7_day_average_chile

August 12, 2021

Script for '7_day_averages_chile' program in Python Licensed under the Apache License, Version 2.0 http://www.apache.org/licenses/LICENSE-2.0

The program parses a csv file containing the data of 7-day moving average of covid new cases per 100k inhabitants in Chilean regions, and then produces a multiple plot and a pie plot of the result.

The initial file 'MediaMovil_T.csv' is taken from the Chilean Health Ministry GitHub repository: https://github.com/MinCiencia/Datos-COVID19

[1]:
```
import matplotlib.pyplot as plt; plt.rcdefaults()
import pandas as pd
```

[2]:
```
# Opens the csv file 'MediaMovil_T.csv' from the Chilean Health Ministry GitHub␣
 ↪repository;
# Puts the data in the dataframe df and drops the 'NaN' values:
url = 'https://raw.githubusercontent.com/MinCiencia/Datos-COVID19/master/output/
 ↪producto47/MediaMovil_T.csv'
df = pd.read_csv(url)
df = df.dropna()
region_names = list(df.columns.values)[1:17]
```

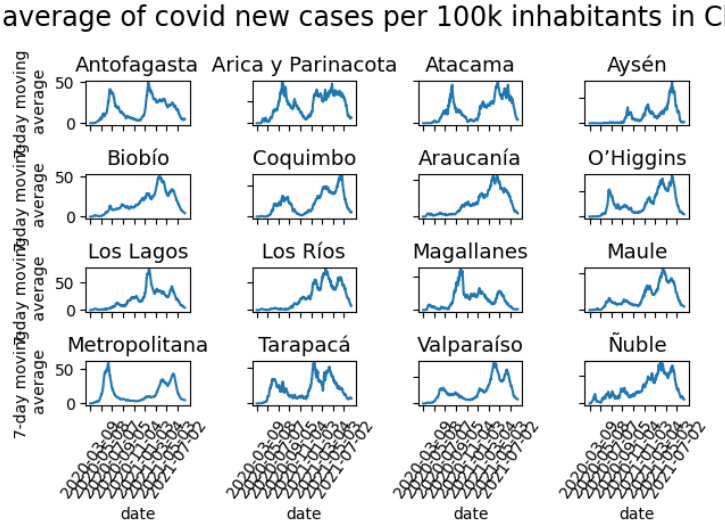
[3]:
```
# Generates a 4x4 multiple plot for the 16 Chilean regions:
fig, axes = plt.subplots(4, 4)
fig.suptitle("7-day moving average of covid new cases per 100k inhabitants in␣
 ↪Chilean regions", fontsize=17)

for i, axis in enumerate(axes.flat):
  x = df['Region']
  y = df.iloc[:,i+1]
  axis.plot(x, y)
  axis.set_title(region_names[i], fontsize=13)

# Specifies the xlabels, ylabels and xticks of the multiple plot;
# The command 'axis.label_outer()' ensures that the labels are only displayed
# on the external plots (left and bottom) of the multiple plot:
for axis in axes.flat:
  axis.set(xlabel='date', ylabel='7-day moving\n average')
  axis.set_xticks(x[::60])
  axis.set_xticklabels(x[::60], rotation=55, fontsize=10)
```

```
  axis.label_outer()

fig.tight_layout()
```



[4]:
```
# Collects the data of the final row/date of the dataframe:
last_row = df.tail(1)
final_date = last_row.iloc[0]['Region']
lst = last_row.values.tolist()[0][1:17]
final_total = round(sum(lst), ndigits=1)
```

[5]:
```
# Generates with a loop the 'explode' argument of the pie plot,
# Assigning the nonzero value 0.03 to the region presenting the highest
# 7-day moving average at the final row/date of the dataframe:
explode = []
for i in range(0,16):
  if lst[i] == max(lst):
    explode.append(0.03)
  else:
    explode.append(0)
```

[6]:
```
# Plots the pie graph for the final row/date of the dataframe with options␣
 ↪'explode' and 'autopct';
# The 'autopct' argument allows to print within the pies the 7-day moving␣
 ↪average of each region:
fig_bis = plt.figure()
plt.pie(lst, labels=region_names, explode=explode,
        autopct=lambda percentage: round(percentage * final_total / 100,␣
 ↪ndigits=1))
```

```
plt.title(f'7-day moving average of covid new cases per 100k inhabitants at␣
 ↪date {final_date}', fontsize=20)
fig_bis.tight_layout()

plt.show()
```

7-day moving average of covid new cases per 100k inhabitants at date 2021-08-11