

relatorio_data1

February 3, 2023

Relatório Data - Reunião 01/02/2023

```
[ ]: import os
import numpy as np
import matplotlib.pyplot as plt
```

```
[ ]: lista_caminho = os.listdir('C:\\Users\\Riallen\\Documents\\Att\\Data')
print(lista_caminho)
```

```
['AALR3', 'ABEV3', 'AERI3', 'AESB3', 'AESO3', 'AFLT3', 'AGRO3', 'AGXY3',
'AHEB3', 'AHEB5', 'AHEB6', 'ALLD3', 'ALLL4', 'ALPA3', 'ALPA4', 'ALPK3',
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 'WSO11', 'WSO33', 'YBRA3B', 'YBRA4B', 'YDUQ3', 'ZAMP3']

```
[ ]: #Total de empresas consultadas
tamnho_empresas = len(lista_caminho)
print(tamnho_empresas)
```

543

```
[ ]: #Análise de relatórios
#contador_relatorios
t = 0
lista = []
for caminho in lista_caminho:
    path_caminho_pdf = 'C:\\Users\\Riallen\\Documents\\Att\\Data\\' + caminho
```

```

relatorio_pdf = os.listdir(path_caminho_pdf)
for lista_pdf in relatorio_pdf:
    #print(lista_pdf)
    lista.append(lista_pdf)
    t = t + 1
#quantidade total de relatorios baixados
print(t)

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[ ]: #organização da lista
#Pegar apenas os anos das strings
anos = []
for name in lista:
    org = name.split('_')
    org2 = org[1].split('.')
    anos.append(int(org2[0]))
print(anos)
#o tamanho de anos deve ser igual a t
print(len(anos))

```

```

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[illegible]

[illegible]

[illegible]

[illegible]

[illegible]


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2018, 2020, 2021, 2012, 2013, 2014, 2015, 2017, 2018, 2013, 2014, 2015, 2016,
2017, 2018, 2019, 2020, 2021, 2018, 2019, 2020, 2021]
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```

[ ]: print("Ano mínimo: ", min(anos))
      print("Ano máximo: ", max(anos))
      contador_anos = np.zeros(12, dtype = int)
      real_ano = 2010
      i = 0
      while real_ano <= 2021:
          print(real_ano)
          for j in anos:
              if j == real_ano:
                  contador_anos[i] = contador_anos[i] + 1
          real_ano = real_ano + 1
          i = i + 1
      print(contador_anos)
      print(sum(contador_anos))

```

```

Ano mínimo: 2010
Ano máximo: 2021
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
[ 1  48 299 325 337 322 327 353 354 371 399 422]
3558

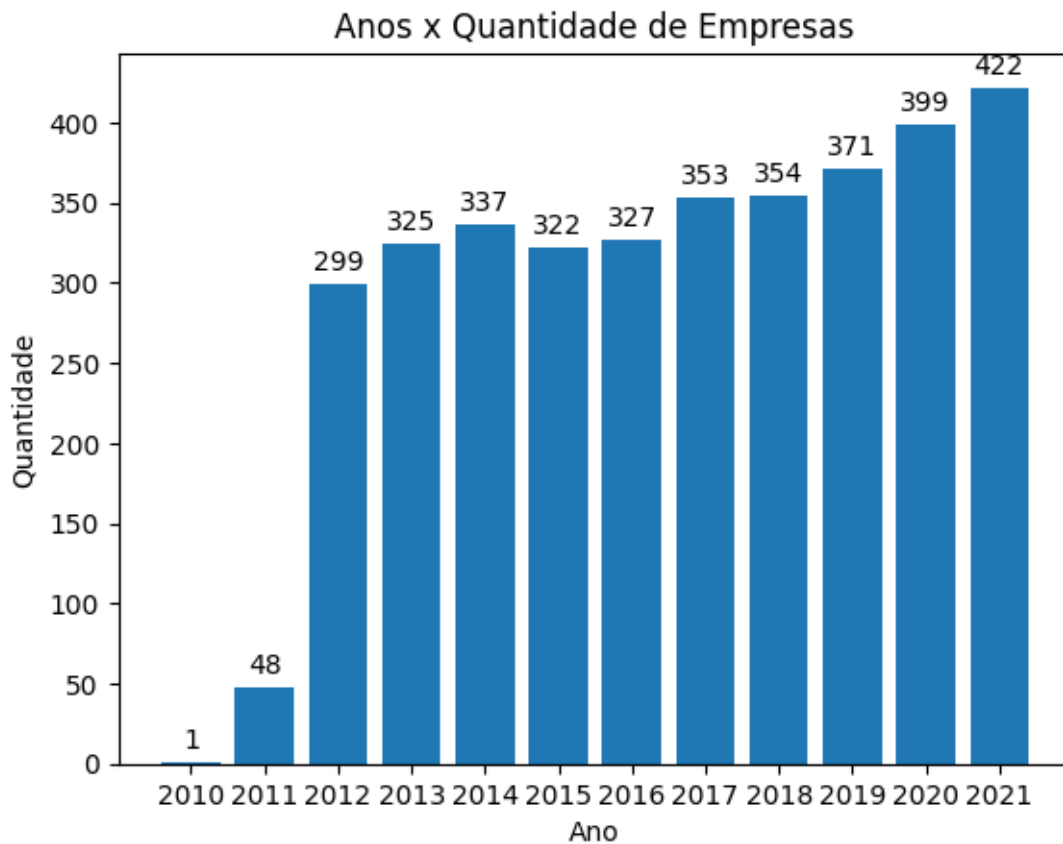
```

```

[ ]: #Gráfico gerado após análise
      fig, ax = plt.subplots()
      X = ['2010', '2011', '2012', '2013', '2014', '2015', '2016', '2017', '2018',
           '2019', '2020', '2021']
      rect1 = ax.bar(X, contador_anos)
      ax.set_ylabel('Quantidade')
      ax.set_title("Anos x Quantidade de Empresas")

```

```
ax.set_xlabel('Ano')
ax.bar_label(rect1, padding = 3)
plt.show()
```



```
[ ]: #Empresa 2010
#Pegar apenas os anos das strings
empresa_2010 = []
for name in lista:
    org = name.split('_')
    org2 = org[1].split('.')
    #print(org2[0])
    if org2[0] == '2010':
        empresa_2010.append(name)
print(empresa_2010)
#o tamanho de anos deve ser igual a t
print(len(empresa_2010))
```

```
['GPAR3_2010.pdf']
```

```
1
```

```
[ ]: #Realizar pesquisa na empresa GPAR3
GPAR3 = []
for empresa in lista_caminho:
    if empresa == "GPAR3":
        path_caminho_pdf_2010 = 'C:\\Users\\Riallen\\Documents\\Att\\Data\\' +
        empresa
        relatorio_pdf_2010 = os.listdir(path_caminho_pdf_2010)
        for lista_pdf_2010 in relatorio_pdf_2010:
            #print(lista_pdf)
            GPAR3.append(lista_pdf_2010)
#quantidade total de relatorios baixados
print(GPAR3)
print(len(GPAR3))
```

```
['GPAR3_2010.pdf', 'GPAR3_2011.pdf', 'GPAR3_2012.pdf', 'GPAR3_2013.pdf',
'GPAR3_2014.pdf', 'GPAR3_2015.pdf', 'GPAR3_2016.pdf', 'GPAR3_2017.pdf',
'GPAR3_2018.pdf', 'GPAR3_2019.pdf', 'GPAR3_2020.pdf', 'GPAR3_2021.pdf']
12
```

Ao observar a pasta da empresa GPAR3 descobrimos que consta os relatórios de 2010 - 2021

```
[ ]: #Empresa 2011
empresa_2011 = []
names_empresas_2011 = []
for name in lista:
    org = name.split('_')
    org2 = org[1].split('.')
    #print(org2[0])
    if org2[0] == '2011':
        names_empresas_2011.append(org[0])
        empresa_2011.append(name)
print(empresa_2011)
#o tamanho de anos deve ser igual a t
print(len(empresa_2011))
```

```
['APT13_2011.pdf', 'APT14_2011.pdf', 'BAHI3_2011.pdf', 'BRAP3_2011.pdf',
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```

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```
[ ]: print(names_empresas_2011)
```

```
['APTI3', 'APTI4', 'BAHI3', 'BRAP3', 'BRAP4', 'BRAP99', 'CATA3', 'CGAS3',  
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'SAPR3', 'SAPR4', 'STBP3', 'STKF3', 'TOTS3', 'VALE3', 'VIVT3']
```

```
[ ]: #realizar pesquisa nas empresas de 2011 sem a GPAR3
```

```
lista_de_empresas_2011 = []
```

```
for name_emp in names_empresas_2011:
```

```
    for empresa in lista_caminho:
```

```
        if empresa == name_emp:
```

```
            path_caminho_pdf_2011 = 'C:
```

```
↪\\Users\\Riallen\\Documents\\Att\\Data\\' + empresa
```

```
            relatorio_pdf_2011 = os.listdir(path_caminho_pdf_2011)
```

```
            att = []
```

```
            for lista_pdf_2011 in relatorio_pdf_2011:
```

```
                #print(lista_pdf)
```

```
                att.append(lista_pdf_2011)
```

```
            lista_de_empresas_2011.append(att)
```

```
#quantidade total de relatorios baixados
```

```
print(lista_de_empresas_2011)
```

```
print(len(lista_de_empresas_2011))
```

```
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 'VIVT3_2021.pdf']]

```
[ ]: #quantidade de relatórios em cada empresa
tam_emp = np.zeros(48, dtype = int)
i = 0
d11 = 0
empresas_11r = []
for pesquisa in lista_de_empresas_2011:
    #print(pesquisa)
    for k in pesquisa:
        #print(k)
        tam_emp[i] = tam_emp[i] + 1
        if tam_emp[i] == 11:
            d11 = d11 + 1
            empresas_11r.append(k)
    i = i + 1
print(tam_emp)
print("Empresa com menor quantidade de relatorios: ", min(tam_emp))
print("Empresas com 11 relatórios na sua pasta: ", d11 - 1)
i = 0
for lista1 in empresas_11r:
    c = lista1.split("_")
    empresas_11r[i] = c[0]
    i = i + 1
print(empresas_11r)
#print(len(empresas_11r))
```

```
[10 10 11 10 11 10  8 11 10 10 10 11 11  9 11 10 11 10 12 11  9 11 11  7
  8  7 11  9  9 10 10  8  6 11 11  8  9  8 11 10  7  8  8 10 10  3 11  9]
Empresa com menor quantidade de relatorios:  3
Empresas com 11 relatórios na sua pasta:  15
['BAHI3', 'BRAP4', 'CGAS3', 'FRTA3', 'GGBR3', 'GOAU3', 'GOLL3', 'GPAR3',
'GRND3', 'HAGA3', 'HBSA3', 'LIPR3', 'NEMO6', 'PETR3', 'QUAL3', 'VALE3']
```

```
[ ]: #empresas com 10 relatorios
quantidade_relatorios = 11
empresas_2011r = []
for i in range(quantidade_relatorios, 2, -1):
    name = []
    #print(name)
    for pesquisa in lista_de_empresas_2011:
        #print(pesquisa)
        #print(len(pesquisa))
        if i == len(pesquisa):
            c = pesquisa[0].split("_")
            name.append(c[0])
    print("Empresas com ", i , "relatórios")
    print(name)
    empresas_2011r.append(name)
#print(empresas_2011r)
```

```

grafico = []
for i in empresas_2011r:
    #print(len(i))
    grafico.append(len(i))
print(grafico)
print(sum(grafico))

```

Empresas com 11 relatórios

```
['BAHI3', 'BRAP4', 'CGAS3', 'FRTA3', 'GGBR3', 'GOAU3', 'GOLL3', 'GRND3',
'HAGA3', 'HBSA3', 'LIPR3', 'NEMO6', 'PETR3', 'QUAL3', 'VALE3']
```

Empresas com 10 relatórios

```
['APTI3', 'APTI4', 'BRAP3', 'BRAP99', 'CGAS5', 'DASA3', 'EMBR3', 'GOAU4',
'GOLL4', 'MAPT4', 'MSPA3', 'ROMI3', 'STBP3', 'STKF3']
```

Empresas com 9 relatórios

```
['GGBR4', 'GUAR3', 'LTEL5B', 'MAPT3', 'PGMN3', 'VIVT3']
```

Empresas com 8 relatórios

```
['CATA3', 'KLBN11', 'MSPA4', 'PETR4', 'POM04', 'SAPR3', 'SAPR4']
```

Empresas com 7 relatórios

```
['JBSS3', 'KLBN4', 'SAPR11']
```

Empresas com 6 relatórios

```
['NEMO3']
```

Empresas com 5 relatórios

```
[]
```

Empresas com 4 relatórios

```
[]
```

Empresas com 3 relatórios

```
['TOTS3']
```

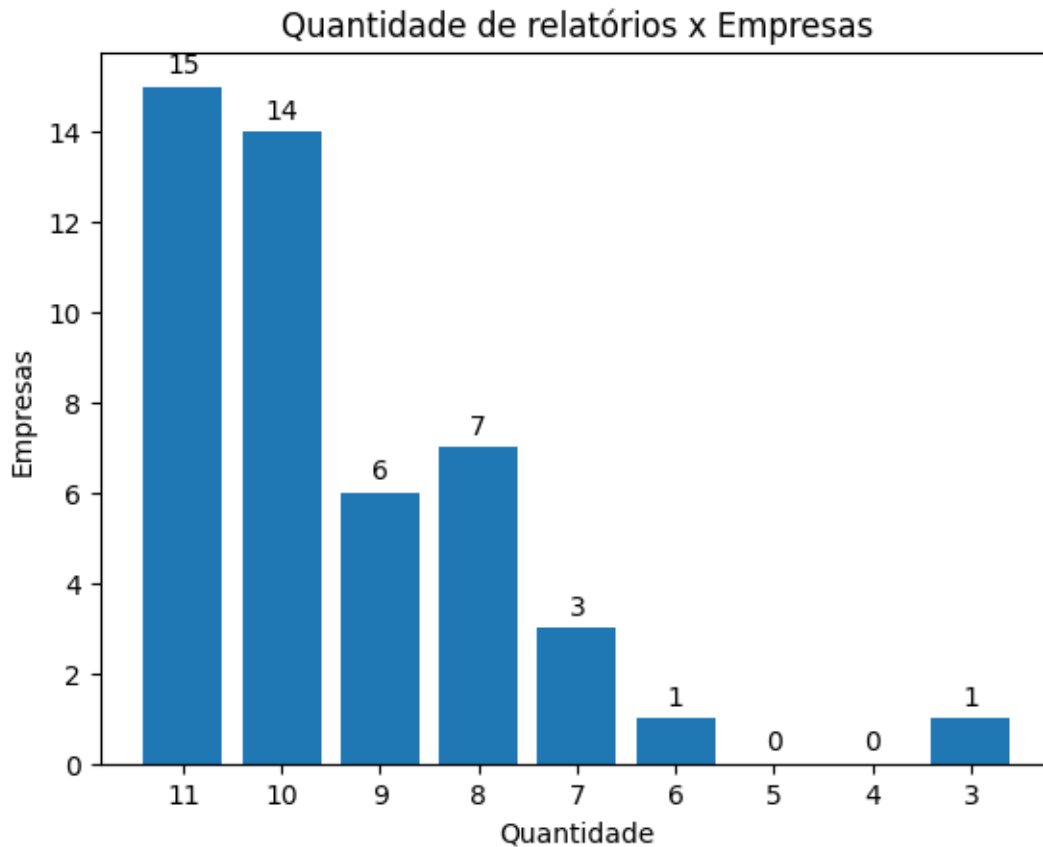
```
[15, 14, 6, 7, 3, 1, 0, 0, 1]
```

47

```

[ ]: #Gráfico gerado após análise
fig, ax = plt.subplots()
X = ["11", "10", "9", "8", "7", "6", "5", "4", "3"]
rect1 = ax.bar(X, grafico)
ax.set_ylabel('Empresas')
ax.set_title("Quantidade de relatórios x Empresas")
ax.set_xlabel('Quantidade')
ax.bar_label(rect1, padding = 3)
plt.show()

```

```
[ ]: #Empresa 2012
      empresa_2012 = []
      names_empresas_2012 = []
      for name in lista:
          #print(name)
          org = name.split('_')
          #print(org)
          org2 = org[1].split('.')
          #print(org2[0])
          if org2[0] == '2012':
              names_empresas_2012.append(org[0])
              empresa_2012.append(name)
      print(empresa_2012)
      #o tamanho de anos deve ser igual a t
      print(len(empresa_2012))
```

```
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```

299

```
[ ]: #print(names_empresas_2011)
      #print(names_empresas_2012)
      c = []

      for i in names_empresas_2012:
          a = 0
          for j in names_empresas_2011:
              if i == j:
                  a += 1
          if a == 0:
              c.append(i)
      names_empresas_2012 = c
      print(names_empresas_2012)
      print(len(names_empresas_2012))
```

```
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'BETP3B', 'BIOM3', 'BLUT3', 'BLUT4', 'BMKS3', 'BOBR3', 'BRFS3', 'BRKM6',
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    for empresa in lista_caminho:
        if empresa == name_emp:
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↪\\Users\\Riallen\\Documents\\Att\\Data\\' + empresa
            relatorio_pdf_2012 = os.listdir(path_caminho_pdf_2012)
            att = []
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                #print(lista_pdf)
                att.append(lista_pdf_2012)
            lista_de_empresas_2012.append(att)
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print(lista_de_empresas_2012)
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```
[ ]: #quantidade de relatórios em cada empresa
tam_emp = np.zeros(262, dtype = int)
i = 0
empresas_12r = []
for pesquisa in lista_de_empresas_2012:
    #print(pesquisa)
    for k in pesquisa:
        #print(k)
        tam_emp[i] = tam_emp[i] + 1
    i = i + 1
print(tam_emp)
print("Empresa com menor quantidade de relatorios: ", min(tam_emp))
print(len(tam_emp))
```

```
[10  8  9  9  7 10 10 10  9 10 10  8  9 10  7  6 10 10  9 10  8 10 10  5
  7 10 10 10 10  9  6  9 10  9  9 10  9  9  8  8  7 10  9  8  8  6  9 10
  9  8  9  5 10 10  9 10  8 10  9  9 10 10 10  8  9  5  9 10  7  8  6  8
  7  8 10  9 10 10  9 10 10  9 10 10  9 10 10 10 10  9  9 10 10 10  7 10
  9 10  8 10 10 10  9 10 10  9  9  8 10 10  9  8 10 10  9  9  9 10  9 10
  9 10 10 10 10  9 10 10  9  8 10 10 10  7  8  7  8  8  9  9  6  9  9 10
  9  8  9  9 10 10  9  9  8 10 10  5  9  9  9  9  8  8 10  8 10  9 10  8
  8  5  7  5  8  9  8  9  6 10  8  9  8 10 10 10  8  6  9  9  8  9 10 10
  9  8 10 10  9  8 10 10 10 10 10 10  7 10  7 10  8  7  6  6 10  9 10 10
 10 10 10  7  8 10  6  8  8  9  8 10  9  8  9  8  7  8  7  9 10  7  9  8
  8 10  9  8 10  9  9  8 10 10 10 10 10  7  9  6  5  9  8  7 10  6]
```

Empresa com menor quantidade de relatorios: 5
262

```
[ ]: #empresas com 10 relatorios
quantidade_relatorios = 10
empresas_2012r = []
for i in range(quantidade_relatorios, 4, -1):
    name = []
    #print(name)
    for pesquisa in lista_de_empresas_2012:
        #print(pesquisa)
        #print(len(pesquisa))
        if i == len(pesquisa):
            c = pesquisa[0].split("_")
            name.append(c[0])
    print("Empresas com ", i, "relatórios")
    print(name)
    empresas_2012r.append(name)
#print(empresas_2011r)

grafico = []
```

```

for i in empresas_2012r:
    #print(len(i))
    grafico.append(len(i))
print(grafico)
print(sum(grafico))

```

Empresas com 10 relatórios

```

['AFLT3', 'AMER3', 'ARZZ3', 'ATMP3', 'AZE3', 'AZE4', 'BAUH3', 'BDLL4',
'BETP3B', 'BLUT3', 'BMKS3', 'BOBR3', 'CABI3B', 'CAMB3', 'CAMB4', 'CASN3',
'CCRO3', 'CEBR6', 'CEED3', 'CLSC3', 'COCE5', 'COCE6', 'CPFE3', 'CPLE3', 'CRDE3',
'CRPG3', 'CRPG5', 'CSNA3', 'CTSA4', 'CYRE3', 'DEXP3', 'DIRR3', 'DOHL3', 'DXCO3',
'EALT3', 'ECOR3', 'EGIE3', 'EKTR3', 'EKTR4', 'ELET6', 'EMAE3', 'EMAE4',
'ENGI11', 'ENGI4', 'ENMT4', 'EPAR3', 'EPAR4', 'EQPA5', 'EQPA6', 'ESTR3',
'ESTR4', 'EUCA4', 'EVEN3', 'FIGE3', 'FLRY3', 'FRN3B', 'FRN5B', 'FRN6B',
'GEP3', 'GESA3', 'HAGA4', 'HOOT3', 'HOOT4', 'HYPE3', 'LUXM3', 'MMAQ3', 'MMAQ4',
'MRSA3B', 'MRSA5B', 'NEMO5', 'NRTQ3', 'NUTR3', 'PATI4', 'PLAS3', 'PMAM3',
'PNVL3', 'PRPT3B', 'PTBL3', 'QVQP3B', 'RADL3', 'RANI4', 'RAPT3', 'RAPT4',
'RCSL3', 'RCSL4', 'RDNI3', 'RSUL3', 'SBSP3', 'SLED3', 'SMT03', 'SNSY3', 'SNSY5',
'SNSY6', 'SQIA3', 'TAEE3', 'TCSA3', 'TKNO4', 'TXRX11', 'UGPA3', 'USIM3',
'USIM5', 'USIM6', 'VIAA11', 'VIAA3', 'WLMM3']

```

Empresas com 9 relatórios

```

['ALPA3', 'ALPA4', 'ATOM3', 'BALM4', 'BIOM3', 'CASN4', 'CBEE3', 'CEBR3',
'CEBR5', 'CEDO3', 'CEDO4', 'CEED4', 'CGRA4', 'CLSC4', 'CMIG4', 'COGN3', 'CPLE5',
'CPRE3', 'CRTE3B', 'CSMG3', 'CTSA8', 'DEXP4', 'DOHL4', 'EALT4', 'ELET3',
'ELET5', 'ENGI3', 'EQPA3', 'EQPA7', 'EQTL11', 'ETER3', 'FESA3', 'FESA4',
'FHER3', 'FIGE4', 'FRI03', 'GEP4', 'HBOR3', 'JSLG11', 'JSLG3', 'KEPL4',
'LREN3', 'LUXM4', 'MGEL3', 'MILS3', 'MMXM3', 'MNDL3', 'MRVE3', 'MTSA3', 'MTSA4',
'MWET3', 'NRTQ4', 'OPSE3B', 'OSXB3', 'PCAR99', 'PPAR3', 'PPAR4', 'PRMN3B',
'PTNT3', 'RAIL3', 'SLED4', 'TCNO3', 'TECN3', 'TEKA4', 'TKNO3', 'TRIS3', 'TXRX3',
'UNIP3', 'UNIP5', 'VIVR3', 'VSPT4']

```

Empresas com 8 relatórios

```

['AGRO3', 'BALM3', 'BLUT4', 'CEEB3', 'CEEB5', 'CEGR3', 'CEPE3', 'CMIG3',
'CPLE11', 'CRPG6', 'CSRN6', 'CTKA4', 'CTNM4', 'ENMT3', 'EQTL3', 'EUCA3',
'HETA4', 'IVPR3B', 'JHSF3', 'JOPA4', 'MDNE3', 'MRFG3', 'MWET4', 'MYPK3',
'NORD3', 'ODER3', 'ODER4', 'OPGM3B', 'OPTS3B', 'PCAR3', 'PDGR3', 'POM03',
'PRI03', 'PTNT4', 'RANI3', 'SHOW3', 'SYNE3', 'TASA3', 'TASA4', 'TCNO4', 'TEKA3',
'TELB3', 'TEND3', 'TRPL3', 'TRPL4', 'TXRX4', 'UPKP3B', 'VULC3']

```

Empresas com 7 relatórios

```

['AMAR3', 'BAUH4', 'BRKM6', 'CEEB6', 'CSRN3', 'CTNM3', 'ENAT3', 'INEP4',
'JFEN3', 'OIBR3', 'RPMG3', 'RSUL4', 'SHUL3', 'SUZB3', 'TELB4', 'TGMA3', 'TPIS3',
'VIAA4', 'WEGE3']

```

Empresas com 6 relatórios

```

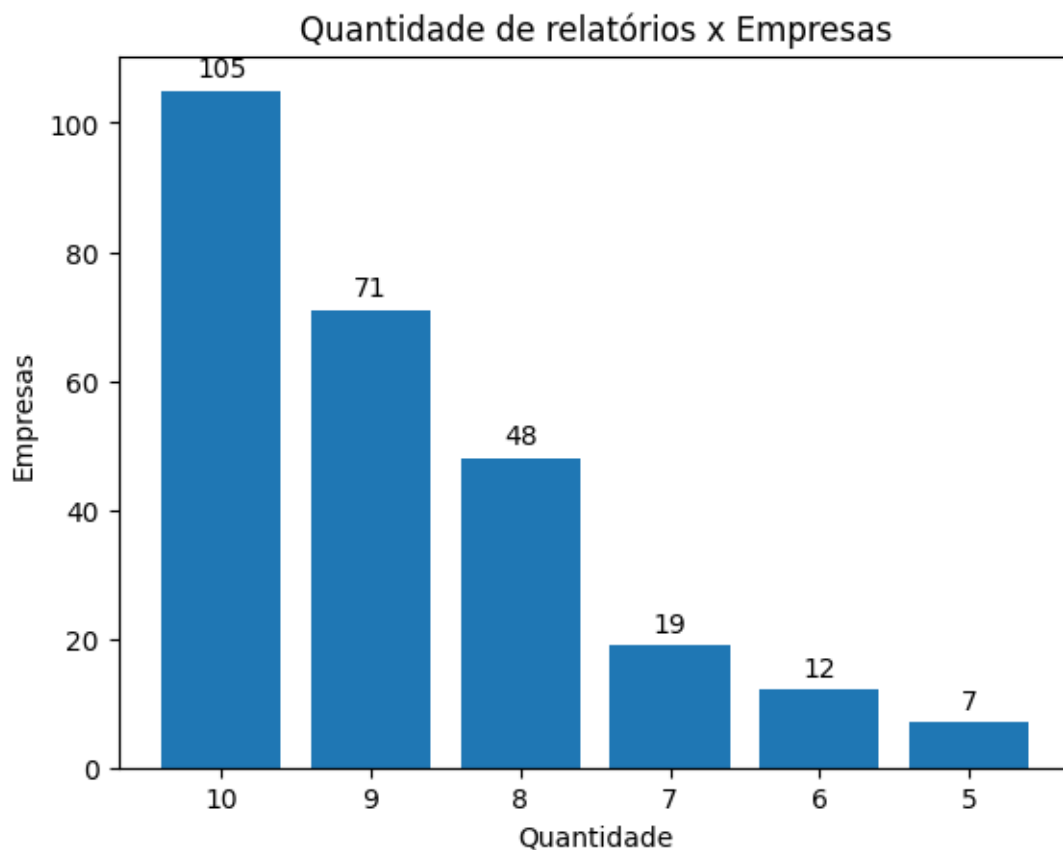
['BDLL3', 'CATA4', 'CGRA3', 'CTKA3', 'KEPL3', 'PATI3', 'POS13', 'SHUL4',
'SLCE3', 'TAEE4', 'VIVT4', 'YBRA4B']

```

Empresas com 5 relatórios

```
['BRFS3', 'CMSA3', 'CRTE5B', 'MRSA6B', 'ODPV3', 'OIBR4', 'VSPT3']  
[105, 71, 48, 19, 12, 7]  
262
```

```
[ ]: #Gráfico gerado após análise  
fig, ax = plt.subplots()  
X = ["10", '9', "8", "7", '6', "5"]  
rect1 = ax.bar(X, grafico)  
ax.set_ylabel('Empresas')  
ax.set_title("Quantidade de relatórios x Empresas")  
ax.set_xlabel('Quantidade')  
ax.bar_label(rect1, padding = 3)  
plt.show()
```



```
[ ]: lista_de_empresas_2013 = []  
for name in lista:  
    c = name.split("_")  
    c1 = c[1].split(".")  
    if c1[0] == "2013":  
        lista_de_empresas_2013.append(name)
```

```
print(lista_de_empresas_2013)
print(len(lista_de_empresas_2013))
```

```
['ABEV3_2013.pdf', 'AFLT3_2013.pdf', 'AGRO3_2013.pdf', 'AHEB3_2013.pdf',
'AHEB5_2013.pdf', 'AHEB6_2013.pdf', 'ALUP11_2013.pdf', 'ALUP3_2013.pdf',
'ALUP4_2013.pdf', 'AMAR3_2013.pdf', 'AMER3_2013.pdf', 'ANIM3_2013.pdf',
'APTI3_2013.pdf', 'ARZZ3_2013.pdf', 'ATMP3_2013.pdf', 'ATOM3_2013.pdf',
'AZEV3_2013.pdf', 'AZEV4_2013.pdf', 'BAHI3_2013.pdf', 'BALM3_2013.pdf',
'BALM4_2013.pdf', 'BAUH3_2013.pdf', 'BDLL3_2013.pdf', 'BDLL4_2013.pdf',
'BEEF3_2013.pdf', 'BETP3B_2013.pdf', 'BIOM3_2013.pdf', 'BLUT3_2013.pdf',
'BLUT4_2013.pdf', 'BMKS3_2013.pdf', 'BOBR3_2013.pdf', 'BOBR4_2013.pdf',
'BRAP3_2013.pdf', 'BRAP4_2013.pdf', 'BRAP99_2013.pdf', 'BRKM3_2013.pdf',
'BRKM6_2013.pdf', 'CABI3B_2013.pdf', 'CAMB3_2013.pdf', 'CAMB4_2013.pdf',
'CASN3_2013.pdf', 'CASN4_2013.pdf', 'CATA3_2013.pdf', 'CATA4_2013.pdf',
'CBEE3_2013.pdf', 'CCRO3_2013.pdf', 'CEBR5_2013.pdf', 'CEBR6_2013.pdf',
'CEDO3_2013.pdf', 'CEDO4_2013.pdf', 'CEEB3_2013.pdf', 'CEEB5_2013.pdf',
'CEEB6_2013.pdf', 'CEED3_2013.pdf', 'CEED4_2013.pdf', 'CEGR3_2013.pdf',
'CEPE3_2013.pdf', 'CEPE5_2013.pdf', 'CEPE6_2013.pdf', 'CGAS3_2013.pdf',
'CGRA4_2013.pdf', 'CLSC3_2013.pdf', 'CLSC4_2013.pdf', 'CMIG4_2013.pdf',
'CMSA4_2013.pdf', 'COCE3_2013.pdf', 'COCE5_2013.pdf', 'COCE6_2013.pdf',
'COGN3_2013.pdf', 'CPFE3_2013.pdf', 'CPLE3_2013.pdf', 'CPLE5_2013.pdf',
'CPLE6_2013.pdf', 'CRDE3_2013.pdf', 'CRPG3_2013.pdf', 'CRPG5_2013.pdf',
'CRTE3B_2013.pdf', 'CSMG3_2013.pdf', 'CSNA3_2013.pdf', 'CSRN5_2013.pdf',
'CSRN6_2013.pdf', 'CTKA3_2013.pdf', 'CTNM3_2013.pdf', 'CTNM4_2013.pdf',
'CTSA3_2013.pdf', 'CTSA4_2013.pdf', 'CTSA8_2013.pdf', 'CVCB3_2013.pdf',
'CYRE3_2013.pdf', 'DASA3_2013.pdf', 'DEXP3_2013.pdf', 'DEXP4_2013.pdf',
'DIRR3_2013.pdf', 'DOHL3_2013.pdf', 'DOHL4_2013.pdf', 'DTCY3_2013.pdf',
'DTCY4_2013.pdf', 'DXCO3_2013.pdf', 'EALT3_2013.pdf', 'EALT4_2013.pdf',
'ECOR3_2013.pdf', 'EGIE3_2013.pdf', 'EKTR3_2013.pdf', 'EKTR4_2013.pdf',
'ELET5_2013.pdf', 'ELET6_2013.pdf', 'EMAE3_2013.pdf', 'EMAE4_2013.pdf',
'EMBR3_2013.pdf', 'ENAT3_2013.pdf', 'ENBR3_2013.pdf', 'ENEV3_2013.pdf',
'ENGI11_2013.pdf', 'ENGI3_2013.pdf', 'ENGI4_2013.pdf', 'ENMT4_2013.pdf',
'EPAR3_2013.pdf', 'EPAR4_2013.pdf', 'EQMA3B_2013.pdf', 'EQMA5B_2013.pdf',
'EQMA6B_2013.pdf', 'EQPA3_2013.pdf', 'EQPA5_2013.pdf', 'EQPA6_2013.pdf',
'EQPA7_2013.pdf', 'EQTL11_2013.pdf', 'EQTL3_2013.pdf', 'ESTR3_2013.pdf',
'ESTR4_2013.pdf', 'ETER3_2013.pdf', 'EUCA3_2013.pdf', 'EUCA4_2013.pdf',
'EVEN3_2013.pdf', 'EZTC3_2013.pdf', 'FESA3_2013.pdf', 'FESA4_2013.pdf',
'FHER3_2013.pdf', 'FIGE3_2013.pdf', 'FIGE4_2013.pdf', 'FLRY3_2013.pdf',
'FRAS3_2013.pdf', 'FRAS4_2013.pdf', 'FRRN3B_2013.pdf', 'FRRN5B_2013.pdf',
'FRRN6B_2013.pdf', 'FRTA3_2013.pdf', 'GEPA3_2013.pdf', 'GEPA4_2013.pdf',
'GFS3_2013.pdf', 'GGBR3_2013.pdf', 'GGBR4_2013.pdf', 'GOAU3_2013.pdf',
'GOAU4_2013.pdf', 'GOLL3_2013.pdf', 'GOLL4_2013.pdf', 'GPAR3_2013.pdf',
'GRND3_2013.pdf', 'HAGA3_2013.pdf', 'HAGA4_2013.pdf', 'HBOR3_2013.pdf',
'HB3A_2013.pdf', 'HETA3_2013.pdf', 'HETA4_2013.pdf', 'HOOT3_2013.pdf',
'HOOT4_2013.pdf', 'HYPE3_2013.pdf', 'IGSN3_2013.pdf', 'INEP3_2013.pdf',
'INEP4_2013.pdf', 'IVPR3B_2013.pdf', 'IVPR4B_2013.pdf', 'JFEN3_2013.pdf',
'JHSF3_2013.pdf', 'JOPA3_2013.pdf', 'JSLG11_2013.pdf', 'JSLG3_2013.pdf',
'KEPL4_2013.pdf', 'KLBN3_2013.pdf', 'KLBN4_2013.pdf', 'LIGT3_2013.pdf',
```

```
'LIPR3_2013.pdf', 'LOGN3_2013.pdf', 'LTEL3B_2013.pdf', 'LUXM3_2013.pdf',
'LUXM4_2013.pdf', 'MAPT3_2013.pdf', 'MAPT4_2013.pdf', 'MDNE3_2013.pdf',
'MGEL3_2013.pdf', 'MGEL4_2013.pdf', 'MILS3_2013.pdf', 'MMAQ3_2013.pdf',
'MMAQ4_2013.pdf', 'MMXM3_2013.pdf', 'MNPR3_2013.pdf', 'MRFG3_2013.pdf',
'MRSA3B_2013.pdf', 'MRSA5B_2013.pdf', 'MRVE3_2013.pdf', 'MSPA3_2013.pdf',
'MSPA4_2013.pdf', 'MTSA3_2013.pdf', 'MTSA4_2013.pdf', 'MWET3_2013.pdf',
'MWET4_2013.pdf', 'MYPK3_2013.pdf', 'NEMO3_2013.pdf', 'NEMO5_2013.pdf',
'NEMO6_2013.pdf', 'NEOE3_2013.pdf', 'NRTQ3_2013.pdf', 'NRTQ4_2013.pdf',
'NUTR3_2013.pdf', 'ODER3_2013.pdf', 'ODER4_2013.pdf', 'ODPV3_2013.pdf',
'OPGM3B_2013.pdf', 'OPSE3B_2013.pdf', 'OPTS3B_2013.pdf', 'OSXB3_2013.pdf',
'PATI4_2013.pdf', 'PCAR99_2013.pdf', 'PDGR3_2013.pdf', 'PDTC3_2013.pdf',
'PETR3_2013.pdf', 'PETR4_2013.pdf', 'PFRM3_2013.pdf', 'PGMN3_2013.pdf',
'PLAS3_2013.pdf', 'PMAM3_2013.pdf', 'PNVL3_2013.pdf', 'POM03_2013.pdf',
'PPAR3_2013.pdf', 'PPAR4_2013.pdf', 'PRI03_2013.pdf', 'PRMN3B_2013.pdf',
'PRPT3B_2013.pdf', 'PTBL3_2013.pdf', 'PTNT3_2013.pdf', 'QUAL3_2013.pdf',
'QUSW3_2013.pdf', 'QVQP3B_2013.pdf', 'RADL3_2013.pdf', 'RAIL3_2013.pdf',
'RANI3_2013.pdf', 'RANI4_2013.pdf', 'RAPT3_2013.pdf', 'RAPT4_2013.pdf',
'RCSL3_2013.pdf', 'RCSL4_2013.pdf', 'RDNI3_2013.pdf', 'RENT3_2013.pdf',
'RNEW11_2013.pdf', 'RNEW3_2013.pdf', 'RNEW4_2013.pdf', 'ROMI3_2013.pdf',
'RPMG3_2013.pdf', 'RSID3_2013.pdf', 'RSUL3_2013.pdf', 'RSUL4_2013.pdf',
'SBSP3_2013.pdf', 'SEER3_2013.pdf', 'SGPS3_2013.pdf', 'SHOW3_2013.pdf',
'SHUL3_2013.pdf', 'SLCE3_2013.pdf', 'SLED3_2013.pdf', 'SLED4_2013.pdf',
'SMT03_2013.pdf', 'SNSY3_2013.pdf', 'SNSY5_2013.pdf', 'SNSY6_2013.pdf',
'SOND3_2013.pdf', 'SOND5_2013.pdf', 'SOND6_2013.pdf', 'SQIA3_2013.pdf',
'STKF3_2013.pdf', 'SUZB3_2013.pdf', 'SYNE3_2013.pdf', 'TAEE11_2013.pdf',
'TAEE3_2013.pdf', 'TAEE4_2013.pdf', 'TCSA3_2013.pdf', 'TECN3_2013.pdf',
'TEKA3_2013.pdf', 'TEKA4_2013.pdf', 'TELB3_2013.pdf', 'TELB4_2013.pdf',
'TEND3_2013.pdf', 'TGMA3_2013.pdf', 'TKN03_2013.pdf', 'TKN04_2013.pdf',
'TRIS3_2013.pdf', 'TRPL3_2013.pdf', 'TRPL4_2013.pdf', 'TUPY3_2013.pdf',
'TRXR11_2013.pdf', 'TRXR3_2013.pdf', 'TRXR4_2013.pdf', 'UCAS3_2013.pdf',
'UGPA3_2013.pdf', 'UNIP3_2013.pdf', 'UNIP5_2013.pdf', 'UNIP6_2013.pdf',
'UPKP3B_2013.pdf', 'USIM3_2013.pdf', 'USIM5_2013.pdf', 'USIM6_2013.pdf',
'VALE3_2013.pdf', 'VIAA11_2013.pdf', 'VIAA3_2013.pdf', 'VIAA4_2013.pdf',
'VIVR3_2013.pdf', 'VIVT3_2013.pdf', 'VLID3_2013.pdf', 'VSPT4_2013.pdf',
'VULC3_2013.pdf', 'WEGE3_2013.pdf', 'WHRL3_2013.pdf', 'WHRL4_2013.pdf',
'WLMM3_2013.pdf', 'WLMM4_2013.pdf', 'YBRA3B_2013.pdf', 'YBRA4B_2013.pdf',
'YDUQ3_2013.pdf']
```

325

```
[ ]: names_empresas_2013 = []
print(names_empresas_2011)
print(names_empresas_2012)
for name in lista_de_empresas_2013:
    c = name.split("_")
    names_empresas_2013.append(c[0])
print(names_empresas_2013)
print(len(names_empresas_2013))
```

```

for name in names_empresas_2011:
    for name1 in names_empresas_2013:
        if name1 == name:
            names_empresas_2013.remove(name1)
for name in names_empresas_2012:
    for name1 in names_empresas_2013:
        if name1 == name:
            names_empresas_2013.remove(name1)
print("Após comparação")
print(names_empresas_2013)
print(len(names_empresas_2013))

```

```

['APTI3', 'APTI4', 'BAHI3', 'BRAP3', 'BRAP4', 'BRAP99', 'CATA3', 'CGAS3',
'CGAS5', 'DASA3', 'EMBR3', 'FRTA3', 'GGBR3', 'GGBR4', 'GOAU3', 'GOAU4', 'GOLL3',
'GOLL4', 'GPAP3', 'GRND3', 'GUAR3', 'HAGA3', 'HBSA3', 'JBSS3', 'KLBN11',
'KLBN4', 'LIPR3', 'LTEL5B', 'MAPT3', 'MAPT4', 'MSPA3', 'MSPA4', 'NEMO3',
'NEMO6', 'PETR3', 'PETR4', 'PGMN3', 'POMO4', 'QUAL3', 'ROMI3', 'SAPR11',
'SAPR3', 'SAPR4', 'STBP3', 'STKF3', 'TOTS3', 'VALE3', 'VIVT3']
['AFLT3', 'AGRO3', 'ALPA3', 'ALPA4', 'AMAR3', 'AMER3', 'ARZZ3', 'ATMP3',
'ATOM3', 'AZE3', 'AZE4', 'BALM3', 'BALM4', 'BAUH3', 'BAUH4', 'BDLL3', 'BDLL4',
'BETP3B', 'BIOM3', 'BLUT3', 'BLUT4', 'BMKS3', 'BOBR3', 'BRFS3', 'BRKM6',
'CABI3B', 'CAMB3', 'CAMB4', 'CASN3', 'CASN4', 'CATA4', 'CBEE3', 'CCRO3',
'CEBR3', 'CEBR5', 'CEBR6', 'CEDO3', 'CEDO4', 'CEEB3', 'CEEB5', 'CEEB6', 'CEED3',
'CEED4', 'CEGR3', 'CEPE3', 'CGRA3', 'CGRA4', 'CLSC3', 'CLSC4', 'CMIG3', 'CMIG4',
'CMSA3', 'COCE5', 'COCE6', 'COGN3', 'CPFE3', 'CPLE11', 'CPLE3', 'CPLE5',
'CPRE3', 'CRDE3', 'CRPG3', 'CRPG5', 'CRPG6', 'CRTE3B', 'CRTE5B', 'CSMG3',
'CSNA3', 'CSR3', 'CSR6', 'CTKA3', 'CTKA4', 'CTNM3', 'CTNM4', 'CTSA4', 'CTSA8',
'CYRE3', 'DEXP3', 'DEXP4', 'DIRR3', 'DOHL3', 'DOHL4', 'DXCO3', 'EALT3', 'EALT4',
'ECOR3', 'EGIE3', 'EKTR3', 'EKTR4', 'ELET3', 'ELET5', 'ELET6', 'EMAE3', 'EMAE4',
'ENAT3', 'ENGI11', 'ENGI3', 'ENGI4', 'ENMT3', 'ENMT4', 'EPAR3', 'EPAR4',
'EQA3', 'EQA5', 'EQA6', 'EQA7', 'EQTL11', 'EQTL3', 'ESTR3', 'ESTR4',
'ETER3', 'EUCA3', 'EUCA4', 'EVEN3', 'FESA3', 'FESA4', 'FHER3', 'FIGE3', 'FIGE4',
'FLRY3', 'FRIO3', 'FRRN3B', 'FRRN5B', 'FRRN6B', 'GEP3', 'GEP4', 'GFSA3',
'HAGA4', 'HBOR3', 'HETA4', 'HOOT3', 'HOOT4', 'HYPE3', 'INEP4', 'IVPR3B',
'JFEN3', 'JHSF3', 'JOPA4', 'JSLG11', 'JSLG3', 'KEPL3', 'KEPL4', 'LREN3',
'LUXM3', 'LUXM4', 'MDNE3', 'MGEL3', 'MIL3', 'MMAQ3', 'MMAQ4', 'MMXM3', 'MNDL3',
'MRFG3', 'MRSA3B', 'MRSA5B', 'MRSA6B', 'MRVE3', 'MTSA3', 'MTSA4', 'MWET3',
'MWET4', 'MYPK3', 'NEMO5', 'NORD3', 'NRTQ3', 'NRTQ4', 'NUTR3', 'ODER3', 'ODER4',
'ODPV3', 'OIBR3', 'OIBR4', 'OPGM3B', 'OPSE3B', 'OPTS3B', 'OSXB3', 'PATI3',
'PATI4', 'PCAR3', 'PCAR99', 'PDGR3', 'PLAS3', 'PMAM3', 'PNVL3', 'POMO3',
'POS3', 'PPAR3', 'PPAR4', 'PRIO3', 'PRMN3B', 'PRPT3B', 'PTBL3', 'PTNT3',
'PTNT4', 'QVQP3B', 'RADL3', 'RAIL3', 'RANI3', 'RANI4', 'RAPT3', 'RAPT4',
'RCSL3', 'RCSL4', 'RDNI3', 'RPMG3', 'RSUL3', 'RSUL4', 'SBSP3', 'SHOW3', 'SHUL3',
'SHUL4', 'SLCE3', 'SLED3', 'SLED4', 'SMTO3', 'SNSY3', 'SNSY5', 'SNSY6', 'SQIA3',
'SUZB3', 'SYNE3', 'TAEE3', 'TAEE4', 'TASA3', 'TASA4', 'TCNO3', 'TCNO4', 'TCSA3',
'TECN3', 'TEKA3', 'TEKA4', 'TELB3', 'TELB4', 'TEND3', 'TGMA3', 'TKNO3', 'TKNO4',
'TPIS3', 'TRIS3', 'TRPL3', 'TRPL4', 'TXRX11', 'TXRX3', 'TXRX4', 'UGPA3',

```

'UNIP3', 'UNIP5', 'UPKP3B', 'USIM3', 'USIM5', 'USIM6', 'VIIA11', 'VIIA3',
 'VIIA4', 'VIVR3', 'VIVT4', 'VSPT3', 'VSPT4', 'VULC3', 'WEGE3', 'WLMM3',
 'YBRA4B']
 ['ABEV3', 'AFLT3', 'AGRO3', 'AHEB3', 'AHEB5', 'AHEB6', 'ALUP11', 'ALUP3',
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```

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```
[ ]: #Quantidade de relatorios a partir de 2013
#realizar pesquisa nas empresas de 2013
lista_de_empresas_2013 = []

for name_emp in names_empresas_2013:
    for empresa in lista_caminho:
        if empresa == name_emp:
            path_caminho_pdf_2013 = 'C:
↪\\Users\\Riallen\\Documents\\Att\\Data\\' + empresa
            relatorio_pdf_2013 = os.listdir(path_caminho_pdf_2013)
            att = []
            for lista_pdf_2013 in relatorio_pdf_2013:
                #print(lista_pdf)
                att.append(lista_pdf_2013)
            lista_de_empresas_2013.append(att)
#quantidade total de relatorios baixados
print(lista_de_empresas_2013)
print(len(lista_de_empresas_2013))
```

```
[['ABEV3_2013.pdf', 'ABEV3_2014.pdf', 'ABEV3_2015.pdf', 'ABEV3_2016.pdf',
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```

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```
[ ]: #quantidade de relatórios em cada empresa
tam_emp = np.zeros(64, dtype = int)
i = 0
empresas_13r = []
for pesquisa in lista_de_empresas_2013:
    #print(pesquisa)
    for k in pesquisa:
        #print(k)
        tam_emp[i] = tam_emp[i] + 1
    i = i + 1
print(tam_emp)
print("Empresa com menor quantidade de relatorios: ", min(tam_emp))
print(len(tam_emp))
```

```
[7 9 9 9 9 9 7 8 9 6 6 6 9 9 9 7 7 9 8 7 8 8 9 9 8 9 8 6 8 9 6 7 8 7 5 7
 7 6 7 5 9 6 9 7 9 9 9 9 7 6 8 9 7 9 9 9 9 9 4 6 7 7 9]
```

Empresa com menor quantidade de relatorios: 4

64

```
[ ]: #empresas com 10 relatorios
quantidade_relatorios = 9
empresas_2013r = []
for i in range(quantidade_relatorios, 3, -1):
    name = []
    #print(name)
    for pesquisa in lista_de_empresas_2013:
        #print(pesquisa)
        #print(len(pesquisa))
        if i == len(pesquisa):
            c = pesquisa[0].split("_")
            name.append(c[0])
    print("Empresas com ", i, "relatórios")
    print(name)
    empresas_2013r.append(name)
#print(empresas_2011r)

grafico = []
for i in empresas_2013r:
    #print(len(i))
    grafico.append(len(i))
print(grafico)
```

```
print(sum(grafico))
```

Empresas com 9 relatórios

```
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Empresas com 8 relatórios

```
['BEEF3', 'DTCY3', 'ENBR3', 'ENEV3', 'EQMA6B', 'FRAS3', 'HETA3', 'JOPA3',  
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Empresas com 7 relatórios

```
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'LTEL3B', 'MNPR3', 'RENT3', 'SEER3', 'SOND6', 'WLMM4', 'YBRA3B']
```

Empresas com 6 relatórios

```
['BRKM3', 'CEPE5', 'CEPE6', 'FRAS4', 'INEP3', 'MGEL4', 'PFRM3', 'SGPS3',  
'WHRL4']
```

Empresas com 5 relatórios

```
['LIGT3', 'NEOE3']
```

Empresas com 4 relatórios

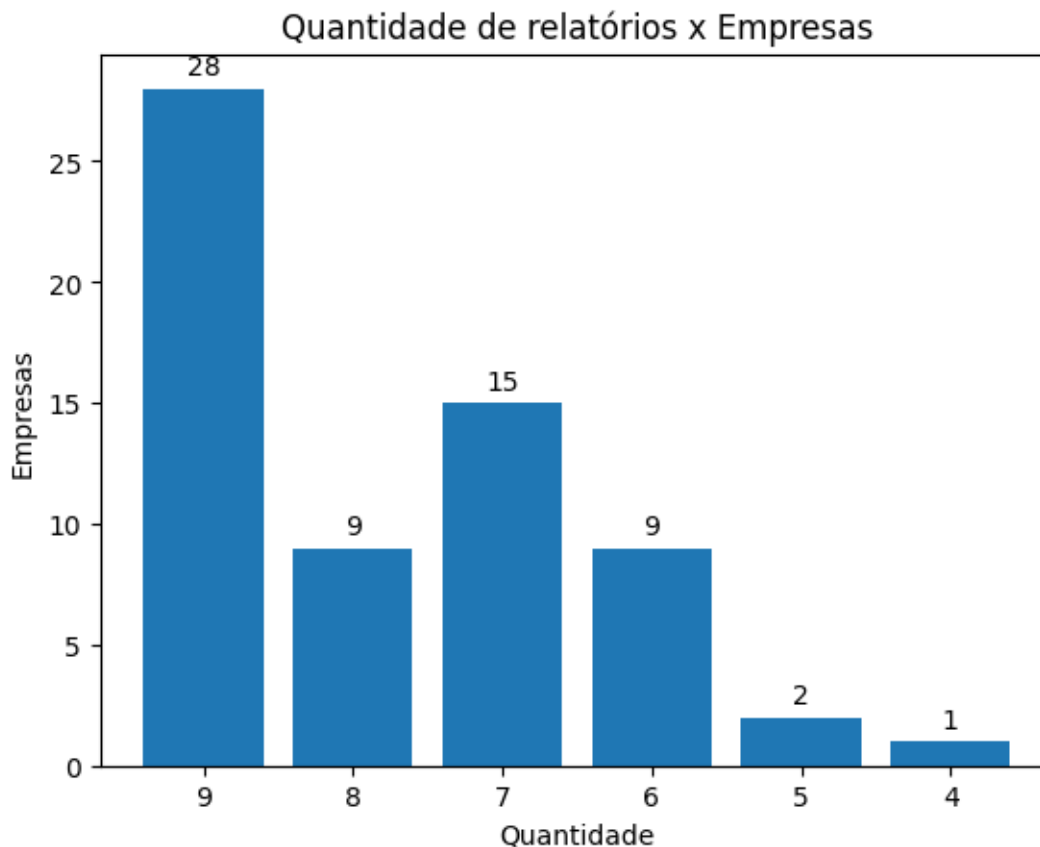
```
['WHRL3']
```

```
[28, 9, 15, 9, 2, 1]
```

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```
[ ]: #Gráfico gerado após análise
```

```
fig, ax = plt.subplots()  
X = ["9", '8', "7", "6", '5', "4"]  
rect1 = ax.bar(X, grafico)  
ax.set_ylabel('Empresas')  
ax.set_title("Quantidade de relatórios x Empresas")  
ax.set_xlabel('Quantidade')  
ax.bar_label(rect1, padding = 3)  
plt.show()
```



```
[ ]: lista_de_empresas_2014 = []
for name in lista:
    c = name.split("_")
    c1 = c[1].split(".")
    if c1[0] == "2014":
        lista_de_empresas_2014.append(name)
print(lista_de_empresas_2014)
print(len(lista_de_empresas_2014))
```

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```

337

```
[ ]: names_empresas_2014 = []
print(names_empresas_2011)
print(names_empresas_2012)
print(names_empresas_2013)
for name in lista_de_empresas_2014:
    c = name.split("_")
    names_empresas_2014.append(c[0])
print(names_empresas_2014)
print(len(names_empresas_2014))

for name in names_empresas_2011:
    for name1 in names_empresas_2014:
        if name1 == name:
            names_empresas_2014.remove(name1)
for name in names_empresas_2012:
    for name1 in names_empresas_2014:
        if name1 == name:
            names_empresas_2014.remove(name1)
for name in names_empresas_2013:
```

```

for name1 in names_empresas_2014:
    if name1 == name:
        names_empresas_2014.remove(name1)
print("Após comparação")
print(names_empresas_2014)
print(len(names_empresas_2014))

```

```

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Após comparação

```
['BRKM5', 'CALI3', 'CALI4', 'DMM03', 'LEVE3', 'LLIS3', 'MGLU3', 'REDE3']
```

8

```
[ ]: #Quantidade de relatorios a partir de 2014
#realizar pesquisa nas empresas de 2014
lista_de_empresas_2014 = []

for name_emp in names_empresas_2014:
    for empresa in lista_caminho:
        if empresa == name_emp:
            path_caminho_pdf_2014 = 'C:
↪\\Users\\Riallen\\Documents\\Att\\Data\\' + empresa
            relatorio_pdf_2014 = os.listdir(path_caminho_pdf_2014)
            att = []
            for lista_pdf_2014 in relatorio_pdf_2014:
                #print(lista_pdf)
                att.append(lista_pdf_2014)
            lista_de_empresas_2014.append(att)
#quantidade total de relatorios baixados
print(lista_de_empresas_2014)
print(len(lista_de_empresas_2014))
```

```
[['BRKM5_2014.pdf', 'BRKM5_2015.pdf', 'BRKM5_2017.pdf', 'BRKM5_2018.pdf',
'BRKM5_2020.pdf', 'BRKM5_2021.pdf'], ['CALI3_2014.pdf', 'CALI3_2015.pdf',
'CALI3_2016.pdf', 'CALI3_2017.pdf', 'CALI3_2018.pdf', 'CALI3_2019.pdf'],
['CALI4_2014.pdf', 'CALI4_2016.pdf', 'CALI4_2017.pdf', 'CALI4_2018.pdf',
'CALI4_2019.pdf', 'CALI4_2020.pdf', 'CALI4_2021.pdf'], ['DMM03_2014.pdf',
'DMM03_2015.pdf', 'DMM03_2016.pdf', 'DMM03_2017.pdf', 'DMM03_2018.pdf',
'DMM03_2019.pdf', 'DMM03_2020.pdf', 'DMM03_2021.pdf'], ['LEVE3_2014.pdf',
'LEVE3_2015.pdf', 'LEVE3_2016.pdf', 'LEVE3_2017.pdf', 'LEVE3_2018.pdf',
'LEVE3_2019.pdf', 'LEVE3_2020.pdf', 'LEVE3_2021.pdf'], ['LLIS3_2014.pdf',
'LLIS3_2015.pdf', 'LLIS3_2016.pdf', 'LLIS3_2017.pdf', 'LLIS3_2018.pdf',
'LLIS3_2019.pdf', 'LLIS3_2020.pdf', 'LLIS3_2021.pdf'], ['MGLU3_2014.pdf',
'MGLU3_2015.pdf', 'MGLU3_2017.pdf', 'MGLU3_2018.pdf', 'MGLU3_2019.pdf',
'MGLU3_2020.pdf', 'MGLU3_2021.pdf'], ['REDE3_2014.pdf', 'REDE3_2015.pdf',
'REDE3_2016.pdf', 'REDE3_2017.pdf', 'REDE3_2018.pdf', 'REDE3_2019.pdf',
'REDE3_2020.pdf', 'REDE3_2021.pdf']]
```

8

```
[ ]: #quantidade de relatórios em cada empresa
tam_emp = np.zeros(8, dtype = int)
i = 0
empresas_14r = []
for pesquisa in lista_de_empresas_2014:
    #print(pesquisa)
    for k in pesquisa:
        #print(k)
        tam_emp[i] = tam_emp[i] + 1
```

```

    i = i + 1
print(tam_emp)
print("Empresa com menor quantidade de relatorios: ", min(tam_emp))
print(len(tam_emp))

```

[6 6 7 8 8 8 7 8]

Empresa com menor quantidade de relatorios: 6
8

```

[ ]: #empresas com 8 relatorios
quantidade_relatorios = 8
empresas_2014r = []
for i in range(quantidade_relatorios, 5, -1):
    name = []
    #print(name)
    for pesquisa in lista_de_empresas_2014:
        #print(pesquisa)
        #print(len(pesquisa))
        if i == len(pesquisa):
            c = pesquisa[0].split("_")
            name.append(c[0])
    print("Empresas com ", i , "relatórios")
    print(name)
    empresas_2014r.append(name)
#print(empresas_2011r)

grafico = []
for i in empresas_2014r:
    #print(len(i))
    grafico.append(len(i))
print(grafico)
print(sum(grafico))

```

Empresas com 8 relatórios
['DMM03', 'LEVE3', 'LLIS3', 'REDE3']
Empresas com 7 relatórios
['CALI4', 'MGLU3']
Empresas com 6 relatórios
['BRKM5', 'CALI3']
[4, 2, 2]
8

```

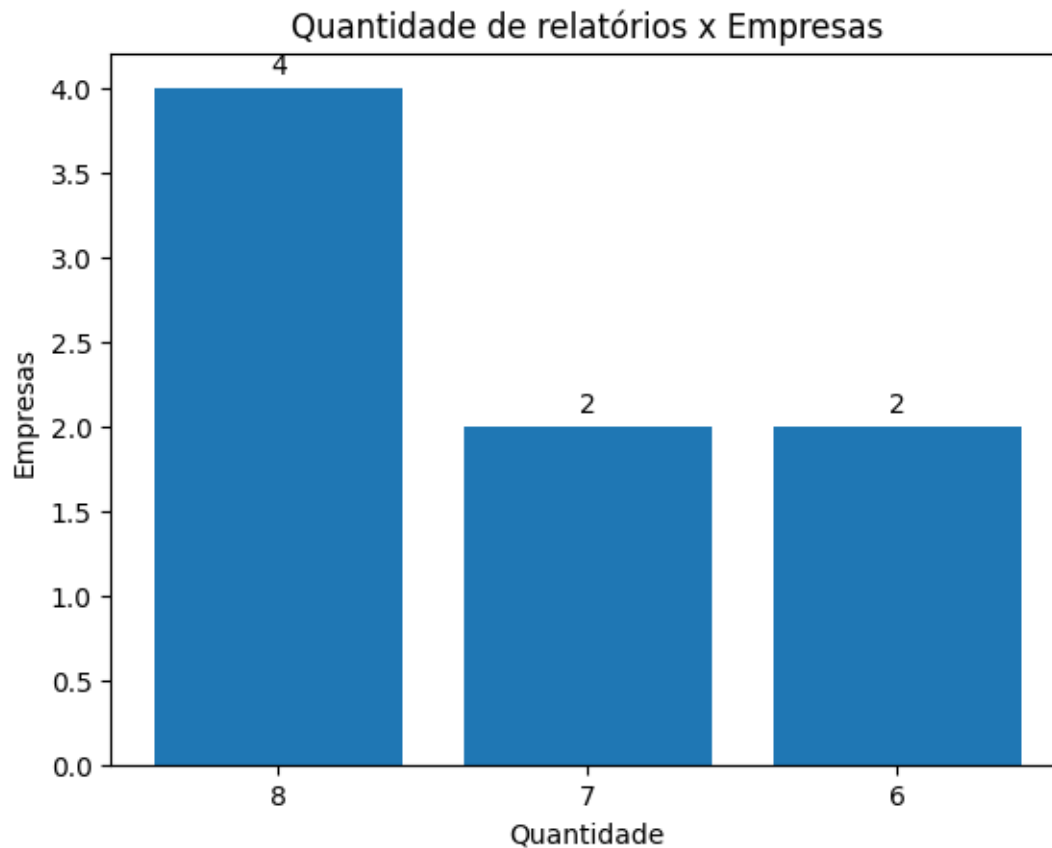
[ ]: #Gráfico gerado após análise
fig, ax = plt.subplots()
X = ['8', "7", "6"]

```

```

rect1 = ax.bar(X, grafico)
ax.set_ylabel('Empresas')
ax.set_title("Quantidade de relatórios x Empresas")
ax.set_xlabel('Quantidade')
ax.bar_label(rect1, padding = 3)
plt.show()

```



```

[ ]: lista_de_empresas_2015 = []
for name in lista:
    c = name.split("_")
    c1 = c[1].split(".")
    if c1[0] == "2015":
        lista_de_empresas_2015.append(name)
print(lista_de_empresas_2015)
print(len(lista_de_empresas_2015))

```

```

['ABEV3_2015.pdf', 'AFLT3_2015.pdf', 'AHEB3_2015.pdf', 'AHEB5_2015.pdf',
'AHEB6_2015.pdf', 'ALPA3_2015.pdf', 'ALPA4_2015.pdf', 'ALUP11_2015.pdf',
'ALUP3_2015.pdf', 'ALUP4_2015.pdf', 'AMER3_2015.pdf', 'APTI3_2015.pdf',
'APTI4_2015.pdf', 'ARZZ3_2015.pdf', 'ATMP3_2015.pdf', 'ATOM3_2015.pdf',

```

'AZE3_2015.pdf', 'AZE4_2015.pdf', 'BAH3_2015.pdf', 'BAL3_2015.pdf',
 'BAL4_2015.pdf', 'BAU3_2015.pdf', 'BAU4_2015.pdf', 'BDL4_2015.pdf',
 'BEE3_2015.pdf', 'BETP3B_2015.pdf', 'BLUT3_2015.pdf', 'BLUT4_2015.pdf',
 'BMK3_2015.pdf', 'BOB3_2015.pdf', 'BOB4_2015.pdf', 'BRAP3_2015.pdf',
 'BRAP4_2015.pdf', 'BRAP99_2015.pdf', 'BRKM3_2015.pdf', 'BRKM5_2015.pdf',
 'BRKM6_2015.pdf', 'CABI3B_2015.pdf', 'CALI3_2015.pdf', 'CAMB3_2015.pdf',
 'CAMB4_2015.pdf', 'CASN3_2015.pdf', 'CASN4_2015.pdf', 'CATA4_2015.pdf',
 'CBEE3_2015.pdf', 'CCR03_2015.pdf', 'CEBR3_2015.pdf', 'CEBR5_2015.pdf',
 'CEBR6_2015.pdf', 'CED03_2015.pdf', 'CED04_2015.pdf', 'CEED3_2015.pdf',
 'CEED4_2015.pdf', 'CEGR3_2015.pdf', 'CGAS3_2015.pdf', 'CGAS5_2015.pdf',
 'CGRA4_2015.pdf', 'CLSC3_2015.pdf', 'CLSC4_2015.pdf', 'CMIG3_2015.pdf',
 'CMIG4_2015.pdf', 'CMSA4_2015.pdf', 'COCE3_2015.pdf', 'COCE5_2015.pdf',
 'COCE6_2015.pdf', 'COGN3_2015.pdf', 'CPFE3_2015.pdf', 'CPLE11_2015.pdf',
 'CPLE3_2015.pdf', 'CPLE6_2015.pdf', 'CPRE3_2015.pdf', 'CRDE3_2015.pdf',
 'CRPG3_2015.pdf', 'CRPG5_2015.pdf', 'CRPG6_2015.pdf', 'CRTE3B_2015.pdf',
 'CSAN3_2015.pdf', 'CSMG3_2015.pdf', 'CSNA3_2015.pdf', 'CTKA3_2015.pdf',
 'CTKA4_2015.pdf', 'CTSA4_2015.pdf', 'CTSA8_2015.pdf', 'CVCB3_2015.pdf',
 'CYRE3_2015.pdf', 'DASA3_2015.pdf', 'DEXP3_2015.pdf', 'DEXP4_2015.pdf',
 'DIRR3_2015.pdf', 'DMM03_2015.pdf', 'DOHL3_2015.pdf', 'DOHL4_2015.pdf',
 'DTCY3_2015.pdf', 'DXC03_2015.pdf', 'EALT3_2015.pdf', 'EALT4_2015.pdf',
 'ECOR3_2015.pdf', 'EGIE3_2015.pdf', 'EKTR3_2015.pdf', 'EKTR4_2015.pdf',
 'ELET3_2015.pdf', 'ELET5_2015.pdf', 'ELET6_2015.pdf', 'EMAE3_2015.pdf',
 'EMAE4_2015.pdf', 'EMBR3_2015.pdf', 'ENAT3_2015.pdf', 'ENBR3_2015.pdf',
 'ENEV3_2015.pdf', 'ENGI11_2015.pdf', 'ENGI3_2015.pdf', 'ENGI4_2015.pdf',
 'ENMT4_2015.pdf', 'EPAR3_2015.pdf', 'EPAR4_2015.pdf', 'EQMA3B_2015.pdf',
 'EQMA5B_2015.pdf', 'EQMA6B_2015.pdf', 'EQPA3_2015.pdf', 'EQPA5_2015.pdf',
 'EQPA6_2015.pdf', 'EQPA7_2015.pdf', 'EQTL11_2015.pdf', 'EQTL3_2015.pdf',
 'ESTR3_2015.pdf', 'ESTR4_2015.pdf', 'ETER3_2015.pdf', 'EUCA3_2015.pdf',
 'EUCA4_2015.pdf', 'EVEN3_2015.pdf', 'EZTC3_2015.pdf', 'FESA3_2015.pdf',
 'FESA4_2015.pdf', 'FHER3_2015.pdf', 'FIGE3_2015.pdf', 'FIGE4_2015.pdf',
 'FLRY3_2015.pdf', 'FRAS3_2015.pdf', 'FRI03_2015.pdf', 'FRRN3B_2015.pdf',
 'FRRN5B_2015.pdf', 'FRRN6B_2015.pdf', 'FRTA3_2015.pdf', 'GEPA3_2015.pdf',
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 'IGSN3_2015.pdf', 'INEP3_2015.pdf', 'INEP4_2015.pdf', 'IVPR4B_2015.pdf',
 'JFEN3_2015.pdf', 'JOPA3_2015.pdf', 'JOPA4_2015.pdf', 'JSLG11_2015.pdf',
 'JSLG3_2015.pdf', 'KEPL4_2015.pdf', 'KLBN11_2015.pdf', 'KLBN3_2015.pdf',
 'KLBN4_2015.pdf', 'LEVE3_2015.pdf', 'LIPR3_2015.pdf', 'LLIS3_2015.pdf',
 'LOGN3_2015.pdf', 'LREN3_2015.pdf', 'LTEL3B_2015.pdf', 'LTEL5B_2015.pdf',
 'LUXM3_2015.pdf', 'LUXM4_2015.pdf', 'MAPT3_2015.pdf', 'MAPT4_2015.pdf',
 'MDNE3_2015.pdf', 'MEAL3_2015.pdf', 'MGEL3_2015.pdf', 'MGEL4_2015.pdf',
 'MGLU3_2015.pdf', 'MILS3_2015.pdf', 'MMAQ3_2015.pdf', 'MMAQ4_2015.pdf',
 'MMXM3_2015.pdf', 'MNDL3_2015.pdf', 'MNPR3_2015.pdf', 'MRFG3_2015.pdf',
 'MRSA3B_2015.pdf', 'MRSA5B_2015.pdf', 'MRVE3_2015.pdf', 'MSPA3_2015.pdf',
 'MSPA4_2015.pdf', 'MTSA3_2015.pdf', 'MTSA4_2015.pdf', 'MWET3_2015.pdf',

```

'MWET4_2015.pdf', 'MYPK3_2015.pdf', 'NEM03_2015.pdf', 'NEM05_2015.pdf',
'NEM06_2015.pdf', 'NORD3_2015.pdf', 'NRTQ3_2015.pdf', 'NRTQ4_2015.pdf',
'NUTR3_2015.pdf', 'ODER3_2015.pdf', 'ODER4_2015.pdf', 'OFSA3_2015.pdf',
'OIBR3_2015.pdf', 'OIBR4_2015.pdf', 'OPGM3B_2015.pdf', 'OPSE3B_2015.pdf',
'OPTS3B_2015.pdf', 'OSXB3_2015.pdf', 'PATI3_2015.pdf', 'PATI4_2015.pdf',
'PCAR3_2015.pdf', 'PCAR99_2015.pdf', 'PDTC3_2015.pdf', 'PETR3_2015.pdf',
'PGMN3_2015.pdf', 'PLAS3_2015.pdf', 'PMAM3_2015.pdf', 'PNVL3_2015.pdf',
'POM03_2015.pdf', 'POM04_2015.pdf', 'POSI3_2015.pdf', 'PPAR4_2015.pdf',
'PRI03_2015.pdf', 'PRPT3B_2015.pdf', 'PTBL3_2015.pdf', 'PTNT3_2015.pdf',
'PTNT4_2015.pdf', 'QUAL3_2015.pdf', 'QUSW3_2015.pdf', 'QVQP3B_2015.pdf',
'RADL3_2015.pdf', 'RANI4_2015.pdf', 'RAPT3_2015.pdf', 'RAPT4_2015.pdf',
'RCSL3_2015.pdf', 'RCSL4_2015.pdf', 'RDNI3_2015.pdf', 'REDE3_2015.pdf',
'RENT3_2015.pdf', 'RNEW11_2015.pdf', 'RNEW3_2015.pdf', 'RNEW4_2015.pdf',
'RSID3_2015.pdf', 'RSUL3_2015.pdf', 'RSUL4_2015.pdf', 'SBSP3_2015.pdf',
'SEER3_2015.pdf', 'SHOW3_2015.pdf', 'SHUL3_2015.pdf', 'SHUL4_2015.pdf',
'SLED3_2015.pdf', 'SLED4_2015.pdf', 'SMT03_2015.pdf', 'SNSY3_2015.pdf',
'SNSY5_2015.pdf', 'SNSY6_2015.pdf', 'SOND3_2015.pdf', 'SOND5_2015.pdf',
'SOND6_2015.pdf', 'SQIA3_2015.pdf', 'STBP3_2015.pdf', 'STKF3_2015.pdf',
'SYNE3_2015.pdf', 'TAEE11_2015.pdf', 'TAEE3_2015.pdf', 'TASA3_2015.pdf',
'TASA4_2015.pdf', 'TCN03_2015.pdf', 'TCN04_2015.pdf', 'TCSA3_2015.pdf',
'TECN3_2015.pdf', 'TEKA3_2015.pdf', 'TEKA4_2015.pdf', 'TELB3_2015.pdf',
'TELB4_2015.pdf', 'TKN03_2015.pdf', 'TKN04_2015.pdf', 'TPIS3_2015.pdf',
'TRIS3_2015.pdf', 'TRPL3_2015.pdf', 'TRPL4_2015.pdf', 'TUPY3_2015.pdf',
'TRX11_2015.pdf', 'TRX3_2015.pdf', 'TRX4_2015.pdf', 'UCAS3_2015.pdf',
'UGPA3_2015.pdf', 'UNIP3_2015.pdf', 'UNIP5_2015.pdf', 'UNIP6_2015.pdf',
'USIM3_2015.pdf', 'USIM5_2015.pdf', 'USIM6_2015.pdf', 'VALE3_2015.pdf',
'VIAA11_2015.pdf', 'VIAA3_2015.pdf', 'VIVR3_2015.pdf', 'VIVT4_2015.pdf',
'VLID3_2015.pdf', 'VSPT4_2015.pdf', 'VULC3_2015.pdf', 'WLMM3_2015.pdf',
'YBRA4B_2015.pdf', 'YDUQ3_2015.pdf']

```

322

```

[ ]: names_empresas_2015 = []
print(names_empresas_2011)
print(names_empresas_2012)
print(names_empresas_2013)
print(names_empresas_2014)
for name in lista_de_empresas_2015:
    c = name.split("_")
    names_empresas_2015.append(c[0])
print(names_empresas_2015)
print(len(names_empresas_2015))

for name in names_empresas_2011:
    for name1 in names_empresas_2015:
        if name1 == name:
            names_empresas_2015.remove(name1)
for name in names_empresas_2012:

```

```

for name1 in names_empresas_2015:
    if name1 == name:
        names_empresas_2015.remove(name1)
for name in names_empresas_2013:
    for name1 in names_empresas_2015:
        if name1 == name:
            names_empresas_2015.remove(name1)
for name in names_empresas_2014:
    for name1 in names_empresas_2015:
        if name1 == name:
            names_empresas_2015.remove(name1)

print("Após comparação")
print(names_empresas_2015)
print(len(names_empresas_2015))

```

```

['APTI3', 'APTI4', 'BAHI3', 'BRAP3', 'BRAP4', 'BRAP99', 'CATA3', 'CGAS3',
'CGAS5', 'DASA3', 'EMBR3', 'FRTA3', 'GGBR3', 'GGBR4', 'GOAU3', 'GOAU4', 'GOLL3',
'GOLL4', 'GPAR3', 'GRND3', 'GUAR3', 'HAGA3', 'HBSA3', 'JBSS3', 'KLBN11',
'KLBN4', 'LIPR3', 'LTEL5B', 'MAPT3', 'MAPT4', 'MSPA3', 'MSPA4', 'NEMO3',
'NEMO6', 'PETR3', 'PETR4', 'PGMN3', 'POMO4', 'QUAL3', 'ROMI3', 'SAPR11',
'SAPR3', 'SAPR4', 'STBP3', 'STKF3', 'TOTS3', 'VALE3', 'VIVT3']
['AFLT3', 'AGRO3', 'ALPA3', 'ALPA4', 'AMAR3', 'AMER3', 'ARZZ3', 'ATMP3',
'ATOM3', 'AZE3', 'AZE4', 'BALM3', 'BALM4', 'BAUH3', 'BAUH4', 'BDLL3', 'BDLL4',
'BETP3B', 'BIOM3', 'BLUT3', 'BLUT4', 'BMKS3', 'BOBR3', 'BRFS3', 'BRKM6',
'CABI3B', 'CAMB3', 'CAMB4', 'CASN3', 'CASN4', 'CATA4', 'CBEE3', 'CCRO3',
'CEBR3', 'CEBR5', 'CEBR6', 'CEDO3', 'CEDO4', 'CEEB3', 'CEEB5', 'CEEB6', 'CEED3',
'CEED4', 'CEGR3', 'CEPE3', 'CGRA3', 'CGRA4', 'CLSC3', 'CLSC4', 'CMIG3', 'CMIG4',
'CMSA3', 'COCE5', 'COCE6', 'COGN3', 'CPFE3', 'CPLE11', 'CPLE3', 'CPLE5',
'CPRE3', 'CRDE3', 'CRPG3', 'CRPG5', 'CRPG6', 'CRTE3B', 'CRTE5B', 'CSMG3',
'CSNA3', 'CSRN3', 'CSRN6', 'CTKA3', 'CTKA4', 'CTNM3', 'CTNM4', 'CTSA4', 'CTSA8',
'CYRE3', 'DEXP3', 'DEXP4', 'DIRR3', 'DOHL3', 'DOHL4', 'DXCO3', 'EALT3', 'EALT4',
'ECOR3', 'EGIE3', 'EKTR3', 'EKTR4', 'ELET3', 'ELET5', 'ELET6', 'EMAE3', 'EMAE4',
'ENAT3', 'ENGI11', 'ENGI3', 'ENGI4', 'ENMT3', 'ENMT4', 'EPAR3', 'EPAR4',
'EQA3', 'EQA5', 'EQA6', 'EQA7', 'EQTL11', 'EQTL3', 'ESTR3', 'ESTR4',
'ETER3', 'EUCA3', 'EUCA4', 'EVEN3', 'FESA3', 'FESA4', 'FHER3', 'FIGE3', 'FIGE4',
'FLRY3', 'FRI03', 'FRRN3B', 'FRRN5B', 'FRRN6B', 'GEPA3', 'GEPA4', 'GFSA3',
'HAGA4', 'HBOR3', 'HETA4', 'HOOT3', 'HOOT4', 'HYPE3', 'INEP4', 'IVPR3B',
'JFEN3', 'JHSF3', 'JOPA4', 'JSLG11', 'JSLG3', 'KEPL3', 'KEPL4', 'LREN3',
'LUXM3', 'LUXM4', 'MDNE3', 'MGEL3', 'MILS3', 'MMAQ3', 'MMAQ4', 'MMXM3', 'MNDL3',
'MRFG3', 'MRSA3B', 'MRSA5B', 'MRSA6B', 'MRVE3', 'MTSA3', 'MTSA4', 'MWET3',
'MWET4', 'MYPK3', 'NEMO5', 'NORD3', 'NRTQ3', 'NRTQ4', 'NUTR3', 'ODER3', 'ODER4',
'ODPV3', 'OIBR3', 'OIBR4', 'OPGM3B', 'OPSE3B', 'OPTS3B', 'OSXB3', 'PATI3',
'PATI4', 'PCAR3', 'PCAR99', 'PDGR3', 'PLAS3', 'PMAM3', 'PNVL3', 'POMO3',
'POSI3', 'PPAR3', 'PPAR4', 'PRI03', 'PRMN3B', 'PRPT3B', 'PTBL3', 'PTNT3',
'PTNT4', 'QVQP3B', 'RADL3', 'RAIL3', 'RANI3', 'RANI4', 'RAPT3', 'RAPT4',
'RCSL3', 'RCSL4', 'RDNI3', 'RPMG3', 'RSUL3', 'RSUL4', 'SBSP3', 'SHOW3', 'SHUL3',
'SHUL4', 'SLCE3', 'SLED3', 'SLED4', 'SMT03', 'SNSY3', 'SNSY5', 'SNSY6', 'SQIA3',

```

'SUZB3', 'SYNE3', 'TAE3', 'TAE4', 'TASA3', 'TASA4', 'TCN03', 'TCN04', 'TCSA3',
 'TECN3', 'TEKA3', 'TEKA4', 'TELB3', 'TELB4', 'TEND3', 'TGMA3', 'TKN03', 'TKN04',
 'TPIS3', 'TRIS3', 'TRPL3', 'TRPL4', 'TXRX11', 'TXRX3', 'TXRX4', 'UGPA3',
 'UNIP3', 'UNIP5', 'UPKP3B', 'USIM3', 'USIM5', 'USIM6', 'VIA11', 'VIA3',
 'VIA4', 'VIVR3', 'VIVT4', 'VSPT3', 'VSPT4', 'VULC3', 'WEGE3', 'WLMM3',
 'YBRA4B']
 ['ABEV3', 'AHEB3', 'AHEB5', 'AHEB6', 'ALUP11', 'ALUP3', 'ALUP4', 'ANIM3',
 'BEEF3', 'BOBR4', 'BRKM3', 'CEPE5', 'CEPE6', 'CMSA4', 'COCE3', 'CPLE6', 'CSRN5',
 'CTSA3', 'CVCB3', 'DTCY3', 'DTCY4', 'ENBR3', 'ENEV3', 'EQMA3B', 'EQMA5B',
 'EQMA6B', 'EZTC3', 'FRAS3', 'FRAS4', 'HETA3', 'IGSN3', 'INEP3', 'IVPR4B',
 'JOPA3', 'KLBN3', 'LIGT3', 'LOGN3', 'LTEL3B', 'MGEL4', 'MNPR3', 'NEOE3',
 'PDTC3', 'PFRM3', 'QUSW3', 'RENT3', 'RNEW11', 'RNEW3', 'RNEW4', 'RSID3',
 'SEER3', 'SGPS3', 'SOND3', 'SOND5', 'SOND6', 'TAE11', 'TUPY3', 'UCAS3',
 'UNIP6', 'VLID3', 'WHRL3', 'WHRL4', 'WLMM4', 'YBRA3B', 'YDUQ3']
 ['BRKM5', 'CALI3', 'CALI4', 'DMMO3', 'LEVE3', 'LLIS3', 'MGLU3', 'REDE3']
 ['ABEV3', 'AFLT3', 'AHEB3', 'AHEB5', 'AHEB6', 'ALPA3', 'ALPA4', 'ALUP11',
 'ALUP3', 'ALUP4', 'AMER3', 'APTI3', 'APTI4', 'ARZZ3', 'ATMP3', 'ATOM3', 'AZE3',
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 'BRAP99', 'BRKM3', 'BRKM5', 'BRKM6', 'CABI3B', 'CALI3', 'CAMB3', 'CAMB4',
 'CASN3', 'CASN4', 'CATA4', 'CBEE3', 'CCR03', 'CEBR3', 'CEBR5', 'CEBR6', 'CEDO3',
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 'CMIG3', 'CMIG4', 'CMSA4', 'COCE3', 'COCE5', 'COCE6', 'COGN3', 'CPFE3',
 'CPLE11', 'CPLE3', 'CPLE6', 'CPRE3', 'CRDE3', 'CRPG3', 'CRPG5', 'CRPG6',
 'CRTE3B', 'CSAN3', 'CSMG3', 'CSNA3', 'CTKA3', 'CTKA4', 'CTSA4', 'CTSA8',
 'CVCB3', 'CYRE3', 'DASA3', 'DEXP3', 'DEXP4', 'DIRR3', 'DMMO3', 'DOHL3', 'DOHL4',
 'DTCY3', 'DXCO3', 'EALT3', 'EALT4', 'ECOR3', 'EGIE3', 'EKTR3', 'EKTR4', 'ELET3',
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'VULC3', 'WLMM3', 'YBRA4B', 'YDUQ3']
```

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Após comparação

```
['CSAN3', 'MEAL3', 'OFSA3']
```

3

```
[ ]: #Quantidade de relatorios a partir de 2015
#realizar pesquisa nas empresas de 2015
lista_de_empresas_2015 = []

for name_emp in names_empresas_2015:
    for empresa in lista_caminho:
        if empresa == name_emp:
            path_caminho_pdf_2015 = 'C:
↪\\Users\\Riallen\\Documents\\Att\\Data\\' + empresa
            relatorio_pdf_2015 = os.listdir(path_caminho_pdf_2015)
            att = []
            for lista_pdf_2015 in relatorio_pdf_2015:
                #print(lista_pdf)
                att.append(lista_pdf_2015)
            lista_de_empresas_2015.append(att)
#quantidade total de relatorios baixados
print(lista_de_empresas_2015)
print(len(lista_de_empresas_2015))
```

```
[['CSAN3_2015.pdf', 'CSAN3_2016.pdf', 'CSAN3_2018.pdf', 'CSAN3_2019.pdf',
'CSAN3_2021.pdf'], ['MEAL3_2015.pdf', 'MEAL3_2017.pdf', 'MEAL3_2019.pdf',
'MEAL3_2020.pdf'], ['OFSA3_2015.pdf', 'OFSA3_2016.pdf', 'OFSA3_2017.pdf',
'OFSA3_2018.pdf', 'OFSA3_2019.pdf', 'OFSA3_2020.pdf', 'OFSA3_2021.pdf']]
```

3

```
[ ]: #quantidade de relatórios em cada empresa
tam_emp = np.zeros(3, dtype = int)
i = 0
empresas_15r = []
for pesquisa in lista_de_empresas_2015:
    #print(pesquisa)
    for k in pesquisa:
        #print(k)
        tam_emp[i] = tam_emp[i] + 1
    i = i + 1
print(tam_emp)
print("Empresa com menor quantidade de relatorios: ", min(tam_emp))
```

```
print(len(tam_emp))
```

[5 4 7]

Empresa com menor quantidade de relatorios: 4
3

```
[ ]: #empresas com 8 relatorios
quantidade_relatorios = 7
empresas_2015r = []
for i in range(quantidade_relatorios, 3, -1):
    name = []
    #print(name)
    for pesquisa in lista_de_empresas_2015:
        #print(pesquisa)
        #print(len(pesquisa))
        if i == len(pesquisa):
            c = pesquisa[0].split("_")
            name.append(c[0])
    print("Empresas com ", i , "relatórios")
    print(name)
    empresas_2015r.append(name)
#print(empresas_2015r)

grafico = []
for i in empresas_2015r:
    #print(len(i))
    grafico.append(len(i))
print(grafico)
print(sum(grafico))
```

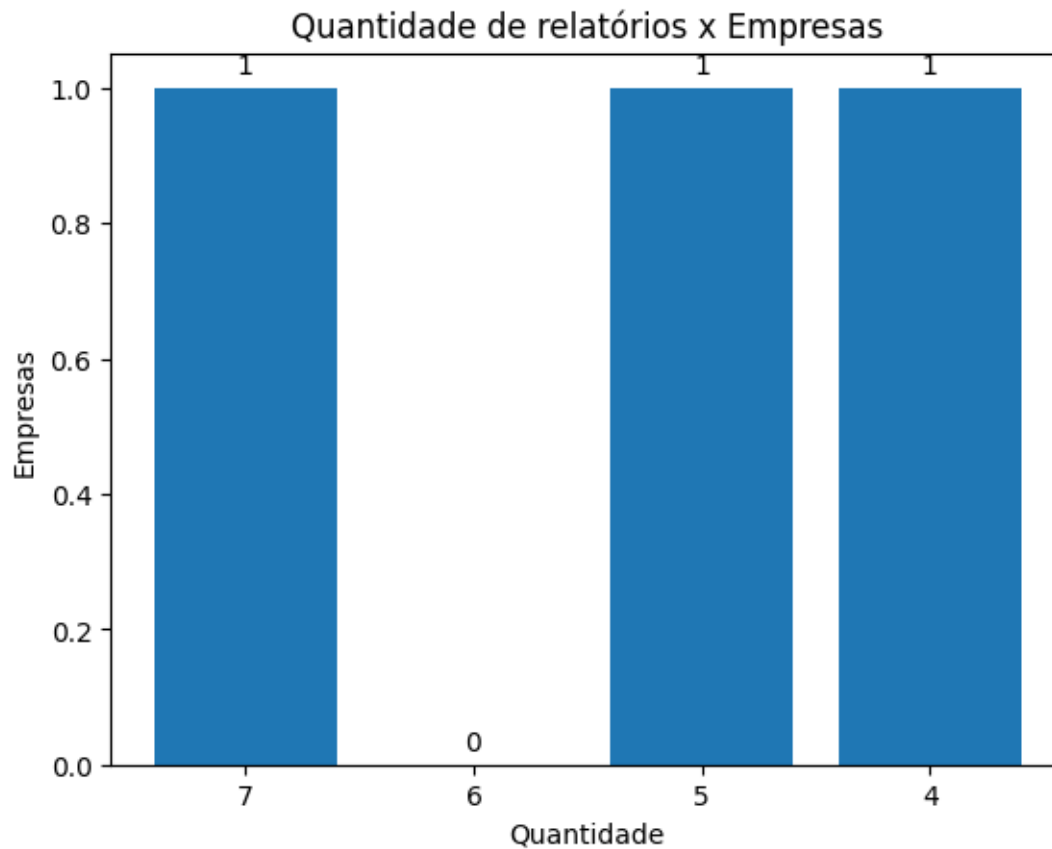
Empresas com 7 relatórios
['OFSA3']
Empresas com 6 relatórios
[]
Empresas com 5 relatórios
['CSAN3']
Empresas com 4 relatórios
['MEAL3']
[1, 0, 1, 1]
3

```
[ ]: #Gráfico gerado após análise
fig, ax = plt.subplots()
X = ["7", "6", "5", "4"]
rect1 = ax.bar(X, grafico)
```

```

ax.set_ylabel('Empresas')
ax.set_title("Quantidade de relatórios x Empresas")
ax.set_xlabel('Quantidade')
ax.bar_label(rect1, padding = 3)
plt.show()

```



```

[ ]: lista_de_empresas_2016 = []
for name in lista:
    c = name.split("_")
    c1 = c[1].split(".")
    if c1[0] == "2016":
        lista_de_empresas_2016.append(name)
print(lista_de_empresas_2016)
print(len(lista_de_empresas_2016))

```

```

['AALR3_2016.pdf', 'ABEV3_2016.pdf', 'AFLT3_2016.pdf', 'AGRO3_2016.pdf',
'AHEB3_2016.pdf', 'AHEB5_2016.pdf', 'AHEB6_2016.pdf', 'ALPA3_2016.pdf',
'ALPA4_2016.pdf', 'ALUP11_2016.pdf', 'ALUP3_2016.pdf', 'ALUP4_2016.pdf',
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'WLMM4_2016.pdf', 'YBRA3B_2016.pdf', 'YDUQ3_2016.pdf']

```

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```

[ ]: names_empresas_2016 = []
print(names_empresas_2011)
print(names_empresas_2012)
print(names_empresas_2013)
print(names_empresas_2014)
print(names_empresas_2015)
for name in lista_de_empresas_2016:
    c = name.split("_")
    names_empresas_2016.append(c[0])
print(names_empresas_2016)
print(len(names_empresas_2016))

for name in names_empresas_2011:
    for name1 in names_empresas_2016:
        if name1 == name:
            names_empresas_2016.remove(name1)

```

```

for name in names_empresas_2012:
    for name1 in names_empresas_2016:
        if name1 == name:
            names_empresas_2016.remove(name1)
for name in names_empresas_2013:
    for name1 in names_empresas_2016:
        if name1 == name:
            names_empresas_2016.remove(name1)
for name in names_empresas_2014:
    for name1 in names_empresas_2016:
        if name1 == name:
            names_empresas_2016.remove(name1)
for name in names_empresas_2015:
    for name1 in names_empresas_2016:
        if name1 == name:
            names_empresas_2016.remove(name1)
print("Após comparação")
print(names_empresas_2016)
print(len(names_empresas_2016))

```

```

['APTI3', 'APTI4', 'BAHI3', 'BRAP3', 'BRAP4', 'BRAP99', 'CATA3', 'CGAS3',
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 'NRTQ3', 'NRTQ4', 'NUTR3', 'OFSA3', 'OIBR3', 'OPGM3B', 'OPTS3B', 'OSXB3',
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```
'PMAM3', 'PNVL3', 'PPAR3', 'PPAR4', 'PRIO3', 'PRMN3B', 'PRPT3B', 'PTBL3',
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'RAPT3', 'RAPT4', 'RCSL3', 'RCSL4', 'RDNI3', 'REDE3', 'RENT3', 'RNEW11',
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'SAPR4', 'SBSP3', 'SEER3', 'SGPS3', 'SHUL3', 'SLCE3', 'SLED3', 'SLED4', 'SMT03',
'SNSY3', 'SNSY5', 'SNSY6', 'SOND3', 'SOND5', 'SOND6', 'SQIA3', 'STBP3', 'STKF3',
'SUZB3', 'TAEE11', 'TAEE3', 'TAEE4', 'TCNO3', 'TCNO4', 'TCSA3', 'TECN3',
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'VIVR3', 'VIVT3', 'VIVT4', 'VLID3', 'VSPT4', 'WLMM3', 'WLMM4', 'YBRA3B',
'YDUQ3']
```

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Após comparação

```
['AALR3', 'BRQB3', 'CNSY3', 'CTCA3', 'MOVI3']
```

5

```
[ ]: #Quantidade de relatorios a partir de 2016
#realizar pesquisa nas empresas de 2016
lista_de_empresas_2016 = []

for name_emp in names_empresas_2016:
    for empresa in lista_caminho:
        if empresa == name_emp:
            path_caminho_pdf_2016 = 'C:
↪\\Users\\Riallen\\Documents\\Att\\Data\\' + empresa
            relatorio_pdf_2016 = os.listdir(path_caminho_pdf_2016)
            att = []
            for lista_pdf_2016 in relatorio_pdf_2016:
                #print(lista_pdf)
                att.append(lista_pdf_2016)
            lista_de_empresas_2016.append(att)
#quantidade total de relatorios baixados
print(lista_de_empresas_2016)
print(len(lista_de_empresas_2016))
```

```
[['AALR3_2016.pdf', 'AALR3_2017.pdf', 'AALR3_2018.pdf', 'AALR3_2019.pdf',
'AALR3_2020.pdf', 'aalr3_2021.pdf'], ['BRQB3_2016.pdf', 'BRQB3_2017.pdf',
'BRQB3_2018.pdf', 'BRQB3_2019.pdf', 'BRQB3_2020.pdf', 'BRQB3_2021.pdf'],
['CNSY3_2016.pdf', 'CNSY3_2017.pdf', 'CNSY3_2018.pdf', 'CNSY3_2019.pdf',
'CNSY3_2020.pdf', 'CNSY3_2021.pdf'], ['CTCA3_2016.pdf', 'CTCA3_2017.pdf',
'CTCA3_2018.pdf', 'CTCA3_2019.pdf', 'CTCA3_2020.pdf', 'CTCA3_2021.pdf'],
['MOVI3_2016.pdf', 'MOVI3_2017.pdf', 'MOVI3_2018.pdf', 'MOVI3_2019.pdf',
'MOVI3_2020.pdf']]
```

5

```
[ ]: #quantidade de relatórios em cada empresa
tam_emp = np.zeros(5, dtype = int)
```



```

i = 0
empresas_16r = []
for pesquisa in lista_de_empresas_2016:
    #print(pesquisa)
    for k in pesquisa:
        #print(k)
        tam_emp[i] = tam_emp[i] + 1
    i = i + 1
print(tam_emp)
print("Empresa com menor quantidade de relatorios: ", min(tam_emp))
print(len(tam_emp))

```

[6 6 6 6 5]

Empresa com menor quantidade de relatorios: 5

5

```

[ ]: #empresas com 8 relatorios
quantidade_relatorios = 6
empresas_2016r = []
for i in range(quantidade_relatorios, 4, -1):
    name = []
    #print(name)
    for pesquisa in lista_de_empresas_2016:
        #print(pesquisa)
        #print(len(pesquisa))
        if i == len(pesquisa):
            c = pesquisa[0].split("_")
            name.append(c[0])
    print("Empresas com ", i, "relatórios")
    print(name)
    empresas_2016r.append(name)
#print(empresas_2011r)

grafico = []
for i in empresas_2016r:
    #print(len(i))
    grafico.append(len(i))
print(grafico)
print(sum(grafico))

```

Empresas com 6 relatórios

['AALR3', 'BRQB3', 'CNSY3', 'CTCA3']

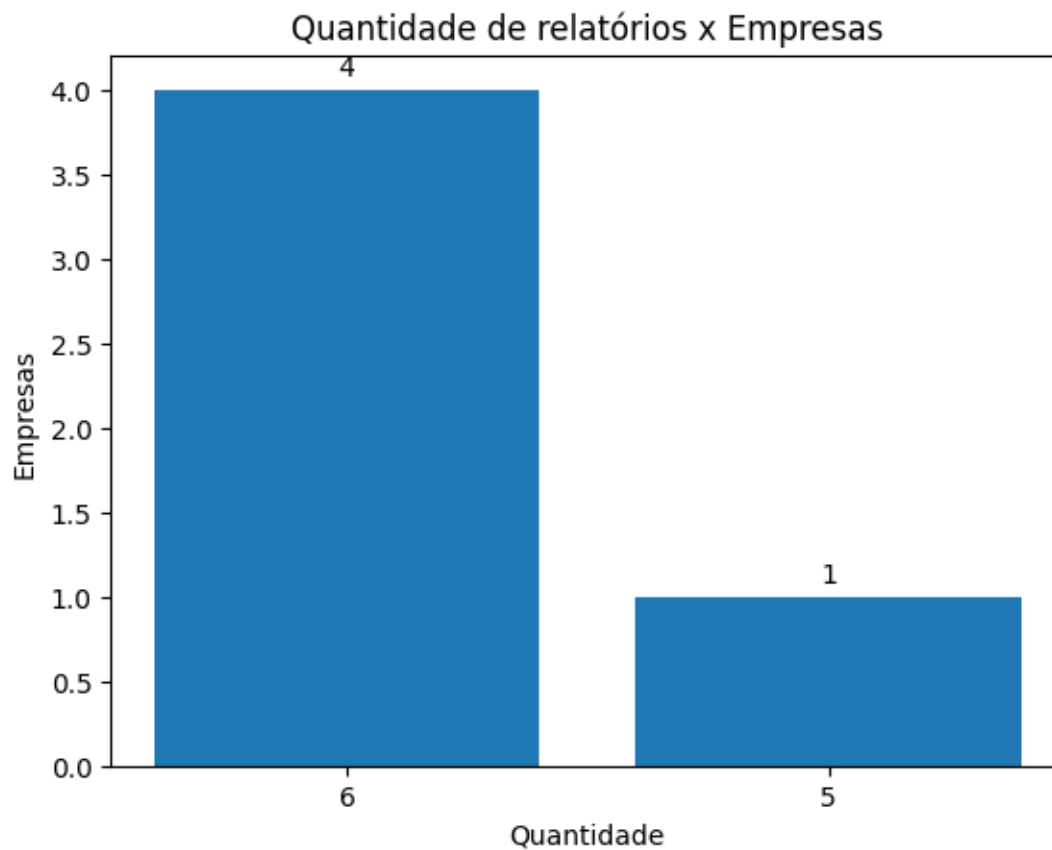
Empresas com 5 relatórios

['MOVI3']

[4, 1]

5

```
[ ]: #Gráfico gerado após análise
fig, ax = plt.subplots()
X = ["6", "5"]
rect1 = ax.bar(X, grafico)
ax.set_ylabel('Empresas')
ax.set_title("Quantidade de relatórios x Empresas")
ax.set_xlabel('Quantidade')
ax.bar_label(rect1, padding = 3)
plt.show()
```



```
[ ]: lista_de_empresas_2017 = []
for name in lista:
    c = name.split("_")
    c1 = c[1].split(".")
    if c1[0] == "2017":
        lista_de_empresas_2017.append(name)
print(lista_de_empresas_2017)
print(len(lista_de_empresas_2017))
```

['AALR3_2017.pdf', 'AFLT3_2017.pdf', 'AGR03_2017.pdf', 'AHEB3_2017.pdf',
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 'CTSA4_2017.pdf', 'CTSA8_2017.pdf', 'CVCB3_2017.pdf', 'CYRE3_2017.pdf',
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 'WLMM3_2017.pdf', 'WLMM4_2017.pdf', 'YBRA3B_2017.pdf', 'YBRA4B_2017.pdf',
 'YDUQ3_2017.pdf']

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```
[ ]: names_empresas_2017 = []
      print(names_empresas_2011)
      print(names_empresas_2012)
      print(names_empresas_2013)
```

```

print(names_empresas_2014)
print(names_empresas_2015)
print(names_empresas_2016)

for name in lista_de_empresas_2017:
    c = name.split("_")
    names_empresas_2017.append(c[0])
print(names_empresas_2017)
print(len(names_empresas_2017))

for name in names_empresas_2011:
    for name1 in names_empresas_2017:
        if name1 == name:
            names_empresas_2017.remove(name1)
for name in names_empresas_2012:
    for name1 in names_empresas_2017:
        if name1 == name:
            names_empresas_2017.remove(name1)
for name in names_empresas_2013:
    for name1 in names_empresas_2017:
        if name1 == name:
            names_empresas_2017.remove(name1)
for name in names_empresas_2014:
    for name1 in names_empresas_2017:
        if name1 == name:
            names_empresas_2017.remove(name1)
for name in names_empresas_2015:
    for name1 in names_empresas_2017:
        if name1 == name:
            names_empresas_2017.remove(name1)
for name in names_empresas_2016:
    for name1 in names_empresas_2017:
        if name1 == name:
            names_empresas_2017.remove(name1)

print("Após comparação")
print(names_empresas_2017)
print(len(names_empresas_2017))

```

```

['APTI3', 'APTI4', 'BAHI3', 'BRAP3', 'BRAP4', 'BRAP99', 'CATA3', 'CGAS3',
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'NEMO6', 'PETR3', 'PETR4', 'PGMN3', 'POMO4', 'QUAL3', 'ROMI3', 'SAPR11',
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'BETP3B', 'BIOM3', 'BLUT3', 'BLUT4', 'BMKS3', 'BOBR3', 'BRFS3', 'BRKM6',

```

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 'CMSA3', 'COCE5', 'COCE6', 'COGN3', 'CPFE3', 'CPLE11', 'CPLE3', 'CPLE5',
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Após comparação

['AZUL3', 'AZUL4', 'CAML3', 'CRFB3', 'INNT3', 'PARD3', 'PRNR3', 'VBBR3']

8

```
[ ]: #Quantidade de relatorios a partir de 2017
#realizar pesquisa nas empresas de 2017
lista_de_empresas_2017 = []
```

```
for name_emp in names_empresas_2017:
    for empresa in lista_caminho:
        if empresa == name_emp:
```

```

        path_caminho_pdf_2017 = 'C:
↪\\Users\\Riallen\\Documents\\Att\\Data\\' + empresa
        relatorio_pdf_2017 = os.listdir(path_caminho_pdf_2017)
        att = []
        for lista_pdf_2017 in relatorio_pdf_2017:
            #print(lista_pdf)
            att.append(lista_pdf_2017)
        lista_de_empresas_2017.append(att)
#quantidade total de relatorios baixados
print(lista_de_empresas_2017)
print(len(lista_de_empresas_2017))

```

```

[['AZUL3_2017.pdf', 'AZUL3_2018.pdf', 'AZUL3_2019.pdf', 'AZUL3_2020.pdf'],
['AZUL4_2017.pdf', 'AZUL4_2018.pdf', 'AZUL4_2019.pdf', 'AZUL4_2021.pdf'],
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'CAML3_2021.pdf'], ['CRFB3_2017.pdf', 'CRFB3_2018.pdf', 'CRFB3_2019.pdf',
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'INNT3_2021.pdf'], ['PARD3_2017.pdf', 'PARD3_2018.pdf', 'PARD3_2021.pdf'],
['PRNR3_2017.pdf', 'PRNR3_2018.pdf', 'PRNR3_2020.pdf', 'PRNR3_2021.pdf'],
['VBBR3_2017.pdf', 'VBBR3_2018.pdf', 'VBBR3_2020.pdf', 'VBBR3_2021.pdf']]
8

```

```

[ ]: #quantidade de relatórios em cada empresa
tam_emp = np.zeros(8, dtype = int)
i = 0
empresas_14r = []
for pesquisa in lista_de_empresas_2017:
    #print(pesquisa)
    for k in pesquisa:
        #print(k)
        tam_emp[i] = tam_emp[i] + 1
    i = i + 1
print(tam_emp)
print("Empresa com menor quantidade de relatorios: ", min(tam_emp))
print(len(tam_emp))

```

```

[4 4 5 5 3 3 4 4]
Empresa com menor quantidade de relatorios: 3
8

```

```

[ ]: #empresas com 8 relatorios
quantidade_relatorios = 5
empresas_2017r = []
for i in range(quantidade_relatorios, 2, -1):
    name = []
    #print(name)
    for pesquisa in lista_de_empresas_2017:
        #print(pesquisa)

```



```

        #print(len(pesquisa))
        if i == len(pesquisa):
            c = pesquisa[0].split("_")
            name.append(c[0])
        print("Empresas com ", i , "relatórios")
        print(name)
        empresas_2017r.append(name)
    #print(empresas_2011r)

grafico = []
for i in empresas_2017r:
    #print(len(i))
    grafico.append(len(i))
print(grafico)
print(sum(grafico))

```

```

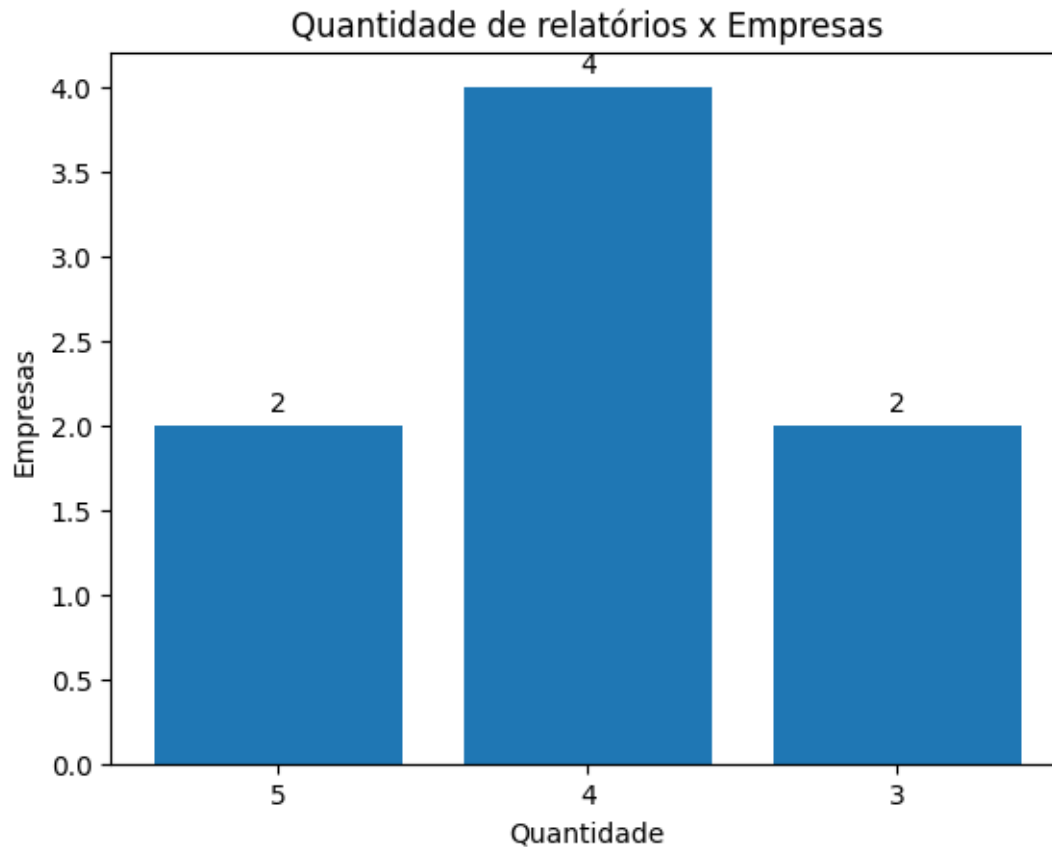
Empresas com 5 relatórios
['CAML3', 'CRFB3']
Empresas com 4 relatórios
['AZUL3', 'AZUL4', 'PRNR3', 'VBRR3']
Empresas com 3 relatórios
['INNT3', 'PARD3']
[2, 4, 2]
8

```

```

[ ]: #Gráfico gerado após análise
fig, ax = plt.subplots()
X = ['5', "4", "3"]
rect1 = ax.bar(X, grafico)
ax.set_ylabel('Empresas')
ax.set_title("Quantidade de relatórios x Empresas")
ax.set_xlabel('Quantidade')
ax.bar_label(rect1, padding = 3)
plt.show()

```



```
[ ]: lista_de_empresas_2018 = []
for name in lista:
    c = name.split("_")
    c1 = c[1].split(".")
    if c1[0] == "2018":
        lista_de_empresas_2018.append(name)
print(lista_de_empresas_2018)
print(len(lista_de_empresas_2018))
```

```
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'TXRX4_2018.pdf', 'UCAS3_2018.pdf', 'UGPA3_2018.pdf', 'UNIP3_2018.pdf',
'UNIP5_2018.pdf', 'UNIP6_2018.pdf', 'UPKP3B_2018.pdf', 'USIM3_2018.pdf',
'USIM5_2018.pdf', 'USIM6_2018.pdf', 'VALE3_2018.pdf', 'VBBR3_2018.pdf',
'VIAA11_2018.pdf', 'VIAA3_2018.pdf', 'VIAA4_2018.pdf', 'VIVR3_2018.pdf',
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'VULC3_2018.pdf', 'WEGE3_2018.pdf', 'WHRL3_2018.pdf', 'WHRL4_2018.pdf',
'WLMM3_2018.pdf', 'WLMM4_2018.pdf', 'YBRA3B_2018.pdf', 'YBRA4B_2018.pdf',
'YDUQ3_2018.pdf', 'ZAMP3_2018.pdf']
```

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```
[ ]: names_empresas_2018 = []
print(names_empresas_2011)
print(names_empresas_2012)
print(names_empresas_2013)
print(names_empresas_2014)
print(names_empresas_2015)
print(names_empresas_2016)
print(names_empresas_2017)
for name in lista_de_empresas_2018:
    c = name.split("_")
    names_empresas_2018.append(c[0])
print(names_empresas_2018)
print(len(names_empresas_2018))

for name in names_empresas_2011:
```

```

for name1 in names_empresas_2018:
    if name1 == name:
        names_empresas_2018.remove(name1)
for name in names_empresas_2012:
    for name1 in names_empresas_2018:
        if name1 == name:
            names_empresas_2018.remove(name1)
for name in names_empresas_2013:
    for name1 in names_empresas_2018:
        if name1 == name:
            names_empresas_2018.remove(name1)
for name in names_empresas_2014:
    for name1 in names_empresas_2018:
        if name1 == name:
            names_empresas_2018.remove(name1)
for name in names_empresas_2015:
    for name1 in names_empresas_2018:
        if name1 == name:
            names_empresas_2018.remove(name1)
for name in names_empresas_2016:
    for name1 in names_empresas_2018:
        if name1 == name:
            names_empresas_2018.remove(name1)
for name in names_empresas_2017:
    for name1 in names_empresas_2018:
        if name1 == name:
            names_empresas_2018.remove(name1)

print("Após comparação")
print(names_empresas_2018)
print(len(names_empresas_2018))

```

```

['APTI3', 'APTI4', 'BAHI3', 'BRAP3', 'BRAP4', 'BRAP99', 'CATA3', 'CGAS3',
'CGAS5', 'DASA3', 'EMBR3', 'FRTA3', 'GGBR3', 'GGBR4', 'GOAU3', 'GOAU4', 'GOLL3',
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'SAPR3', 'SAPR4', 'STBP3', 'STKF3', 'TOTS3', 'VALE3', 'VIVT3']
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'ATOM3', 'AZE3', 'AZE4', 'BALM3', 'BALM4', 'BAUH3', 'BAUH4', 'BDLL3', 'BDLL4',
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 'JFEN3', 'JHSF3', 'JOPA4', 'JSLG11', 'JSLG3', 'KEPL3', 'KEPL4', 'LREN3',
 'LUXM3', 'LUXM4', 'MDNE3', 'MGEL3', 'MIL3', 'MMAQ3', 'MMAQ4', 'MMXM3', 'MNDL3',
 'MRFG3', 'MRS3B', 'MRS5B', 'MRS6B', 'MRVE3', 'MTSA3', 'MTSA4', 'MWET3',
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 'POS13', 'PPAR3', 'PPAR4', 'PRIO3', 'PRMN3B', 'PRPT3B', 'PTBL3', 'PTNT3',
 'PTNT4', 'QVQP3B', 'RADL3', 'RAIL3', 'RANI3', 'RANI4', 'RAPT3', 'RAPT4',
 'RCSL3', 'RCSL4', 'RDNI3', 'RPMG3', 'RSUL3', 'RSUL4', 'SBSP3', 'SHOW3', 'SHUL3',
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 'UNIP6', 'VLID3', 'WHRL3', 'WHRL4', 'WLMM4', 'YBRA3B', 'YDUQ3']
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 ['AALR3', 'BRQB3', 'CNSY3', 'CTCA3', 'MOVI3']
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```
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'VULC3', 'WEGE3', 'WHRL3', 'WHRL4', 'WLMM3', 'WLMM4', 'YBRA3B', 'YBRA4B',
'YDUQ3', 'ZAMP3']
```

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Após comparação

```
['BLAU3', 'FLEX3', 'HAPV3', 'HAPV99', 'PTCA11', 'PTCA3', 'SMFT13', 'ZAMP3']
```

8

Após comparação

```
['BLAU3', 'FLEX3', 'HAPV3', 'HAPV99', 'PTCA11', 'PTCA3', 'SMFT13', 'ZAMP3']
```

8

```
[ ]: #Quantidade de relatorios a partir de 2018
#realizar pesquisa nas empresas de 2018
lista_de_empresas_2018 = []

for name_emp in names_empresas_2018:
    for empresa in lista_caminho:
        if empresa == name_emp:
            path_caminho_pdf_2018 = 'C:
↪\\Users\\Riallen\\Documents\\Att\\Data\\' + empresa
```

```

relatorio_pdf_2018 = os.listdir(path_caminho_pdf_2018)
att = []
for lista_pdf_2018 in relatorio_pdf_2018:
    #print(lista_pdf)
    att.append(lista_pdf_2018)
lista_de_empresas_2018.append(att)
#quantidade total de relatorios baixados
print(lista_de_empresas_2018)
print(len(lista_de_empresas_2018))

```

```

[['BLAU3_2018.pdf', 'BLAU3_2019.pdf', 'BLAU3_2020.pdf', 'BLAU3_2021.pdf'],
['FLEX3_2018.pdf', 'FLEX3_2019.pdf', 'FLEX3_2020.pdf', 'FLEX3_2021.pdf'],
['HAPV3_2018.pdf', 'HAPV3_2019.pdf', 'HAPV3_2020.pdf', 'HAPV3_2021.pdf'],
['HAPV99_2018.pdf', 'HAPV99_2019.pdf', 'HAPV99_2020.pdf', 'HAPV99_2021.pdf'],
['PTCA11_2018.pdf', 'PTCA11_2019.pdf', 'PTCA11_2020.pdf', 'PTCA11_2021.pdf'],
['PTCA3_2018.pdf', 'PTCA3_2019.pdf', 'PTCA3_2020.pdf', 'PTCA3_2021.pdf'],
['SMFT13_2018.pdf', 'SMFT13_2019.pdf', 'SMFT13_2020.pdf', 'SMFT13_2021.pdf'],
['ZAMP3_2018.pdf', 'ZAMP3_2019.pdf', 'ZAMP3_2020.pdf', 'ZAMP3_2021.pdf']]
8

```

```

[ ]: #quantidade de relatórios em cada empresa
tam_emp = np.zeros(8, dtype = int)
i = 0
empresas_14r = []
for pesquisa in lista_de_empresas_2018:
    #print(pesquisa)
    for k in pesquisa:
        #print(k)
        tam_emp[i] = tam_emp[i] + 1
    i = i + 1
print(tam_emp)
print("Empresa com menor quantidade de relatorios: ", min(tam_emp))
print(len(tam_emp))

```

```

[4 4 4 4 4 4 4 4]
Empresa com menor quantidade de relatorios: 4
8

```

```

[ ]: #Gráfico gerado após análise
fig, ax = plt.subplots()
X = ['4']
rect1 = ax.bar(X, 8)
ax.set_ylabel('Empresas')
ax.set_title("Quantidade de relatórios x Empresas")
ax.set_xlabel('Quantidade')
ax.bar_label(rect1, padding = 3)
plt.show()

```




```
[ ]: lista_de_empresas_2019 = []
for name in lista:
    c = name.split("_")
    c1 = c[1].split(".")
    if c1[0] == "2019":
        lista_de_empresas_2019.append(name)
print(lista_de_empresas_2019)
print(len(lista_de_empresas_2019))
```

```
['AALR3_2019.pdf', 'ABEV3_2019.pdf', 'AFLT3_2019.pdf', 'AGR03_2019.pdf',
'AHEB3_2019.pdf', 'AHEB5_2019.pdf', 'AHEB6_2019.pdf', 'ALPA3_2019.pdf',
'ALPA4_2019.pdf', 'ALUP11_2019.pdf', 'ALUP3_2019.pdf', 'ALUP4_2019.pdf',
'AMAR3_2019.pdf', 'AMER3_2019.pdf', 'ANIM3_2019.pdf', 'APTI4_2019.pdf',
'ARZZ3_2019.pdf', 'ATMP3_2019.pdf', 'ATOM3_2019.pdf', 'AZE3_2019.pdf',
'AZE4_2019.pdf', 'AZUL3_2019.pdf', 'AZUL4_2019.pdf', 'BAHI3_2019.pdf',
'BALM3_2019.pdf', 'BALM4_2019.pdf', 'BAUH3_2019.pdf', 'BBML3_2019.pdf',
'BDLL4_2019.pdf', 'BEEF3_2019.pdf', 'BETP3B_2019.pdf', 'BIOM3_2019.pdf',
'BLAU3_2019.pdf', 'BLUT3_2019.pdf', 'BLUT4_2019.pdf', 'BMKS3_2019.pdf',
'BOBR3_2019.pdf', 'BOBR4_2019.pdf', 'BRAP3_2019.pdf', 'BRAP4_2019.pdf',
'BRAP99_2019.pdf', 'BRFS3_2019.pdf', 'BRKM3_2019.pdf', 'BRQB3_2019.pdf',
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 'CGAS5_2019.pdf', 'CGRA4_2019.pdf', 'CLSC3_2019.pdf', 'CLSC4_2019.pdf',
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'VSPT4_2019.pdf', 'VULC3_2019.pdf', 'WHRL4_2019.pdf', 'WLMM3_2019.pdf',
'WLMM4_2019.pdf', 'YDUQ3_2019.pdf', 'ZAMP3_2019.pdf']
```

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```
[ ]: names_empresas_2019 = []
print(names_empresas_2011)
print(names_empresas_2012)
print(names_empresas_2013)
print(names_empresas_2014)
print(names_empresas_2015)
print(names_empresas_2016)
print(names_empresas_2017)
print(names_empresas_2018)
for name in lista_de_empresas_2019:
    c = name.split("_")
```

```

names_empresas_2019.append(c[0])
print(names_empresas_2019)
print(len(names_empresas_2019))

for name in names_empresas_2011:
    for name1 in names_empresas_2019:
        if name1 == name:
            names_empresas_2019.remove(name1)
for name in names_empresas_2012:
    for name1 in names_empresas_2019:
        if name1 == name:
            names_empresas_2019.remove(name1)
for name in names_empresas_2013:
    for name1 in names_empresas_2019:
        if name1 == name:
            names_empresas_2019.remove(name1)
for name in names_empresas_2014:
    for name1 in names_empresas_2019:
        if name1 == name:
            names_empresas_2019.remove(name1)
for name in names_empresas_2015:
    for name1 in names_empresas_2019:
        if name1 == name:
            names_empresas_2019.remove(name1)
for name in names_empresas_2016:
    for name1 in names_empresas_2019:
        if name1 == name:
            names_empresas_2019.remove(name1)
for name in names_empresas_2017:
    for name1 in names_empresas_2019:
        if name1 == name:
            names_empresas_2019.remove(name1)
for name in names_empresas_2018:
    for name1 in names_empresas_2019:
        if name1 == name:
            names_empresas_2019.remove(name1)

print("Após comparação")
print(names_empresas_2019)
print(len(names_empresas_2019))

```

```

['APTI3', 'APTI4', 'BAHI3', 'BRAP3', 'BRAP4', 'BRAP99', 'CATA3', 'CGAS3',
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 'VIA4', 'VIVT3', 'VIVT4', 'VLID3', 'VSPT4', 'VULC3', 'WHRL4', 'WLMM3', 'WLMM4',
 'YDUQ3', 'ZAMP3']

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Após comparação

['BBML3', 'CEAB3', 'LTLA3B', 'SBFG3', 'SMFT3', 'VAMO3']

6

```
[ ]: #Quantidade de relatorios a partir de 2019
#realizar pesquisa nas empresas de 2019
lista_de_empresas_2019 = []

for name_emp in names_empresas_2019:
    for empresa in lista_caminho:
        if empresa == name_emp:
            path_caminho_pdf_2019 = 'C:
↪\\Users\\Riallen\\Documents\\Att\\Data\\' + empresa
            relatorio_pdf_2019 = os.listdir(path_caminho_pdf_2019)
            att = []
            for lista_pdf_2019 in relatorio_pdf_2019:
                #print(lista_pdf)
                att.append(lista_pdf_2019)
            lista_de_empresas_2019.append(att)
#quantidade total de relatorios baixados
print(lista_de_empresas_2019)
print(len(lista_de_empresas_2019))
```

```
[['BBML3_2019.pdf', 'BBML3_2021.pdf'], ['CEAB3_2019.pdf', 'CEAB3_2020.pdf',
'CEAB3_2021.pdf'], ['LTLA3B_2019.pdf', 'LTLA3B_2020.pdf'], ['SBFG3_2019.pdf',
'SBFG3_2020.pdf', 'SBFG3_2021.pdf'], ['SMFT3_2019.pdf', 'SMFT3_2020.pdf',
'SMFT3_2021.pdf'], ['VAM03_2019.pdf', 'VAM03_2020.pdf', 'VAM03_2021.pdf']]
```

6

```
[ ]: #quantidade de relatórios em cada empresa
tam_emp = np.zeros(6, dtype = int)
i = 0
empresas_19r = []
for pesquisa in lista_de_empresas_2019:
    #print(pesquisa)
    for k in pesquisa:
        #print(k)
        tam_emp[i] = tam_emp[i] + 1
    i = i + 1
print(tam_emp)
print("Empresa com menor quantidade de relatorios: ", min(tam_emp))
print(len(tam_emp))
```

```
[2 3 2 3 3 3]
```

```
Empresa com menor quantidade de relatorios: 2
```

6

```
[ ]: #empresas com 8 relatorios
quantidade_relatorios = 3
empresas_2019r = []
for i in range(quantidade_relatorios, 1, -1):
    name = []
```

```

# print(name)
for pesquisa in lista_de_empresas_2019:
    # print(pesquisa)
    # print(len(pesquisa))
    if i == len(pesquisa):
        c = pesquisa[0].split("_")
        name.append(c[0])
    print("Empresas com ", i, "relatórios")
    print(name)
    empresas_2019r.append(name)
# print(empresas_2019r)

grafico = []
for i in empresas_2019r:
    # print(len(i))
    grafico.append(len(i))
print(grafico)
print(sum(grafico))

```

```

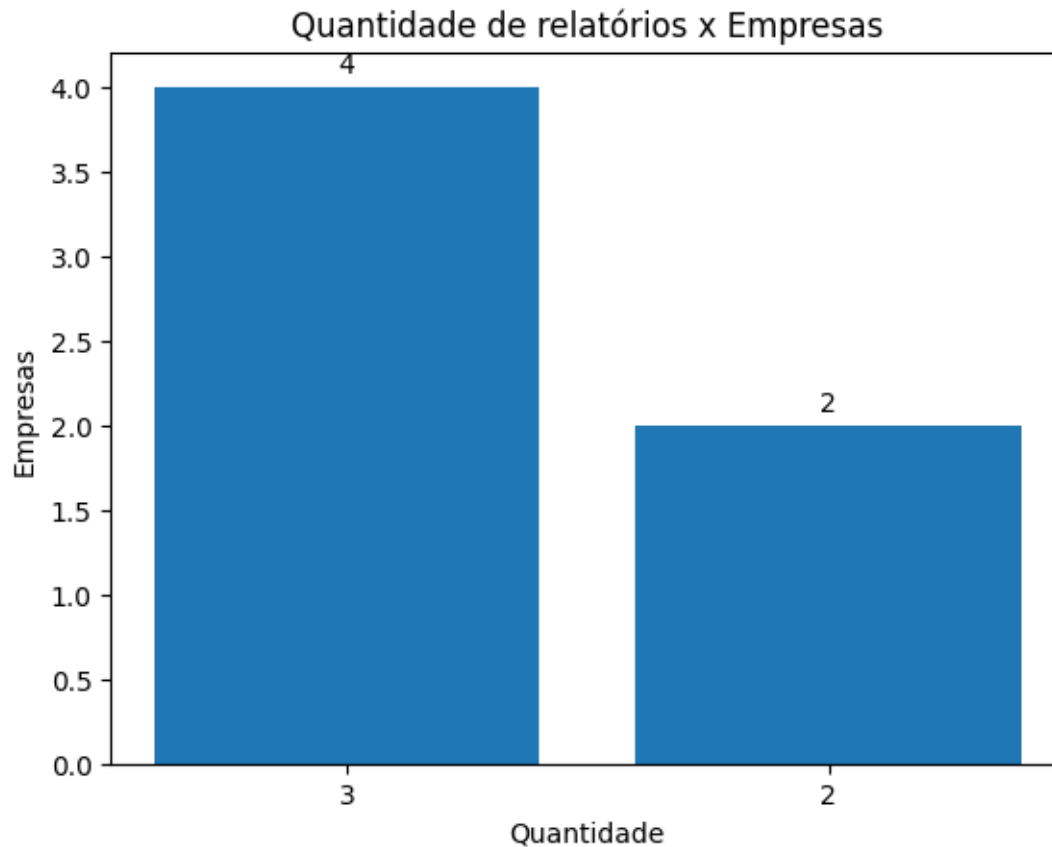
Empresas com 3 relatórios
['CEAB3', 'SBFG3', 'SMFT3', 'VAM03']
Empresas com 2 relatórios
['BBML3', 'LTLA3B']
[4, 2]
6

```

```

[ ]: #Gráfico gerado após análise
fig, ax = plt.subplots()
X = ['3', '2']
rect1 = ax.bar(X, grafico)
ax.set_ylabel('Empresas')
ax.set_title("Quantidade de relatórios x Empresas")
ax.set_xlabel('Quantidade')
ax.bar_label(rect1, padding = 3)
plt.show()

```

```
[ ]: lista_de_empresas_2020 = []
for name in lista:
    c = name.split("_")
    c1 = c[1].split(".")
    if c1[0] == "2020":
        lista_de_empresas_2020.append(name)
print(lista_de_empresas_2020)
print(len(lista_de_empresas_2020))
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```
[ ]: names_empresas_2020 = []
      print(names_empresas_2011)
      print(names_empresas_2012)
      print(names_empresas_2013)
```

```

print(names_empresas_2014)
print(names_empresas_2015)
print(names_empresas_2016)
print(names_empresas_2017)
print(names_empresas_2018)
print(names_empresas_2019)
for name in lista_de_empresas_2020:
    c = name.split("_")
    names_empresas_2020.append(c[0])
print(names_empresas_2020)
print(len(names_empresas_2020))

for name in names_empresas_2011:
    for name1 in names_empresas_2020:
        if name1 == name:
            names_empresas_2020.remove(name1)
for name in names_empresas_2012:
    for name1 in names_empresas_2020:
        if name1 == name:
            names_empresas_2020.remove(name1)
for name in names_empresas_2013:
    for name1 in names_empresas_2020:
        if name1 == name:
            names_empresas_2020.remove(name1)
for name in names_empresas_2014:
    for name1 in names_empresas_2020:
        if name1 == name:
            names_empresas_2020.remove(name1)
for name in names_empresas_2015:
    for name1 in names_empresas_2020:
        if name1 == name:
            names_empresas_2020.remove(name1)
for name in names_empresas_2016:
    for name1 in names_empresas_2020:
        if name1 == name:
            names_empresas_2020.remove(name1)
for name in names_empresas_2017:
    for name1 in names_empresas_2020:
        if name1 == name:
            names_empresas_2020.remove(name1)
for name in names_empresas_2018:
    for name1 in names_empresas_2020:
        if name1 == name:
            names_empresas_2020.remove(name1)
for name in names_empresas_2019:
    for name1 in names_empresas_2020:
        if name1 == name:

```

```

names_empresas_2020.remove(name1)

print("Após comparação")
print(names_empresas_2020)
print(len(names_empresas_2020))

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 'LLBI3', 'LLIS3', 'LMED3', 'LOGN3', 'LREN3', 'LTEL3B', 'LTEL5B', 'LTLA3B',
 'LUXM3', 'LUXM4', 'LWSA3', 'MAPT3', 'MAPT4', 'MDNE3', 'MEAL3', 'MELK3', 'MGEL3',
 'MGLU3', 'MILS3', 'MMAQ3', 'MMAQ4', 'MMXM3', 'MNDL3', 'MNPR3', 'MOVI3', 'MRFG3',
 'MRSA3B', 'MRSA5B', 'MRVE3', 'MSPA3', 'MSPA4', 'MTRE3', 'MTSA3', 'MTSA4',
 'MWET3', 'NEMO5', 'NEMO6', 'NGRD3', 'NRTQ3', 'NTCO3', 'NUTR3', 'ODER3', 'ODER4',
 'ODPV3', 'OFS3', 'OIBR4', 'OPGM3B', 'OPSE3B', 'OPTS3B', 'ORVR3', 'OSXB3',
 'PASS3', 'PASS5', 'PASS6', 'PATI3', 'PATI4', 'PCAR3', 'PCAR99', 'PDGR3',
 'PDT3', 'PETR3', 'PETR4', 'PFRM3', 'PGMN3', 'PLAS3', 'PMAM3', 'PNVL3', 'POMO3',
 'POMO4', 'POS3', 'PPAR3', 'PPAR4', 'PRIO3', 'PRMN3B', 'PRNR3', 'PRPT3B',
 'PTBL3', 'PTCA11', 'PTCA3', 'PTNT3', 'PTNT4', 'QUAL3', 'QUSW3', 'QVQP3B',
 'RADL3', 'RAIL3', 'RANI3', 'RANI4', 'RAPT3', 'RAPT4', 'RCSL3', 'RCSL4', 'RDNI3',
 'RDOR3', 'REDE3', 'RENT3', 'RNEW11', 'RNEW3', 'RNEW4', 'ROMI3', 'RPMG3',

```
'RRRP3', 'RSID3', 'RSUL3', 'SAPR11', 'SAPR3', 'SAPR4', 'SBFG3', 'SBSP3',
'SEQL3', 'SGPS3', 'SHOW3', 'SHUL3', 'SLED3', 'SMFT13', 'SMFT3', 'SMT03',
'SNSY3', 'SNSY5', 'SNSY6', 'SOJA3', 'SOMA3', 'SOND3', 'SOND5', 'SQIA3', 'STBP3',
'STKF3', 'SYNE3', 'TAEE11', 'TAEE3', 'TAEE4', 'TASA3', 'TASA4', 'TCNO3',
'TCSA3', 'TECN3', 'TEKA4', 'TELB3', 'TELB4', 'TEND3', 'TFC04', 'TIMS3', 'TKN03',
'TKN04', 'TOTS3', 'TRIS3', 'TRPL3', 'TRPL4', 'TUPY3', 'TXRX11', 'TXRX3',
'TXRX4', 'UCAS3', 'UGPA3', 'UNIP3', 'UNIP5', 'UNIP6', 'UPKP3B', 'USIM3',
'USIM5', 'USIM6', 'VALE3', 'VAMO3', 'VBBR3', 'VIAA11', 'VIAA3', 'VITT3',
'VIVA3', 'VIVR3', 'VIVT3', 'VLID3', 'VSPT3', 'VSPT4', 'VULC3', 'WEGE3', 'WHRL3',
'WHRL4', 'WLMM3', 'YBRA3B', 'YDUQ3', 'ZAMP3']
```

399

Após comparação

```
['AERI3', 'AGXY3', 'ALLD3', 'ALPK3', 'AMBP3', 'AURA32', 'AURA33', 'AVLL3',
'CASH3', 'CSED3', 'CURY3', 'DMVF3', 'ELMD3', 'ENJU3', 'ESPA3', 'GMAT3', 'INTB3',
'LAVV3', 'LLBI3', 'LMED3', 'LWSA3', 'MELK3', 'MTRE3', 'NGRD3', 'NTCO3', 'ORVR3',
'PASS3', 'PASS5', 'PASS6', 'RDOR3', 'RRRP3', 'SEQL3', 'SOJA3', 'SOMA3', 'TFC04',
'TIMS3', 'VITT3', 'VIVA3']
```

38

Após comparação

```
['AERI3', 'AGXY3', 'ALLD3', 'ALPK3', 'AMBP3', 'AURA32', 'AURA33', 'AVLL3',
'CASH3', 'CSED3', 'CURY3', 'DMVF3', 'ELMD3', 'ENJU3', 'ESPA3', 'GMAT3', 'INTB3',
'LAVV3', 'LLBI3', 'LMED3', 'LWSA3', 'MELK3', 'MTRE3', 'NGRD3', 'NTCO3', 'ORVR3',
'PASS3', 'PASS5', 'PASS6', 'RDOR3', 'RRRP3', 'SEQL3', 'SOJA3', 'SOMA3', 'TFC04',
'TIMS3', 'VITT3', 'VIVA3']
```

38

[]: *#Quantidade de relatorios a partir de 2020*

#realizar pesquisa nas empresas de 2020

lista_de_empresas_2020 = []

```
for name_emp in names_empresas_2020:
```

```
    for empresa in lista_caminho:
```

```
        if empresa == name_emp:
```

```
            path_caminho_pdf_2020 = 'C:
```

```
↪\\Users\\Riallen\\Documents\\Att\\Data\\' + empresa
```

```
            relatorio_pdf_2020 = os.listdir(path_caminho_pdf_2020)
```

```
            att = []
```

```
            for lista_pdf_2020 in relatorio_pdf_2020:
```

```
                #print(lista_pdf)
```

```
                att.append(lista_pdf_2020)
```

```
            lista_de_empresas_2020.append(att)
```

#quantidade total de relatorios baixados

```
print(lista_de_empresas_2020)
```

```
print(len(lista_de_empresas_2020))
```

```
[['AERI3_2020.pdf', 'AERI3_2021.pdf'], ['AGXY3_2020.pdf', 'AGXY3_2021.pdf'],
['ALLD3_2020.pdf', 'ALLD3_2021.pdf'], ['ALPK3_2020.pdf', 'ALPK3_2021.pdf'],
['AMBP3_2020.pdf', 'AMBP3_2021.pdf'], ['AURA32_2020.pdf', 'AURA32_2021.pdf'],
```

```
['AURA33_2020.pdf', 'AURA33_2021.pdf'], ['AVLL3_2020.pdf', 'AVLL3_2021.pdf'],
['CASH3_2020.pdf', 'CASH3_2021.pdf'], ['CSED3_2020.pdf', 'CSED3_2021.pdf'],
['CURY3_2020.pdf', 'CURY3_2021.pdf'], ['DMVF3_2020.pdf', 'DMVF3_2021.pdf'],
['ELMD3_2020.pdf', 'ELMD3_2021.pdf'], ['ENJU3_2020.pdf', 'ENJU3_2021.pdf'],
['ESPA3_2020.pdf', 'ESPA3_2021.pdf'], ['GMAT3_2020.pdf', 'GMAT3_2021.pdf'],
['INTB3_2020.pdf'], ['LAVV3_2020.pdf', 'LAVV3_2021.pdf'], ['LLBI3_2020.pdf'],
['LMED3_2020.pdf'], ['LWSA3_2020.pdf', 'LWSA3_2021.pdf'], ['MELK3_2020.pdf',
'MELK3_2021.pdf'], ['MTRE3_2020.pdf'], ['NGRD3_2020.pdf', 'NGRD3_2021.pdf'],
['NTCO3_2020.pdf', 'NTCO3_2021.pdf'], ['ORVR3_2020.pdf', 'ORVR3_2021.pdf'],
['PASS3_2020.pdf'], ['PASS5_2020.pdf', 'PASS5_2021.pdf'], ['PASS6_2020.pdf',
'PASS6_2021.pdf'], ['RDOR3_2020.pdf', 'RDOR3_2021.pdf'], ['RRRP3_2020.pdf',
'RRRP3_2021.pdf'], ['SEQL3_2020.pdf', 'SEQL3_2021.pdf'], ['SOJA3_2020.pdf',
'SOJA3_2021.pdf'], ['SOMA3_2020.pdf', 'SOMA3_2021.pdf'], ['TFCO4_2020.pdf',
'TFCO4_2021.pdf'], ['TIMS3_2020.pdf', 'TIMS3_2021.pdf'], ['VITT3_2020.pdf',
'VITT3_2021.pdf'], ['VIVA3_2020.pdf', 'VIVA3_2021.pdf']]
```

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```
[ ]: #quantidade de relatórios em cada empresa
tam_emp = np.zeros(38, dtype = int)
i = 0
empresas_20r = []
for pesquisa in lista_de_empresas_2020:
    #print(pesquisa)
    for k in pesquisa:
        #print(k)
        tam_emp[i] = tam_emp[i] + 1
    i = i + 1
print(tam_emp)
print("Empresa com menor quantidade de relatorios: ", min(tam_emp))
print(len(tam_emp))
```

```
[2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 2 1 1 2 2 1 2 2 2 1 2 2 2 2 2 2 2 2 2 2
2]
```

Empresa com menor quantidade de relatorios: 1

38

```
[ ]: #empresas com 8 relatorios
quantidade_relatorios = 2
empresas_2020r = []
for i in range(quantidade_relatorios, 0, -1):
    name = []
    #print(name)
    for pesquisa in lista_de_empresas_2020:
        #print(pesquisa)
        #print(len(pesquisa))
        if i == len(pesquisa):
            c = pesquisa[0].split("_")
            name.append(c[0])
```



```

print("Empresas com ", i , "relatórios")
print(name)
empresas_2020r.append(name)
#print(empresas_2011r)

grafico = []
for i in empresas_2020r:
    #print(len(i))
    grafico.append(len(i))
print(grafico)
print(sum(grafico))

```

Empresas com 2 relatórios

```

['AERI3', 'AGXY3', 'ALLD3', 'ALPK3', 'AMBP3', 'AURA32', 'AURA33', 'AVLL3',
'CASH3', 'CSED3', 'CURY3', 'DMVF3', 'ELMD3', 'ENJU3', 'ESPA3', 'GMAT3', 'LAVV3',
'LWSA3', 'MELK3', 'NGRD3', 'NTCO3', 'ORVR3', 'PASS5', 'PASS6', 'RDOR3', 'RRRP3',
'SEQL3', 'SOJA3', 'SOMA3', 'TFCO4', 'TIMS3', 'VITT3', 'VIVA3']

```

Empresas com 1 relatórios

```

['INTB3', 'LLBI3', 'LMED3', 'MTRE3', 'PASS3']

```

```

[33, 5]

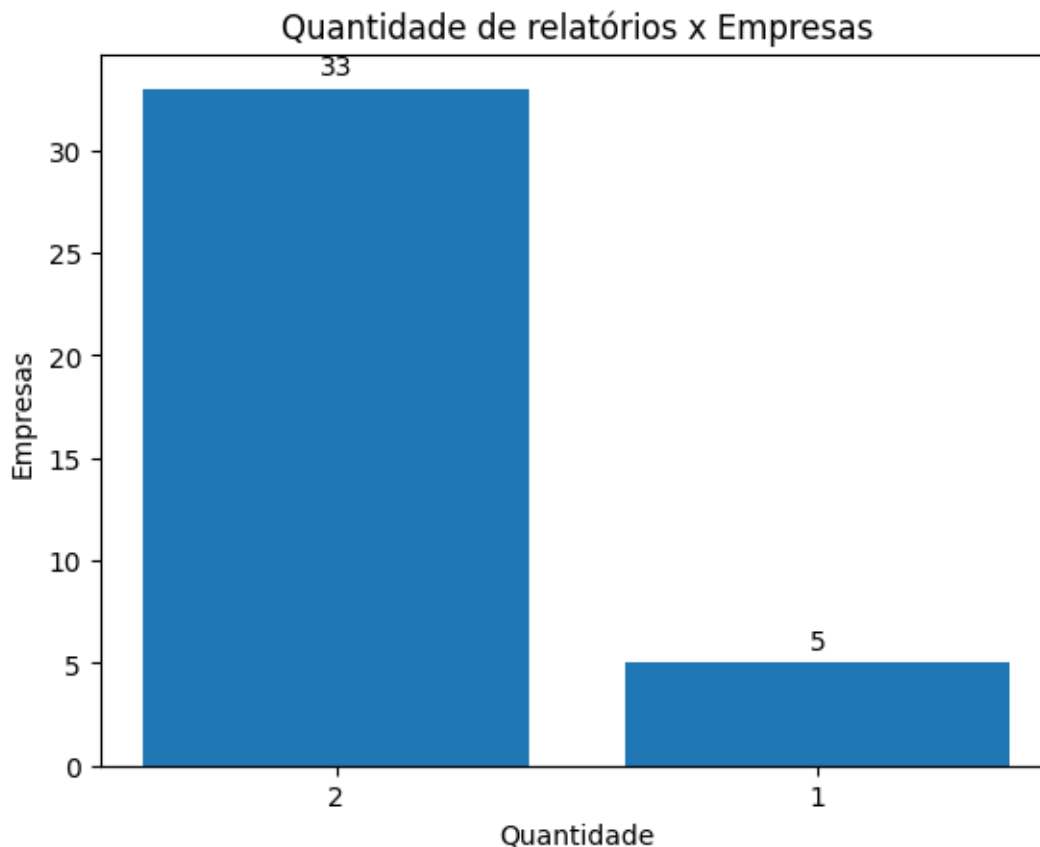
```

38

```

[ ]: #Gráfico gerado após análise
fig, ax = plt.subplots()
X = ['2', '1']
rect1 = ax.bar(X, grafico)
ax.set_ylabel('Empresas')
ax.set_title("Quantidade de relatórios x Empresas")
ax.set_xlabel('Quantidade')
ax.bar_label(rect1, padding = 3)
plt.show()

```



```
[ ]: lista_de_empresas_2021 = []
for name in lista:
    c = name.split("_")
    c1 = c[1].split(".")
    if c1[0] == "2021":
        lista_de_empresas_2021.append(name)
print(lista_de_empresas_2021)
print(len(lista_de_empresas_2021))
```

```
['AALR3_2021.pdf', 'ABEV3_2021.pdf', 'AERI3_2021.pdf', 'AESB3_2021.pdf',
'AES03_2021.pdf', 'AFLT3_2021.pdf', 'AGRO3_2021.pdf', 'AGXY3_2021.pdf',
'AHEB3_2021.pdf', 'AHEB5_2021.pdf', 'AHEB6_2021.pdf', 'ALLD3_2021.pdf',
'ALPA3_2021.pdf', 'ALPA4_2021.pdf', 'ALPK3_2021.pdf', 'ALUP11_2021.pdf',
'ALUP3_2021.pdf', 'ALUP4_2021.pdf', 'AMAR3_2021.pdf', 'AMBP3_2021.pdf',
'AMER3_2021.pdf', 'ANIM3_2021.pdf', 'APTI3_2021.pdf', 'APTI4_2021.pdf',
'ARML3_2021.pdf', 'ARZZ3_2021.pdf', 'ASAI3_2021.pdf', 'ATMP3_2021.pdf',
'ATOM3_2021.pdf', 'AURA32_2021.pdf', 'AURA33_2021.pdf', 'AVLL3_2021.pdf',
'AZE3_2021.pdf', 'AZE4_2021.pdf', 'AZUL4_2021.pdf', 'BAHI3_2021.pdf',
'BAUH3_2021.pdf', 'BAUH4_2021.pdf', 'BBML3_2021.pdf', 'BDLL4_2021.pdf',
'BEEF3_2021.pdf', 'BETP3B_2021.pdf', 'BIOM3_2021.pdf', 'BLAU3_2021.pdf',
```

'BLUT3_2021.pdf', 'BLUT4_2021.pdf', 'BMKS3_2021.pdf', 'BMOB3_2021.pdf',
 'BOBR3_2021.pdf', 'BOBR4_2021.pdf', 'BRAP3_2021.pdf', 'BRAP4_2021.pdf',
 'BRAP99_2021.pdf', 'BRIT3_2021.pdf', 'BRKM5_2021.pdf', 'BRKM6_2021.pdf',
 'BRQB3_2021.pdf', 'CABI3B_2021.pdf', 'CALI4_2021.pdf', 'CAMB3_2021.pdf',
 'CAMB4_2021.pdf', 'CAML3_2021.pdf', 'CASH3_2021.pdf', 'CASN3_2021.pdf',
 'CASN4_2021.pdf', 'CATA3_2021.pdf', 'CATA4_2021.pdf', 'CBAV3_2021.pdf',
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 'CEBR5_2021.pdf', 'CEBR6_2021.pdf', 'CED03_2021.pdf', 'CED04_2021.pdf',
 'CEEB3_2021.pdf', 'CEEB5_2021.pdf', 'CEEB6_2021.pdf', 'CEED3_2021.pdf',
 'CEED4_2021.pdf', 'CEPE3_2021.pdf', 'CEPE5_2021.pdf', 'CEPE6_2021.pdf',
 'CGAS3_2021.pdf', 'CGAS5_2021.pdf', 'CGRA3_2021.pdf', 'CGRA4_2021.pdf',
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 'CMSA4_2021.pdf', 'CNSY3_2021.pdf', 'COCE3_2021.pdf', 'COCE5_2021.pdf',
 'COCE6_2021.pdf', 'COGN3_2021.pdf', 'COMR3_2021.pdf', 'CPFE3_2021.pdf',
 'CPLE11_2021.pdf', 'CPLE3_2021.pdf', 'CPLE5_2021.pdf', 'CPLE6_2021.pdf',
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 'CSAN3_2021.pdf', 'CSED3_2021.pdf', 'CSMG3_2021.pdf', 'CSNA3_2021.pdf',
 'CSRN3_2021.pdf', 'CSRN5_2021.pdf', 'CSRN6_2021.pdf', 'CTCA3_2021.pdf',
 'CTKA4_2021.pdf', 'CTNM3_2021.pdf', 'CTSA3_2021.pdf', 'CTSA4_2021.pdf',
 'CURY3_2021.pdf', 'CVCB3_2021.pdf', 'CYRE3_2021.pdf', 'DESK3_2021.pdf',
 'DEXP3_2021.pdf', 'DEXP4_2021.pdf', 'DIRR3_2021.pdf', 'DMM03_2021.pdf',
 'DMVF3_2021.pdf', 'DOHL3_2021.pdf', 'DOHL4_2021.pdf', 'DOTZ3_2021.pdf',
 'DTCY4_2021.pdf', 'DXC03_2021.pdf', 'EALT3_2021.pdf', 'EALT4_2021.pdf',
 'ECOR3_2021.pdf', 'EGIE3_2021.pdf', 'EKTR3_2021.pdf', 'EKTR4_2021.pdf',
 'ELET3_2021.pdf', 'ELET5_2021.pdf', 'ELET6_2021.pdf', 'ELMD3_2021.pdf',
 'EMAE3_2021.pdf', 'EMAE4_2021.pdf', 'EMBR3_2021.pdf', 'ENAT3_2021.pdf',
 'ENBR3_2021.pdf', 'ENEV3_2021.pdf', 'ENGI11_2021.pdf', 'ENGI4_2021.pdf',
 'ENJU3_2021.pdf', 'ENMT3_2021.pdf', 'ENMT4_2021.pdf', 'EPAR3_2021.pdf',
 'EPAR4_2021.pdf', 'EQMA3B_2021.pdf', 'EQMA5B_2021.pdf', 'EQPA5_2021.pdf',
 'EQPA6_2021.pdf', 'EQPA7_2021.pdf', 'EQTL11_2021.pdf', 'EQTL3_2021.pdf',
 'ESPA3_2021.pdf', 'ESTR3_2021.pdf', 'ESTR4_2021.pdf', 'EUCA3_2021.pdf',
 'EUCA4_2021.pdf', 'EVEN3_2021.pdf', 'EZTC3_2021.pdf', 'FESA3_2021.pdf',
 'FESA4_2021.pdf', 'FHER3_2021.pdf', 'FIGE3_2021.pdf', 'FIGE4_2021.pdf',
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 'FRTA3_2021.pdf', 'GEPa3_2021.pdf', 'GEPa4_2021.pdf', 'GFSa3_2021.pdf',
 'GGBR3_2021.pdf', 'GGBR4_2021.pdf', 'GGPS3_2021.pdf', 'GMAT3_2021.pdf',
 'GOAU3_2021.pdf', 'GOAU4_2021.pdf', 'GOLL3_2021.pdf', 'GOLL4_2021.pdf',
 'GPAP3_2021.pdf', 'GRA03_2021.pdf', 'GRND3_2021.pdf', 'GUAR3_2021.pdf',
 'HAGA3_2021.pdf', 'HAGA4_2021.pdf', 'HAPV3_2021.pdf', 'HAPV99_2021.pdf',
 'HBSA3_2021.pdf', 'HETA3_2021.pdf', 'HETA4_2021.pdf', 'HOOT3_2021.pdf',
 'HOOT4_2021.pdf', 'HYPE3_2021.pdf', 'IFCM3_2021.pdf', 'IGSN3_2021.pdf',
 'INNT3_2021.pdf', 'IVPR3B_2021.pdf', 'JALL3_2021.pdf', 'JBSS3_2021.pdf',
 'JFEN3_2021.pdf', 'JOPA3_2021.pdf', 'JOPA4_2021.pdf', 'JSLG11_2021.pdf',
 'JSLG3_2021.pdf', 'KEPL3_2021.pdf', 'KEPL4_2021.pdf', 'KLAS3_2021.pdf',
 'KLBN11_2021.pdf', 'KLBN3_2021.pdf', 'KRSA3_2021.pdf', 'LAVV3_2021.pdf',
 'LEVE3_2021.pdf', 'LIGT3_2021.pdf', 'LIPR3_2021.pdf', 'LJQQ3_2021.pdf',

'LLBI4_2021.pdf', 'LLIS3_2021.pdf', 'LREN3_2021.pdf', 'LTEL3B_2021.pdf',
 'LTEL5B_2021.pdf', 'LUXM3_2021.pdf', 'LUXM4_2021.pdf', 'LVTC3_2021.pdf',
 'LWSA3_2021.pdf', 'MAPT3_2021.pdf', 'MAPT4_2021.pdf', 'MATD3_2021.pdf',
 'MBLY3_2021.pdf', 'MDNE3_2021.pdf', 'MELK3_2021.pdf', 'MGEL3_2021.pdf',
 'MGEL4_2021.pdf', 'MGLU3_2021.pdf', 'MLAS3_2021.pdf', 'MMAQ3_2021.pdf',
 'MMAQ4_2021.pdf', 'MMXM3_2021.pdf', 'MNDL3_2021.pdf', 'MRFG3_2021.pdf',
 'MRSA3B_2021.pdf', 'MRSA5B_2021.pdf', 'MRSA6B_2021.pdf', 'MRVE3_2021.pdf',
 'MSPA4_2021.pdf', 'MTSA4_2021.pdf', 'MWET3_2021.pdf', 'MWET4_2021.pdf',
 'MYPK3_2021.pdf', 'NEMO5_2021.pdf', 'NEMO6_2021.pdf', 'NEOE3_2021.pdf',
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 'ODPV3_2021.pdf', 'OFSA3_2021.pdf', 'OIBR3_2021.pdf', 'ONC03_2021.pdf',
 'OPCT3_2021.pdf', 'OPGM3B_2021.pdf', 'OPSE3B_2021.pdf', 'ORVR3_2021.pdf',
 'OSXB3_2021.pdf', 'PAR3_2021.pdf', 'PASS5_2021.pdf', 'PASS6_2021.pdf',
 'PATI3_2021.pdf', 'PATI4_2021.pdf', 'PDGR3_2021.pdf', 'PDTC3_2021.pdf',
 'PETR3_2021.pdf', 'PFRM3_2021.pdf', 'PGMN3_2021.pdf', 'PLAS3_2021.pdf',
 'PLPL3_2021.pdf', 'PMAM3_2021.pdf', 'PNVL3_2021.pdf', 'POM03_2021.pdf',
 'POM04_2021.pdf', 'PORT3_2021.pdf', 'POS13_2021.pdf', 'PPAR3_2021.pdf',
 'PRMN3B_2021.pdf', 'PRNR3_2021.pdf', 'PRPT3B_2021.pdf', 'PTBL3_2021.pdf',
 'PTCA11_2021.pdf', 'PTCA3_2021.pdf', 'PTNT3_2021.pdf', 'PTNT4_2021.pdf',
 'QUAL3_2021.pdf', 'QUSW3_2021.pdf', 'QVQP3B_2021.pdf', 'RADL3_2021.pdf',
 'RAIL3_2021.pdf', 'RAIZ3_2021.pdf', 'RAIZ4_2021.pdf', 'RANI4_2021.pdf',
 'RAPT3_2021.pdf', 'RAPT4_2021.pdf', 'RBNS11_2021.pdf', 'RBNS4_2021.pdf',
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 'RECV3_2021.pdf', 'REDE3_2021.pdf', 'RNEW11_2021.pdf', 'RNEW3_2021.pdf',
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 'SLCE3_2021.pdf', 'SLED3_2021.pdf', 'SLED4_2021.pdf', 'SMFT13_2021.pdf',
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 'STKF3_2021.pdf', 'SYNE3_2021.pdf', 'TAE11_2021.pdf', 'TAE3_2021.pdf',
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 'TFC04_2021.pdf', 'TGMA3_2021.pdf', 'TIMS3_2021.pdf', 'TKN03_2021.pdf',
 'TKN04_2021.pdf', 'TPIS3_2021.pdf', 'TRIS3_2021.pdf', 'TRPL4_2021.pdf',
 'TTEN3_2021.pdf', 'TUPY3_2021.pdf', 'TXRX11_2021.pdf', 'TXRX3_2021.pdf',
 'UCAS3_2021.pdf', 'UGPA3_2021.pdf', 'UNIP5_2021.pdf', 'UNIP6_2021.pdf',
 'UPKP3B_2021.pdf', 'USIM3_2021.pdf', 'USIM5_2021.pdf', 'USIM6_2021.pdf',
 'VALE3_2021.pdf', 'VAM03_2021.pdf', 'VBBR3_2021.pdf', 'VIA11_2021.pdf',
 'VIA3_2021.pdf', 'VIA4_2021.pdf', 'VITT3_2021.pdf', 'VIVA3_2021.pdf',
 'VIVR3_2021.pdf', 'VIVT3_2021.pdf', 'VIVT4_2021.pdf', 'VLID3_2021.pdf',
 'VSPT4_2021.pdf', 'VULC3_2021.pdf', 'VVE03_2021.pdf', 'WEGE3_2021.pdf',
 'WEST3_2021.pdf', 'WLMM3_2021.pdf', 'WLMM4_2021.pdf', 'YBRA3B_2021.pdf',
 'YDUQ3_2021.pdf', 'ZAMP3_2021.pdf']

```

[ ]: names_empresas_2021 = []
print(names_empresas_2011)
print(names_empresas_2012)
print(names_empresas_2013)
print(names_empresas_2014)
print(names_empresas_2015)
print(names_empresas_2016)
print(names_empresas_2017)
print(names_empresas_2018)
print(names_empresas_2019)
print(names_empresas_2020)
for name in lista_de_empresas_2021:
    c = name.split("_")
    names_empresas_2021.append(c[0])
print(names_empresas_2021)
print(len(names_empresas_2021))

for name in names_empresas_2011:
    for name1 in names_empresas_2021:
        if name1 == name:
            names_empresas_2021.remove(name1)
for name in names_empresas_2012:
    for name1 in names_empresas_2021:
        if name1 == name:
            names_empresas_2021.remove(name1)
for name in names_empresas_2013:
    for name1 in names_empresas_2021:
        if name1 == name:
            names_empresas_2021.remove(name1)
for name in names_empresas_2014:
    for name1 in names_empresas_2021:
        if name1 == name:
            names_empresas_2021.remove(name1)
for name in names_empresas_2015:
    for name1 in names_empresas_2021:
        if name1 == name:
            names_empresas_2021.remove(name1)
for name in names_empresas_2016:
    for name1 in names_empresas_2021:
        if name1 == name:
            names_empresas_2021.remove(name1)
for name in names_empresas_2017:
    for name1 in names_empresas_2021:
        if name1 == name:
            names_empresas_2021.remove(name1)
for name in names_empresas_2018:
    for name1 in names_empresas_2021:

```

```

        if name1 == name:
            names_empresas_2021.remove(name1)
for name in names_empresas_2019:
    for name1 in names_empresas_2021:
        if name1 == name:
            names_empresas_2021.remove(name1)
for name in names_empresas_2020:
    for name1 in names_empresas_2021:
        if name1 == name:
            names_empresas_2021.remove(name1)

print("Após comparação")
print(names_empresas_2021)
print(len(names_empresas_2021))

```

```

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'NEMO6', 'PETR3', 'PETR4', 'PGMN3', 'POMO4', 'QUAL3', 'ROMI3', 'SAPR11',
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'JFEN3', 'JHSF3', 'JOPA4', 'JSLG11', 'JSLG3', 'KEPL3', 'KEPL4', 'LREN3',
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```

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Após comparação

```
['AESB3', 'AES03', 'ARML3', 'ASAI3', 'BMOB3', 'BRIT3', 'CBAV3', 'CMIN3',
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'TTEN3', 'VVEO3', 'WEST3']
```

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```
[ ]: #Quantidade de relatorios a partir de 2021
#realizar pesquisa nas empresas de 2021
lista_de_empresas_2021 = []

for name_emp in names_empresas_2021:
    for empresa in lista_caminho:
        if empresa == name_emp:
            path_caminho_pdf_2021 = 'C:
↪\\Users\\Riallen\\Documents\\Att\\Data\\' + empresa
            relatorio_pdf_2021 = os.listdir(path_caminho_pdf_2021)
            att = []
```



```

        for lista_pdf_2021 in relatorio_pdf_2021:
            #print(lista_pdf)
            att.append(lista_pdf_2021)
        lista_de_empresas_2021.append(att)
#quantidade total de relatorios baixados
print(lista_de_empresas_2021)
print(len(lista_de_empresas_2021))

```

```

[['AESB3_2021.pdf'], ['AESO3_2021.pdf'], ['ARML3_2021.pdf'], ['ASAI3_2021.pdf'],
['BMOB3_2021.pdf'], ['BRIT3_2021.pdf'], ['CBAV3_2021.pdf'], ['CMIN3_2021.pdf'],
['COMR3_2021.pdf'], ['DESK3_2021.pdf'], ['DOTZ3_2021.pdf'], ['FIQE3_2021.pdf'],
['GGPS3_2021.pdf'], ['GRAO3_2021.pdf'], ['IFCM3_2021.pdf'], ['JALL3_2021.pdf'],
['KLAS3_2021.pdf'], ['KRSA3_2021.pdf'], ['LJQQ3_2021.pdf'], ['LLBI4_2021.pdf'],
['LVTC3_2021.pdf'], ['MATD3_2021.pdf'], ['MBLY3_2021.pdf'], ['MLAS3_2021.pdf'],
['ONCO3_2021.pdf'], ['OPCT3_2021.pdf'], ['PLPL3_2021.pdf'], ['PORT3_2021.pdf'],
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['RECV3_2021.pdf'], ['TEGA3_2021.pdf'], ['TTEN3_2021.pdf'], ['VVEO3_2021.pdf'],
['WEST3_2021.pdf']]

```

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```

[ ]: #quantidade de relatórios em cada empresa
tam_emp = np.zeros(37, dtype = int)
i = 0
for pesquisa in lista_de_empresas_2021:
    #print(pesquisa)
    for k in pesquisa:
        #print(k)
        tam_emp[i] = tam_emp[i] + 1
    i = i + 1
print(tam_emp)
print("Empresa com menor quantidade de relatorios: ", min(tam_emp))
print(len(tam_emp))

```

```

[1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1]

```

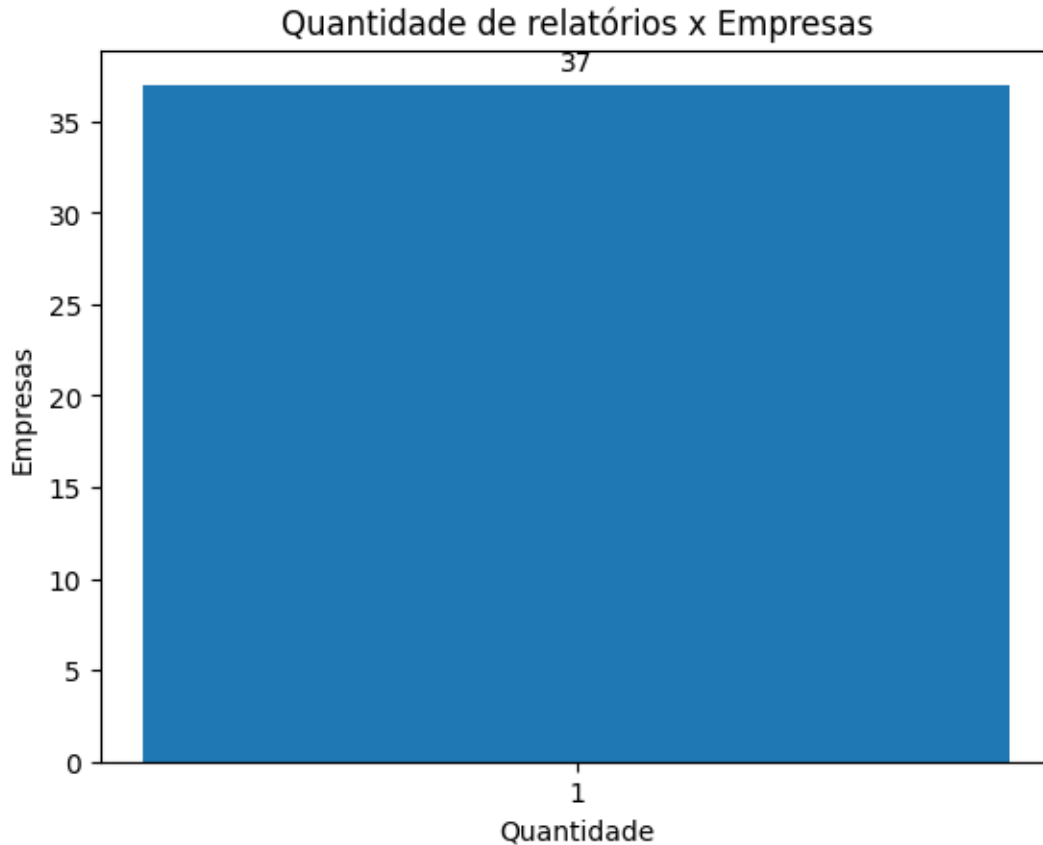
Empresa com menor quantidade de relatorios: 1

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```

[ ]: #Gráfico gerado após análise
fig, ax = plt.subplots()
X = ['1']
rect1 = ax.bar(X, 37)
ax.set_ylabel('Empresas')
ax.set_title("Quantidade de relatórios x Empresas")
ax.set_xlabel('Quantidade')
ax.bar_label(rect1, padding = 3)
plt.show()

```



```
[ ]: #print(lista_caminho)
      #print(len(lista_caminho))
      name_total = []
      for name in lista_caminho:
          path_caminho_pdf = 'C:\\Users\\Riallen\\Documents\\Att\\Data\\' + name
          caminho = os.listdir(path_caminho_pdf)
          tam = len(caminho)
          name_total.append(tam)
      print(name_total)
      print(len(name_total))
```

```
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1, 8, 9, 8, 2, 9, 3, 1, 2, 2, 6, 10, 8, 9, 8, 9, 11, 8, 0, 6, 9, 0, 0, 10, 1,
10, 10, 8, 8, 1, 6, 9, 9, 8, 9, 4, 10, 10, 4, 4, 9, 8, 11, 9, 10, 10, 9, 1, 1,
8, 10, 10, 10, 1, 0, 1, 10, 10, 10, 2, 1, 8, 7, 9, 9, 9, 10, 7, 2, 9, 10, 7, 7,
8, 8, 3, 10, 7, 2, 6, 8, 7, 6, 6, 10, 9, 4, 3, 10, 10, 10, 10, 2, 2, 8, 9, 7,
10, 10, 10, 7, 8, 9, 10, 6, 8, 8, 9, 8, 10, 9, 1, 8, 9, 8, 7, 8, 0, 0, 0, 2, 7,
0, 0, 2, 9, 10, 3, 7, 0, 9, 8, 8, 1, 9, 10, 9, 8, 9, 10, 9, 9, 9, 8, 10, 10, 10,
11, 3, 4, 10, 10, 7, 2, 2, 9, 9, 6, 9, 5, 9, 8, 1, 7, 1, 4, 6, 10, 7, 0, 0, 7,
6, 9, 4]
543

```

```

[ ]: quantidade_relatorios = 12
empresas = []
for i in range(quantidade_relatorios, -1, -1):
    j = 0
    for pesquisa in name_total:
        #print(pesquisa)
        #print(len(pesquisa))
        if i == pesquisa:
            j = j + 1
    empresas.append(j)
print(empresas)
print(len(empresas))

```

```

[1, 15, 119, 105, 68, 40, 28, 13, 14, 7, 35, 42, 56]
13

```

```

[ ]: #Gráfico gerado após análise
fig, ax = plt.subplots()
X = ['12', '11', '10', '9', '8', '7', '6', '5', '4', '3', '2', '1', '0']
rect1 = ax.bar(X, empresas)
ax.set_ylabel('Empresas')
ax.set_title("Quantidade de relatórios x Empresas")
ax.set_xlabel('Quantidade')
ax.bar_label(rect1, padding = 3)
plt.show()

```

