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Assignment.ipynb

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Files

sample_data
cereal.csv

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```
import pandas as pd
a=pd.read_csv('cereal.csv')
a
```

	name	mfr	type	calories	protein	fat	sodium	fiber	carbo	sugars	potass	vitamins	shelf	weight	cups	rating
0	100% Bran	N	C	70	4	1	130	10.0	5.0	6	280	25	3	1.0	0.33	68.402973
1	100% Natural Bran	Q	C	120	3	5	15	2.0	8.0	8	135	0	3	1.0	1.00	33.983679
2	All-Bran	K	C	70	4	1	260	9.0	7.0	5	320	25	3	1.0	0.33	59.425505
3	All-Bran with Extra Fiber	K	C	50	4	0	140	14.0	8.0	0	330	25	3	1.0	0.50	93.704912
4	Almond Delight	R	C	110	2	2	200	1.0	14.0	8	-1	25	3	1.0	0.75	34.384843

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Files

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Code

```
b=pd.DataFrame(a)
b
```

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	name	mfr	type	calories	protein	fat	sodium	fiber	carbo	sugars	potass	vitamins	shelf	weight	cups	rating
0	100% Bran	N	C	70	4	1	130	10.0	5.0	6	280	25	3	1.0	0.33	68.402973
1	100% Natural Bran	Q	C	120	3	5	15	2.0	8.0	8	135	0	3	1.0	1.00	33.983679
2	All-Bran	K	C	70	4	1	260	9.0	7.0	5	320	25	3	1.0	0.33	59.425505
3	All-Bran with Extra Fiber	K	C	50	4	0	140	14.0	8.0	0	330	25	3	1.0	0.50	93.704912
4	Almond Delight	R	C	110	2	2	200	1.0	14.0	8	-1	25	3	1.0	0.75	34.384843
...

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print(b.info())

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 77 entries, 0 to 76
Data columns (total 16 columns):
Column Non-Null Count Dtype
0 name 77 non-null object
1 mfr 77 non-null object
2 type 77 non-null object
3 calories 77 non-null int64
4 protein 77 non-null int64
5 fat 77 non-null int64
6 sodium 77 non-null int64
7 fiber 77 non-null float64
8 carbo 77 non-null float64
9 sugars 77 non-null int64
10 potass 77 non-null int64
11 vitamins 77 non-null int64
12 shelf 77 non-null int64
13 weight 77 non-null float64
14 cups 77 non-null float64
15 rating 77 non-null float64
dtypes: float64(5), int64(8), object(3)
memory usage: 9.8+ KB
None

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Code

```
types, isinstance(x), isinstance(y), object(x))
memory usage: 9.8+ KB
None
```

```
print(b.describe())
```

	calories	protein	fat	sodium	fiber	carbo
count	77.000000	77.000000	77.000000	77.000000	77.000000	77.000000
mean	106.883117	2.545455	1.012987	159.675325	2.151948	14.597403
std	19.484119	1.094790	1.006473	83.832295	2.383364	4.278956
min	50.000000	1.000000	0.000000	0.000000	0.000000	-1.000000
25%	100.000000	2.000000	0.000000	130.000000	1.000000	12.000000
50%	110.000000	3.000000	1.000000	180.000000	2.000000	14.000000
75%	110.000000	3.000000	2.000000	210.000000	3.000000	17.000000
max	160.000000	6.000000	5.000000	320.000000	14.000000	23.000000

	sugars	potass	vitamins	shelf	weight	cups
count	77.000000	77.000000	77.000000	77.000000	77.000000	77.000000
mean	6.922078	96.077922	28.246753	2.207792	1.029610	0.821039
std	4.444885	71.286813	22.342523	0.832524	0.150477	0.232716
min	-1.000000	-1.000000	0.000000	1.000000	0.500000	0.250000
25%	3.000000	40.000000	25.000000	1.000000	1.000000	0.670000
50%	7.000000	90.000000	25.000000	2.000000	1.000000	0.750000
75%	11.000000	120.000000	25.000000	3.000000	1.000000	1.000000
max	15.000000	330.000000	100.000000	3.000000	1.500000	1.500000

rating

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50% 40.400208
75% 50.828392
max 93.704912

print(b.loc[b['rating']>65])

	name	mfr	type	calories	protein	fat	sodium	fiber
0	100% Bran	N	C	70	4	1	130	10.0
3	All-Bran with Extra Fiber	K	C	50	4	0	140	14.0
63	Shredded Wheat	N	C	80	2	0	0	3.0
64	Shredded Wheat 'n'Bran	N	C	90	3	0	0	4.0
65	Shredded Wheat spoon size	N	C	90	3	0	0	3.0

carbo sugars potass vitamins shelf weight cups rating

0	5.0	6	280	25	3	1.00	0.33	68.402973
3	8.0	0	330	25	3	1.00	0.50	93.704912
63	16.0	0	95	0	1	0.83	1.00	68.235885
64	19.0	0	140	0	1	1.00	0.67	74.472949
65	20.0	0	120	0	1	1.00	0.67	72.801787

[35] import numpy as np
m=np.sort(b['rating']).head(5)[::-1]
m

array([93.704912, 68.402973, 59.425505, 34.384843, 33.983679])

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```
array([93.704912, 68.402973, 59.425505, 34.384843, 33.983679])
```

```
print(b['mfr'].replace({'G':'General Mills','N':'Nebisco','A':'American Home Food Products','K':'Kelloggs','P':'Post','Q':'Quaker'})
```

```
0      Nebisco
1    Quacker Oats
2      Kelloggs
3      Kelloggs
4    Ralston Purina
...
72    General Mills
73    General Mills
74    Ralston Purina
75    General Mills
76    General Mills
Name: mfr, Length: 77, dtype: object
```

```
[16] import seaborn as sns
sns.scatterplot(data=b,x='protein',y='calories',hue='mfr')
```

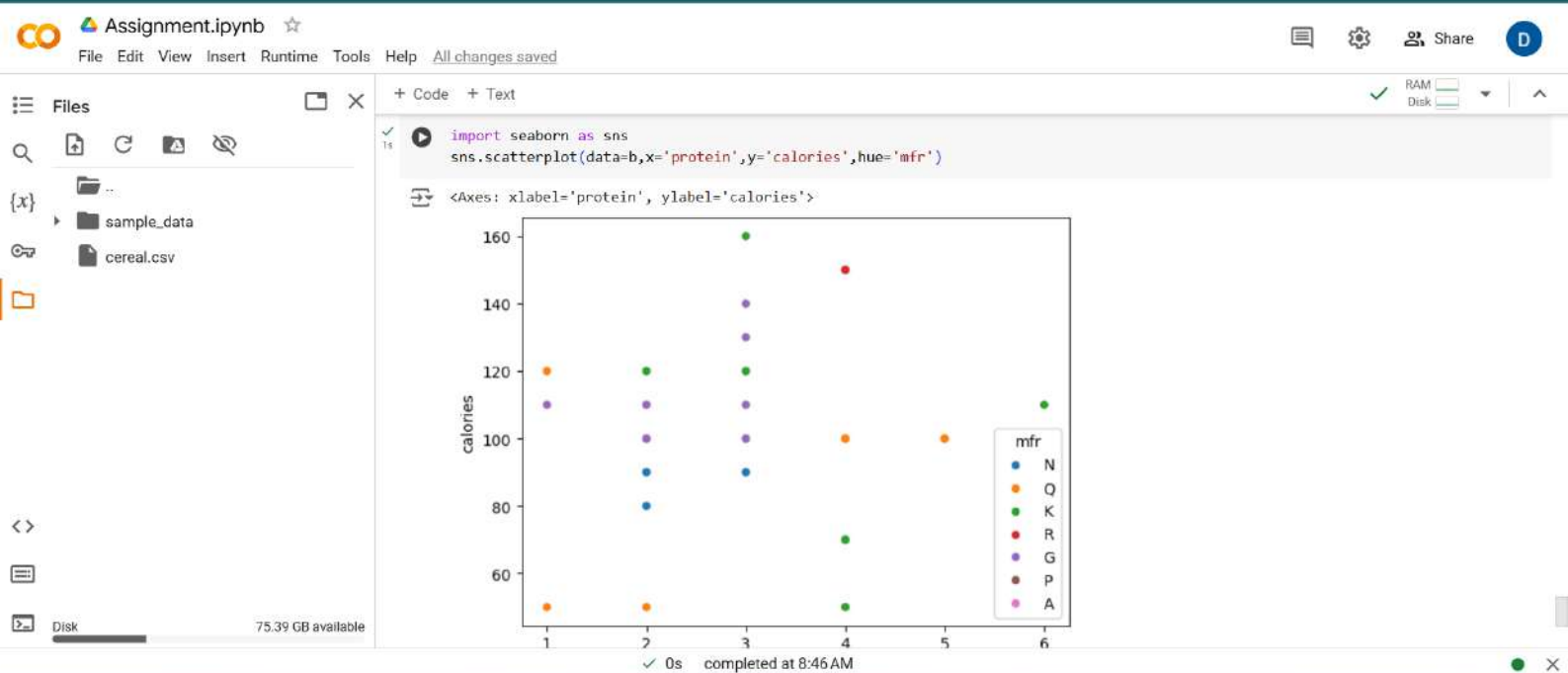
```
<Axes: xlabel='protein', ylabel='calories'>
```

160

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C=D.110C[1,4:12]
C

	protein	fat	sodium	fiber	carbo	sugars	potass	vitamins
0	4	1	130	10.0	5.0	6	280	25
1	3	5	15	2.0	8.0	8	135	0
2	4	1	280	9.0	7.0	5	320	25
3	4	0	140	14.0	8.0	0	330	25
4	2	2	200	1.0	14.0	8	-1	25
...
72	2	1	250	0.0	21.0	3	60	25
73	1	1	140	0.0	13.0	12	25	25
74	3	1	230	3.0	17.0	3	115	25
75	3	1	200	3.0	17.0	3	110	25
76	2	1	200	1.0	16.0	8	60	25

77 rows x 8 columns

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d=c.corr()
d

	protein	fat	sodium	fiber	carbo	sugars	potass	vitamins
protein	1.000000	0.208431	-0.054674	0.500330	-0.130864	-0.329142	0.549407	0.007335
fat	0.208431	1.000000	-0.005407	0.016719	-0.318043	0.270819	0.193279	-0.031156
sodium	-0.054674	-0.005407	1.000000	-0.070675	0.355983	0.101451	-0.032603	0.361477
fiber	0.500330	0.016719	-0.070675	1.000000	-0.356083	-0.141205	0.903374	-0.032243
carbo	-0.130864	-0.318043	0.355983	-0.356083	1.000000	-0.331665	-0.349685	0.258148
sugars	-0.329142	0.270819	0.101451	-0.141205	-0.331665	1.000000	0.021696	0.125137
potass	0.549407	0.193279	-0.032603	0.903374	-0.349685	0.021696	1.000000	0.020699
vitamins	0.007335	-0.031156	0.361477	-0.032243	0.258148	0.125137	0.020699	1.000000

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```
f=c.cov()  
f
```

	protein	fat	sodium	fiber	carbo	sugars	potass	vitamins
protein	1.198565	0.229665	-5.017943	1.305502	-0.613038	-1.601675	42.877990	0.179426
fat	0.229665	1.012987	-0.456254	0.040106	-1.369703	1.211552	13.867396	-0.700615
sodium	-5.017943	-0.456254	7027.853725	-14.121070	127.696514	37.803315	-194.842789	677.054853
fiber	1.305502	0.040106	-14.121070	5.680424	-3.631442	-1.495899	153.485373	-1.716934
carbo	-0.613038	-1.369703	127.696514	-3.631442	18.309467	-6.308100	-106.665584	24.679597
sugars	-1.601675	1.211552	37.803315	-1.495899	-6.308100	19.757006	6.874573	12.427375
potass	42.877990	13.867396	-194.842789	153.485373	-106.665584	6.874573	5081.809638	32.967362
vitamins	0.179426	-0.700615	677.054853	-1.716934	24.679597	12.427375	32.967362	499.188312

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```
[291] sns.heatmap(f,annot=True)
```

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protein fat sodium fiber carbo sugars potass vitamins

protein	1.2	0.23	-5	1.3	-0.61	-1.6	43	0.18
fat	0.23	1	-0.46	0.04	-1.4	1.2	14	-0.7
sodium	-5	-0.46	7e+03	-14	1.3e+02	38	-1.9e+02	2.8e+02
fiber	1.3	0.04	-14	5.7	-3.6	-1.5	1.5e+02	-1.7
carbo	-0.61	-1.4	1.3e+02	-3.6	18	-6.3	-1.1e+02	25
sugars	-1.6	1.2	38	-1.5	-6.3	20	6.9	12
potass	43	14	-1.9e+02	1.5e+02	2.1e+02	6.9	5.1e+03	33
vitamins	0.18	-0.7	6.8e+02	-1.7	25	12	33	5e+02

0 1000 2000 3000 4000 5000 6000

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