SISTEMAS DE INFORMAÇÃO

Lista de Exercícios -Seaborn

Prof. Dr. Marco Antonio Leonel Caetano

(1)

a)

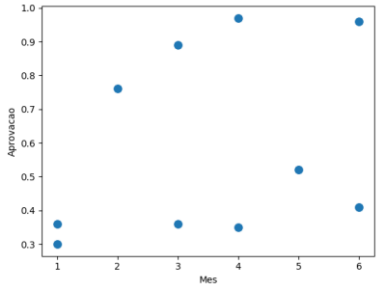
```
# Biblioteca Seaborn
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as fig

df=pd.DataFrame({'Mes':[1,1,2,3,3,4,4,5,6,6],
                 'Aprovacao':[0.3,0.36,0.76,0.36,0.89,0.35,0.97,0.52,0.41,0.96],
                 'Votantes':[437,494,415,481,454,326,386,441,365,346]})

```

b)

```
sns.scatterplot(data=df,x='Mes',y='Aprovacao')
```

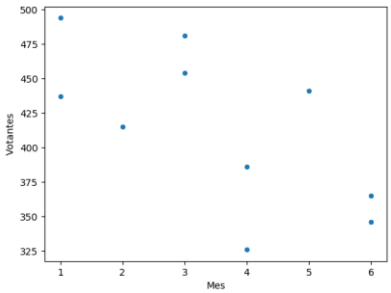
c)

```
sns.scatterplot(data=df,x='Mes',y='Aprovacao', s=100)
```



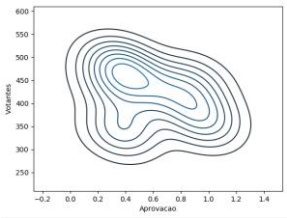
d)

```
sns.scatterplot(data=df,x='Mes',y='Votantes')
```



e)

```
sns.kdeplot(df['Aprovacao'],df['Votantes'])
```

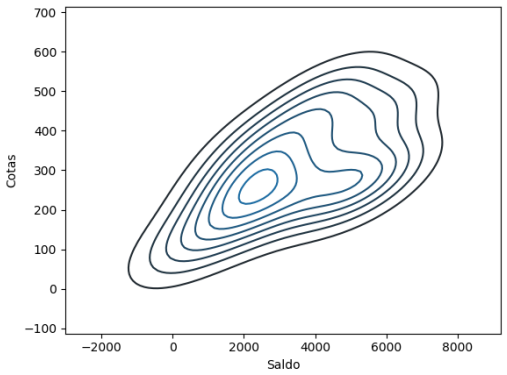


(2)

(a)

```
# Biblioteca Seaborn
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as fig

df=pd.DataFrame({'Banco':['A','A','A','B','B','B','C','C','C'],
                 'Saldo':[600,2590,4680,1820,4320,5590,5600,2600,2800],
                 'Cotas':[120,370,260,260,480,430,280,200,280]})
```

```
sns.kdeplot(df['Saldo'],df['Cotas'])
```



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(3)

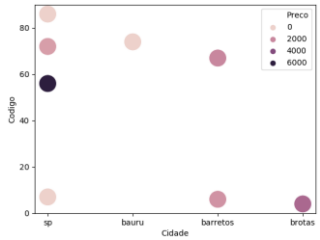
(a)

```
# Biblioteca Seaborn
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as fig

df=pd.DataFrame({'Codigo':[7,74,86,6,4,56,72,67],
                 'Preco':[8,10,30,1700,3000,6000,1400,2000],
                 'Secao':['brinq','brinq','brinq','elet','cel','elet','elet','elet'],
                 'Cidade':['sp','bauru','sp','barretos','brotas','sp','sp','barretos']})
```

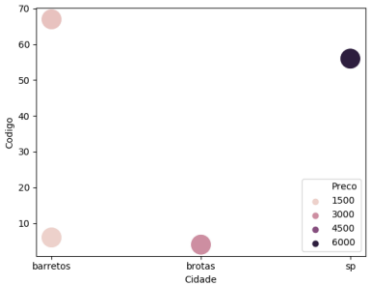
(b)

```
sns.scatterplot(data=df,x='Cidade',y='Codigo',hue='Preco',s=500)
```



(c)

```
filt=df[(df['Preco']>1500)]
sns.scatterplot(data=filt,x='Cidade',y='Codigo',hue='Preco',s=500)
```



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(4)

(a)

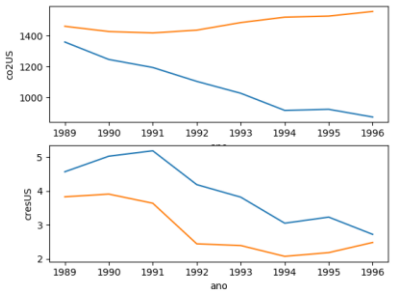
```
1 # Biblioteca Seaborn
2 import pandas as pd
3 import seaborn as sns
4 import matplotlib.pyplot as fig
5
6 df=pd.DataFrame({'ano':[1989,1990,1991,1992,1993,1994,1995,1996],
7                  'co2EU':[1360,1247,1195,1105,1028,917,924,874],
8                  'co2US':[1462,1428,1419,1437,1486,1521,1528,1558],
9                  'cresEU':[4.57,5.03,5.19,4.19,3.82,3.05,3.23,2.72],
10                 'cresUS':[3.83,3.91,3.64,2.44,2.39,2.07,2.18,2.48]})
```

No console:

	ano	co2EU	co2US	cresEU	cresUS
0	1989	1360	1462	4.57	3.83
1	1990	1247	1428	5.03	3.91
2	1991	1195	1419	5.19	3.64
3	1992	1105	1437	4.19	2.44
4	1993	1028	1486	3.82	2.39
5	1994	917	1521	3.05	2.07
6	1995	924	1528	3.23	2.18
7	1996	874	1558	2.72	2.48

(b)

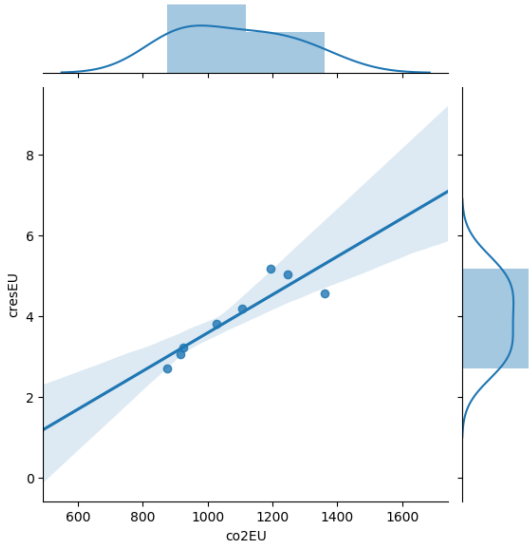
```
fig.subplot(211)
sns.lineplot(data=df,x='ano',y='co2EU')
sns.lineplot(data=df,x='ano',y='co2US')

fig.subplot(212)
sns.lineplot(data=df,x='ano',y='cresEU')
sns.lineplot(data=df,x='ano',y='cresUS')
```



(c) O comando é o seguinte:

```
sns.jointplot(data=df,x='co2EU',y='cresEU',kind='reg')
```

O gráfico de jointplot obtido é o representado a seguir:



(d)

O coeficiente de correlação é de -70% entre a emissão de CO_2 e crescimento econômico europeu nos EUA. O cálculo é feito da seguinte forma:

```
print('++++++++++++++++++ Correlação Co2 x crescimento EUA ++++++++++++')
print(df['co2US'].corr(df['cresUS']))
```

Valor igual: -0.70361

Resultado do jointplot demonstra a curva inversamente proporcional entre emissão de CO_2 nos EUA e taxa de crescimento.