_Locations_Geocode)
# Appending the geocoded results back onto the Locations object:
Locations_GEO <- merge(Locations, sample_locations_geocoded, by.x="Var1",by.y="sample_locations",all.x = TRUE)
# Removing all the records with no locations
Locations_GEO <- Locations_GEO[!is.na(Locations_GEO$lat),]
# Changing the column names
colnames(Locations_GEO) <- c("location","frequency","lon","lat")

# Creating an interactive frequency map of my followers:

library("rgdal")
library(tmap)
# Creating a spatial points data frame
hf_SDF <- SpatialPointsDataFrame(coords = cbind(Locations_GEO$lon, Locations_GEO$lat), data = Locations_GEO$frequency)
# Plotting as a symbol map
m<- tm_shape(hf_SDF) +
  tm_bubbles("frequency", title.size = "Users") +
  tm_layout(title="@hiperfalcon Followers' Locations")
# View using leaflet
tmap_leaflet(m)

# Also creating a static map of unique locations of my followers:

install.packages("ggspatial")
library(ggspatial)
ggplot(data = world) +
  geom_sf(color = "black", fill = "lightblue") +
  geom_point(data=Locations_GEO, aes(x=lon, y=lat),size=0.1) +
  xlab("Longitude") + ylab("Latitude") +
  ggtitle("@hiperfalcon Followers' Locations")

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