

# CSC461

## INTRODUCTION TO DATA SCIENCE



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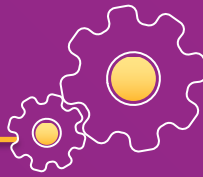
**05**

# **IMPACT OF COVID-19 IN PAKISTAN A CASE STUDY**





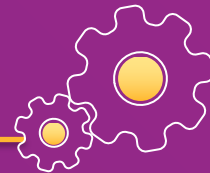
# COVID-19 AND PAKISTAN



- A novice approach to visualize the outbreak of coronavirus on Pakistan's map using Python
- Generate a map to visualize the spread of coronavirus using real data
- Display:
  - How many people are hospitalized
  - Number of deaths happened
  - Number of people who recovered from the disease
  - Current active cases



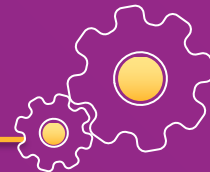
# COVID-19 AND PAKISTAN



- Data collection
- Data cleaning and preparation
- Data visualization



# COVID-19 AND PAKISTAN



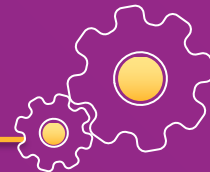
- First step, we need some data
- Current status of COVID-19 in the various provinces of Pakistan
  - <https://covid19.who.int/region/emro/country/pk>
  - <https://www.worldometers.info/coronavirus/country/pakistan/>
  - or simply Google
- Latitude and longitude coordinates of all the Pakistani provinces
  - Google to easily find out these coordinate values
- COVID-19 Pakistan dataset

State	Latitude	Longitude	Total Cases	Deaths	Recoveries	Active Cases
Punjab	31.17	72.7	522006	13612	491786	16608
Sindh	25.89	68.52	594019	8239	567237	16608
KPK	34.95	72.33	224136	6363	212886	4887
Balochistan	28.49	65.09	35987	378	35108	501
ICT	33.68	73.04	139378	1031	134140	4207
AJK	33.92	73.78	44312	793	42517	1002
GB	35.8	74.98	12056	191	11546	319





# COVID-19 AND PAKISTAN



- Import the required libraries

```
import folium
import pandas as pd
```

- Load the Pakistan map using folium's map function

```
pakistan_map = folium.Map(location = [30.37,69.34], zoom_start=4.5, tiles='OpenStreetMap')
```

- Load the dataset (CSV file) using Pandas's read\_csv function

```
df = pd.read_csv('location of file - covid-pak-data.csv')
```

- Calculate total number of cases by reading the whole column using a loop

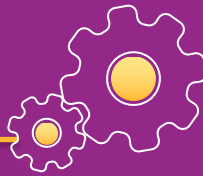
```
t = 0
for c in df['Total Cases']:
    t = int(c) + int(t)
```

- Experiment with total recoveries, total active cases, or total number of deaths from the dataset





# COVID-19 AND PAKISTAN



- Mark circles on the map using the data from the dataset

```
for state,lat,long,tc,de,re,ac in zip(list(df['State']),list(df['Latitude']),list(df['Longitude']),list(df['Total Cases']),list(df['Deaths']),list(df['Recoveries']),list(df['Active Cases'])):
```

```
    folium.CircleMarker(location = [lat,long], radius = (tc/t)*100, color='red', fill = False, fill_color = 'blue').add_to(pakistan_map)
```

```
    htmlData = '<strong>State: ' + state + '</strong><br>' + 'Total Cases: ' + str(tc) + '<br>' + 'Deaths: ' + str(de) + '<br>' + 'Recoveries: ' + str(re) + '<br>' + 'Active Cases: ' + str(ac)
```

```
    iframe = folium.IFrame(htmlData, width=200, height=150)
```

```
    popupData = folium.Popup(iframe, max_width=500)
```

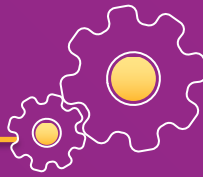
```
    folium.Marker(location = [lat,long], popup=popupData).add_to(pakistan_map)
```

- Display the map

*pakistan\_map*



# COVID-19 AND PAKISTAN

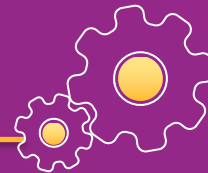


- Could you do the same province-wise?





# PAKISTAN DATASETS



- <https://opendata.com.pk/dataset>
- <https://dronewars.github.io/data/>



# THANKS

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