

# Aula Extra Gráficos

## Explorando funcionalidades gráficas

In [1]:

```
%matplotlib inline
import pandas as pd
import matplotlib.pyplot as plt
plt.rc('figure', figsize = (15, 8))
```

In [2]:

```
dados = pd.read_csv('dados/aluguel_residencial_sem_outliers.csv', sep = ';')
dados.head()
```

Out[2]:

	Tipo	Bairro	Quartos	Vagas	Suites	Area	Valor	Condominio	IPTU	Valor_m
0	Apartamento	Centro	1	0	0	15	800.0	390.0	20.0	53.3
1	Apartamento	Higienópolis	1	0	0	48	800.0	230.0	0.0	16.6
2	Apartamento	Cachambi	2	0	0	50	1300.0	301.0	17.0	26.0
3	Apartamento	Grajaú	2	1	0	70	1500.0	642.0	74.0	21.4
4	Apartamento	Lins de Vasconcelos	3	1	1	90	1500.0	455.0	14.0	16.6

In [3]:

```
area = plt.figure()
```

<Figure size 1080x576 with 0 Axes>

In [4]:

```
g1 = area.add_subplot(2, 2, 1)
g2 = area.add_subplot(2, 2, 2)
g3 = area.add_subplot(2, 2, 3)
g4 = area.add_subplot(2, 2, 4)
```

In [5]:



```
dados_g3 = dados['Valor'].sample(100)
dados_g3.index = range(len(dados_g3)) # dados_g3.shape[0]
dados_g3
```

Out[5]:

```
0      1500.0
1      3000.0
2      1100.0
3      2800.0
4      1600.0
...
95     5000.0
96     7000.0
97    10000.0
98     2500.0
99     1500.0
```

Name: Valor, Length: 100, dtype: float64

In [6]:



```
grupo = dados.groupby('Tipo')['Valor']  
grupo.groups
```

Out[6]:

```
{'Apartamento': [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, ...], 'Casa': [16923, 16924, 16925, 16926, 16927, 16928, 16929, 16930, 16931, 16932, 16933, 16934, 16935, 16936, 16937, 16938, 16939, 16940, 16941, 16942, 16943, 16944, 16945, 16946, 16947, 16948, 16949, 16950, 16951, 16952, 16953, 16954, 16955, 16956, 16957, 16958, 16959, 16960, 16961, 16962, 16963, 16964, 16965, 16966, 16967, 16968, 16969, 16970, 16971, 16972, 16973, 16974, 16975, 16976, 16977, 16978, 16979, 16980, 16981, 16982, 16983, 16984, 16985, 16986, 16987, 16988, 16989, 16990, 16991, 16992, 16993, 16994, 16995, 16996, 16997, 16998, 16999, 17000, 17001, 17002, 17003, 17004, 17005, 17006, 17007, 17008, 17009, 17010, 17011, 17012, 17013, 17014, 17015, 17016, 17017, 17018, 17019, 17020, 17021, 17022, ...], 'Casa de Condomínio': [17821, 17822, 17823, 17824, 17825, 17826, 17827, 17828, 17829, 17830, 17831, 17832, 17833, 17834, 17835, 17836, 17837, 17838, 17839, 17840, 17841, 17842, 17843, 17844, 17845, 17846, 17847, 17848, 17849, 17850, 17851, 17852, 17853, 17854, 17855, 17856, 17857, 17858, 17859, 17860, 17861, 17862, 17863, 17864, 17865, 17866, 17867, 17868, 17869, 17870, 17871, 17872, 17873, 17874, 17875, 17876, 17877, 17878, 17879, 17880, 17881, 17882, 17883, 17884, 17885, 17886, 17887, 17888, 17889, 17890, 17891, 17892, 17893, 17894, 17895, 17896, 17897, 17898, 17899, 17900, 17901, 17902, 17903, 17904, 17905, 17906, 17907, 17908, 17909, 17910, 17911, 17912, 17913, 17914, 17915, 17916, 17917, 17918, 17919, 17920, ...], 'Casa de Vila': [18785, 18786, 18787, 18788, 18789, 18790, 18791, 18792, 18793, 18794, 18795, 18796, 18797, 18798, 18799, 18800, 18801, 18802, 18803, 18804, 18805, 18806, 18807, 18808, 18809, 18810, 18811, 18812, 18813, 18814, 18815, 18816, 18817, 18818, 18819, 18820, 18821, 18822, 18823, 18824, 18825, 18826, 18827, 18828, 18829, 18830, 18831, 18832, 18833, 18834, 18835, 18836, 18837, 18838, 18839, 18840, 18841, 18842, 18843, 18844, 18845, 18846, 18847, 18848, 18849, 18850, 18851, 18852, 18853, 18854, 18855, 18856, 18857, 18858, 18859, 18860, 18861, 18862, 18863, 18864, 18865, 18866, 18867, 18868, 18869, 18870, 18871, 18872, 18873, 18874, 18875, 18876, 18877, 18878, 18879, 18880, 18881, 18882, 18883, 18884, ...], 'Quitinete': [19018, 19019, 19020, 19021, 19022, 19023, 19024, 19025, 19026, 19027, 19028, 19029, 19030, 19031, 19032, 19033, 19034, 19035, 19036, 19037, 19038, 19039, 19040, 19041, 19042, 19043, 19044, 19045, 19046, 19047, 19048, 19049, 19050, 19051, 19052, 19053, 19054, 19055, 19056, 19057, 19058, 19059, 19060, 19061, 19062, 19063, 19064, 19065, 19066, 19067, 19068, 19069, 19070, 19071, 19072, 19073, 19074, 19075, 19076, 19077, 19078, 19079, 19080, 19081, 19082, 19083, 19084, 19085, 19086, 19087, 19088, 19089, 19090, 19091, 19092, 19093, 19094, 19095, 19096, 19097, 19098, 19099, 19100, 19101, 19102, 19103, 19104, 19105, 19106, 19107, 19108, 19109, 19110, 19111, 19112, 19113, 19114, 19115, 19116, 19117, ...]}
```

In [7]:



```
label = grupo.mean().index  
valores = grupo.mean().values
```

In [8]:

```
g1.scatter(dados['Valor'], dados['Area'])
g1.set_title('Valor X Area')

g2.hist(dados['Valor'])
g2.set_title('Histograma')

g3.plot(dados_g3)
g3.set_title('Amostra (Valor)')

g4.bar(label, valores)
g4.set_title('Valor Médio por tipo')
```

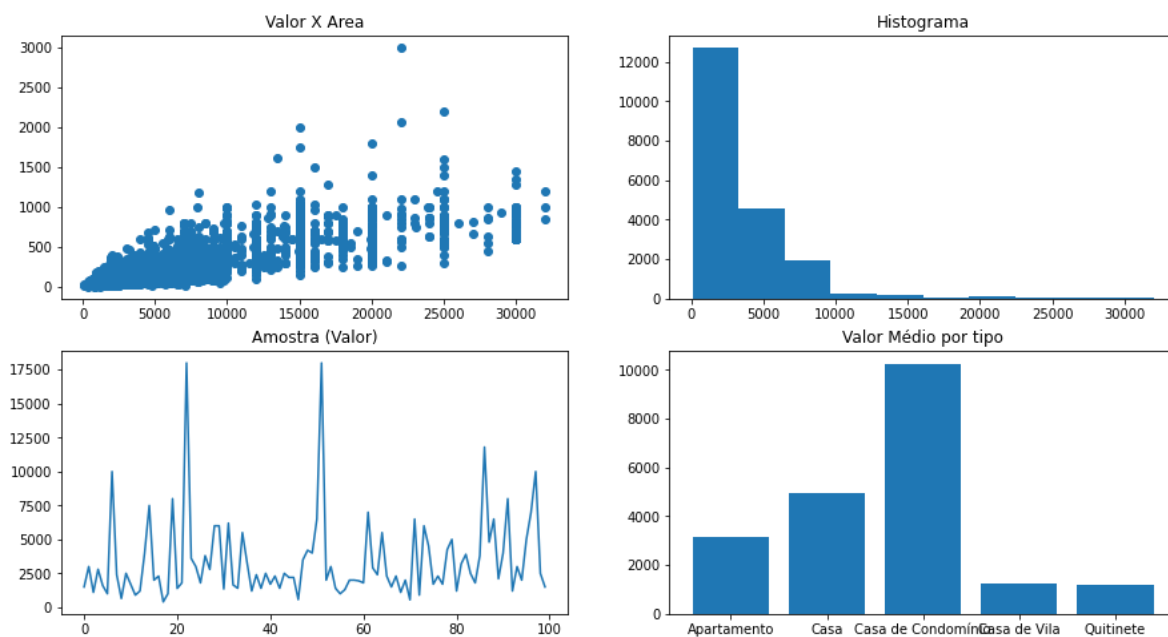
Out[8]:

```
Text(0.5, 1.0, 'Valor Médio por tipo')
```

In [9]:

```
area
```

Out[9]:



In [10]:

```
#area.savefig('img/Grafico.png', dpi=300, bbox_inches='tight')
```

In [11]:

```
graph_imoveis = plt.figure()
```

```
<Figure size 1080x576 with 0 Axes>
```

In [12]:

```
graph1 = graph_imoveis.add_subplot(1,2,1)
graph2 = graph_imoveis.add_subplot(1,2,2)
```

In [13]:



```
grupo1 = dados.groupby('Tipo Agregado')['Valor']
grupo1.groups
label = grupo1.count().index
print(label)
valores = grupo1.count().values
print(valores)
```

```
Index(['Apartamento', 'Casa'], dtype='object', name='Tipo Agregado')
[18700  1131]
```

In [14]:



```
grupo2 = dados.groupby('Tipo')['Valor']
grupo2.groups
label_g2 = grupo2.count().index
print(label)
valores_g2 = grupo2.count().values
print(valores)
```

```
Index(['Apartamento', 'Casa'], dtype='object', name='Tipo Agregado')
[18700  1131]
```

In [15]:



```
graph1.pie(valores, labels = label, autopct='%1.1f%%')
graph1.set_title('Total de Imóveis por tipo Agregado')

graph2.pie(valores_g2, labels = label_g2, autopct='%1.1f%%', explode = (.1, .1, .1, .1, .1))
graph2.set_title('Total de Imóveis por Tipo')
```

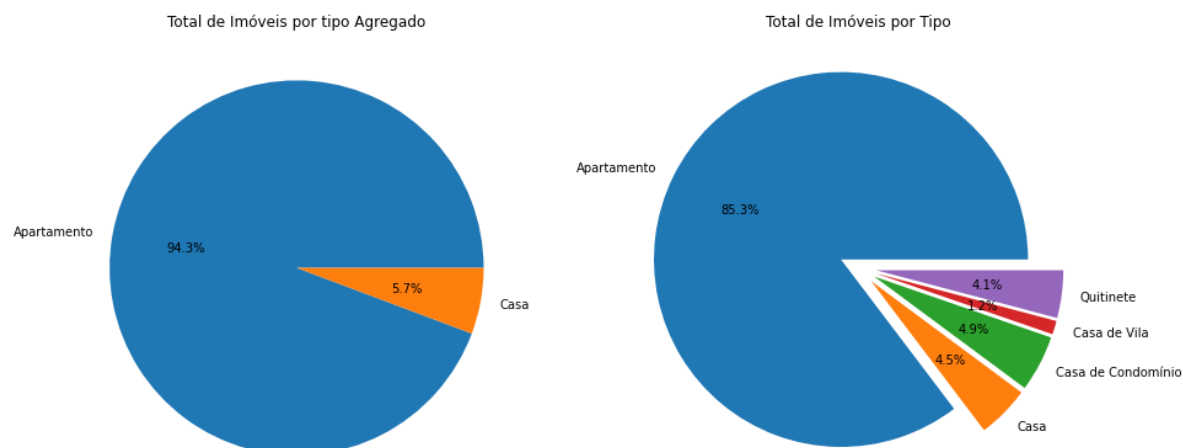
Out[15]:

```
Text(0.5, 1.0, 'Total de Imóveis por Tipo')
```

In [16]:

```
graph_imoveis
```

Out[16]:



In [18]:

```
area.savefig('img/Grafico2.png', dpi=300, bbox_inches='tight')
```

In [ ]:

```
graph_imoveis = ' '
```