

Notebook

February 4, 2025

```
[42]: import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
```

```
[43]: arquivo = 'denguecases1620.csv'

# Carregar o arquivo CSV em um DataFrame do Pandas
df = pd.read_csv(arquivo)

df['Year'] = df['Year'].astype(int)

df
```

```
[43]:
```

	Month	Year	Region	Dengue_Cases	Dengue_Deaths
0	January	2016	Region I	705	1
1	February	2016	Region I	374	0
2	March	2016	Region I	276	0
3	April	2016	Region I	240	2
4	May	2016	Region I	243	1
...
1015	August	2020	BARMM	91	0
1016	September	2020	BARMM	16	8
1017	October	2020	BARMM	13	9
1018	November	2020	BARMM	15	1
1019	December	2020	BARMM	23	0

[1020 rows x 5 columns]

```
[44]: df = df.groupby(['Year', 'Month']).sum()
df
#Dados somados de casos de dengue por mês e ano em todas as regiões
```

```
[44]:
```

	Year	Month	Region	\
	2016	April	Region IRegion IIRegion IIIRegion IV-ARegion I...	
		August	Region IRegion IIRegion IIIRegion IV-ARegion I...	
		December	Region IRegion IIRegion IIIRegion IV-ARegion I...	
		February	Region IRegion IIRegion IIIRegion IV-ARegion I...	

[illegible]

February	Region I	Region II	Region III	Region IV-A	Region I...
January	Region I	Region II	Region III	Region IV-A	Region I...
July	Region I	Region II	Region III	Region IV-A	Region I...
June	Region I	Region II	Region III	Region IV-A	Region I...
March	Region I	Region II	Region III	Region IV-A	Region I...
May	Region I	Region II	Region III	Region IV-A	Region I...
November	Region I	Region II	Region III	Region IV-A	Region I...
October	Region I	Region II	Region III	Region IV-A	Region I...
September	Region I	Region II	Region III	Region IV-A	Region I...

Year	Month	Dengue_Cases	Dengue_Deaths
2016	April	7269	40
	August	36195	132
	December	13490	83
	February	12386	43
	January	17052	73
	July	29744	123
	June	10831	69
	March	9300	47
	May	8092	41
	November	16252	104
	October	21943	3954
	September	26990	3418
2017	April	6343	43
	August	25039	111
	December	13235	73
	February	9872	64
	January	15623	95
	July	18340	74
	June	7589	42
	March	7696	36
	May	4853	23
	November	12553	78
	October	15259	2098
	September	17753	1826
2018	April	6860	41
	August	34210	156
	December	31353	135
	February	10466	43
	January	12657	65
	July	30363	153
	June	11502	78
	March	7944	58
	May	6594	31
	November	30191	131
	October	30026	150

	September	38617	185
2019	April	9252	59
	August	85038	280
	December	24397	91
	February	25494	101
	January	20672	94
	July	55220	232
	June	25523	119
	March	19798	103
	May	10387	56
	November	30097	88
	October	46382	133
	September	89642	377
2020	April	2784	17
	August	7072	35
	December	5956	22
	February	19583	64
	January	18324	67
	July	4575	29
	June	2665	14
	March	12838	47
	May	2461	11
	November	5807	212
	October	4035	335
	September	4941	342

```
[45]: df = df.groupby(['Year', 'Region']).sum()
df
#Dados somados de casos de dengue por região e ano no total
```

```
[45]:
```

						Dengue_Cases \
Year	Region	IRegion	IIRegion	IIIRegion	IV-ARegion	IV...
2016	Region	IRegion	IIRegion	IIIRegion	IV-ARegion	IV...
2017	Region	IRegion	IIRegion	IIIRegion	IV-ARegion	IV...
2018	Region	IRegion	IIRegion	IIIRegion	IV-ARegion	IV...
2019	Region	IRegion	IIRegion	IIIRegion	IV-ARegion	IV...
2020	Region	IRegion	IIRegion	IIIRegion	IV-ARegion	IV...

						Dengue_Deaths
Year	Region	IRegion	IIRegion	IIIRegion	IV-ARegion	IV...
2016	Region	IRegion	IIRegion	IIIRegion	IV-ARegion	IV...
2017	Region	IRegion	IIRegion	IIIRegion	IV-ARegion	IV...
2018	Region	IRegion	IIRegion	IIIRegion	IV-ARegion	IV...
2019	Region	IRegion	IIRegion	IIIRegion	IV-ARegion	IV...
2020	Region	IRegion	IIRegion	IIIRegion	IV-ARegion	IV...

```
[50]: import pandas as pd
import matplotlib.pyplot as plt

anos = df.index.tolist() # Pega os anos (índice) como lista
casos = df['Dengue_Cases'].tolist() # Transforma a coluna em lista
mortes = df['Dengue_Deaths'].tolist() # Outra coluna em lista

# Exemplo de DataFrame corrigido
data = {
    'Year': anos,
    'Dengue_Cases': casos,
    'Dengue_Deaths': mortes
}

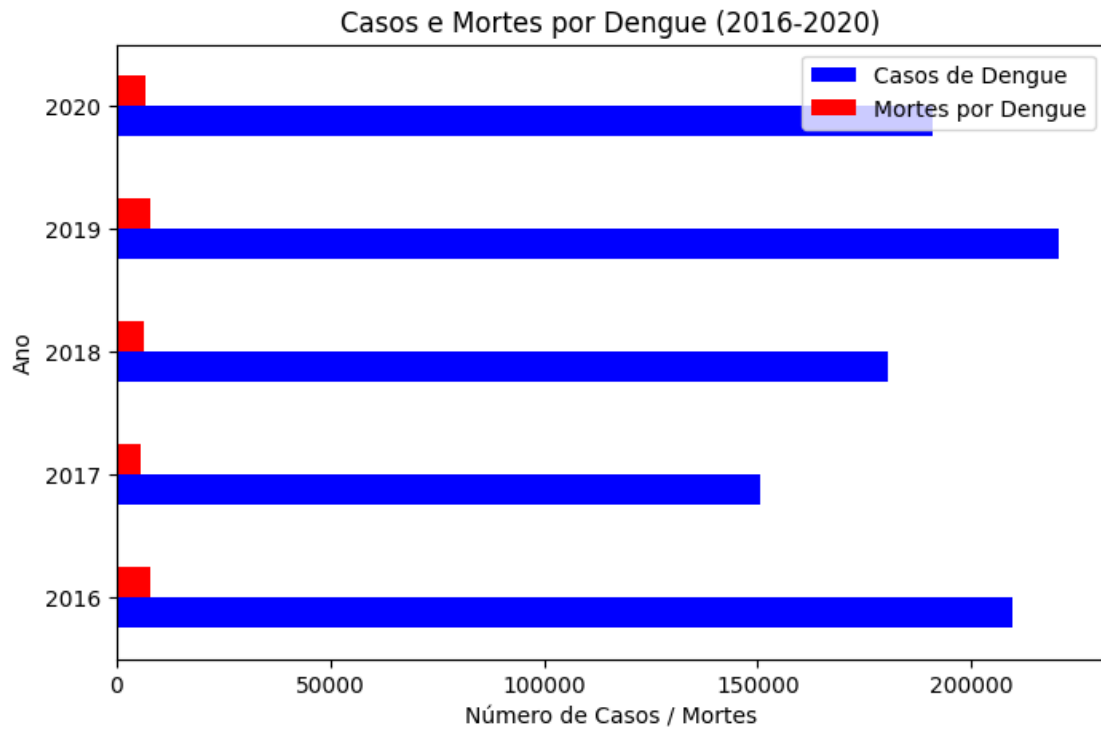
df = pd.DataFrame(data).set_index('Year') # Define Year como índice

# Criar gráfico
fig, ax = plt.subplots(figsize=(8, 5))

# Criar barras horizontais para Casos e Mortes
df[['Dengue_Cases', 'Dengue_Deaths']].plot(kind='barh', ax=ax, color=['blue', 'red'])

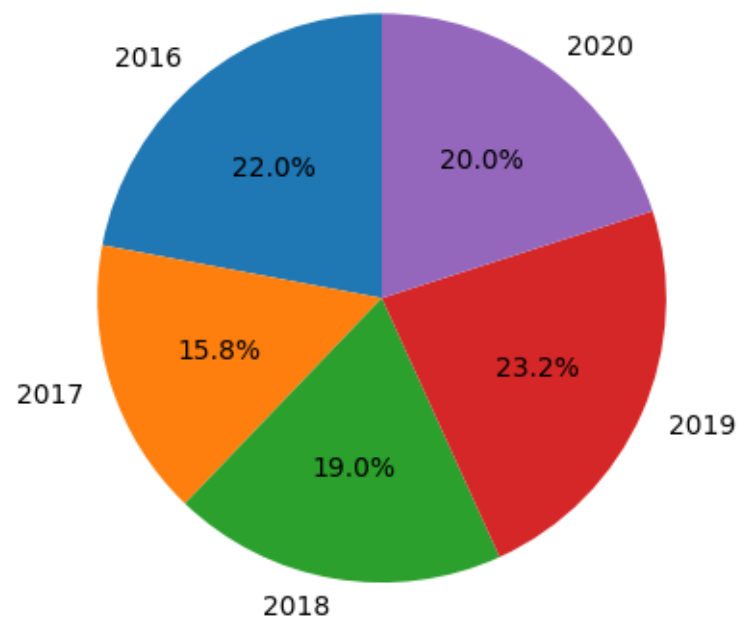
# Configurar labels
ax.set_xlabel('Número de Casos / Mortes')
ax.set_ylabel('Ano')
ax.set_title('Casos e Mortes por Dengue (2016-2020)')
ax.legend(['Casos de Dengue', 'Mortes por Dengue'])

# Exibir gráfico
plt.show()
```



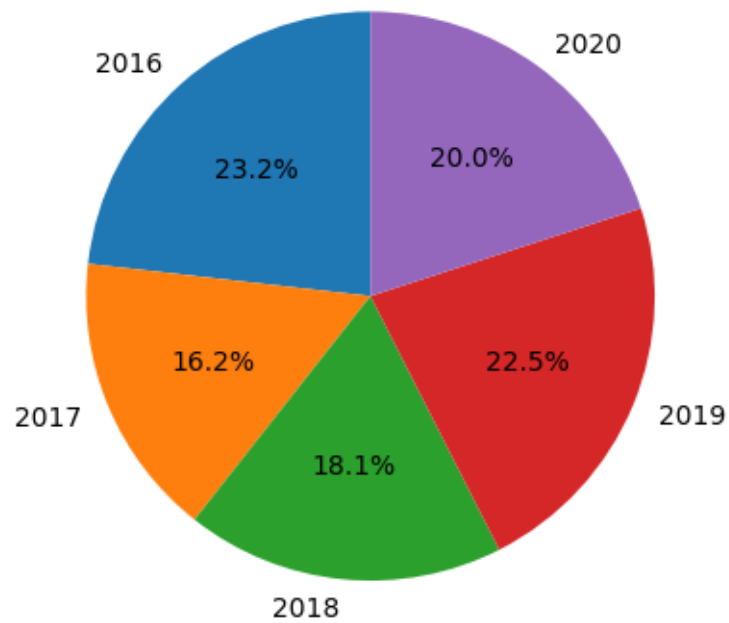
```
[34]: plt.pie(casos, labels=anos, autopct='%1.1f%%', startangle=90)
plt.title('Distribuição casos de dengue por ano')
plt.show()
```

Distribuição casos de dengue por ano



```
[36]: plt.pie(mortes, labels=anos, autopct='%1.1f%%', startangle=90)
plt.title('Distribuição mortes de dengue por ano')
plt.show()
```

Distribuição mortes de dengue por ano



```
[76]: df = pd.read_csv(arquivo)

df['Year'] = df['Year'].astype(int)
df

df_grouped = df.groupby('Region')[['Dengue_Cases', 'Dengue_Deaths']].sum()
df_grouped = df_grouped.reset_index() # Traz 'Region' de volta como coluna

print(df_grouped)
```

	Region	Dengue_Cases	Dengue_Deaths
0	BARMM	11537	332
1	CAR	30582	1008
2	NCR	115966	4008
3	Region I	59066	157
4	Region II	45141	193
5	Region III	131064	482
6	Region IV-A	163029	652
7	Region IV-B	30849	130
8	Region IX	47781	532
9	Region V	22167	185
10	Region VI	117523	1825
11	Region VII	110683	1760

12	Region VIII	51983	585
13	Region X	82437	848
14	Region XI	32522	385
15	Region XII	59802	2796
16	Region XIII	35293	966

```
[80]: import pandas as pd
import matplotlib.pyplot as plt

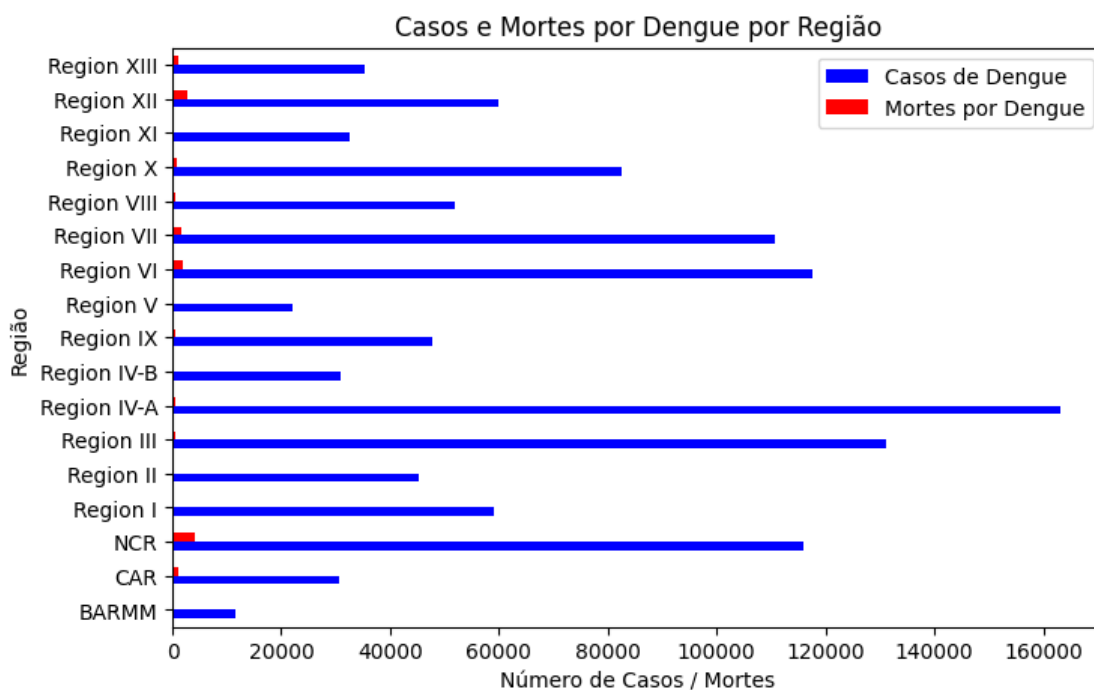
# Garantir que 'Region' seja o índice correto
df_corrigido = df_grouped.set_index('Region')[['Dengue_Cases', 'Dengue_Deaths']]

# Criar gráfico
fig, ax = plt.subplots(figsize=(8, 5))

# Criar barras horizontais para Casos e Mortes
df_corrigido.plot(kind='barh', ax=ax, color=['blue', 'red'])

# Configurar labels
ax.set_xlabel('Número de Casos / Mortes')
ax.set_ylabel('Região') # Agora mostra as regiões corretamente
ax.set_title('Casos e Mortes por Dengue por Região')
ax.legend(['Casos de Dengue', 'Mortes por Dengue'])

# Exibir gráfico
plt.show()
```



```
[85]: import nbformat
      from nbconvert import PDFExporter

      # Nome do arquivo de entrada e saída
      notebook_filename = "datadengue.ipynb"
      output_filename = "datadengue.pdf"

      # Carregar o notebook
      with open(notebook_filename) as f:
          notebook_content = nbformat.read(f, as_version=4)

      # Converter para PDF
      pdf_exporter = PDFExporter()
      body, resources = pdf_exporter.from_notebook_node(notebook_content)

      # Salvar como PDF
      with open(output_filename, "wb") as f:
          f.write(body)

      print("Conversão concluída! Arquivo salvo como:", output_filename)
```

Conversão concluída! Arquivo salvo como: datadengue.pdf