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In [1]:

```
import pandas as pd
brainFile = './Data/brainsize.txt'
brainFrame = pd.read_csv(brainFile)
```

In [2]:

```
brainFrame.head()
```

Out[2]:

	Gender	FSIQ	VIQ	PIQ	Weight	Height	MRI_Count
0	Female	133	132	124	118.0	64:05:00	816932
1	Male	140	150	124	NaN	72:05:00	1001121
2	Male	139	123	150	143.0	73:03:00	1038437
3	Male	133	129	128	172.0	68:08:00	965353
4	Female	137	132	134	147.0	65:00:00	951545

In [3]:

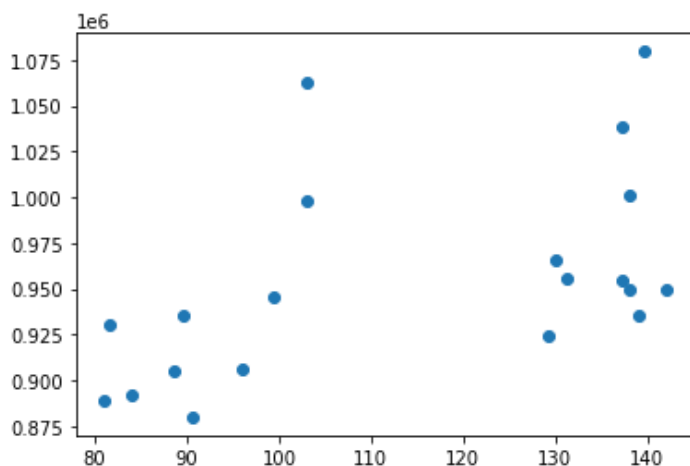
```
import numpy as np
import matplotlib.pyplot as plt
```

In [4]:

```
# Code cell 5
menDf = brainFrame[(brainFrame.Gender == 'Male')]
womenDf = brainFrame[(brainFrame.Gender == 'Female')]
```

In [5]:

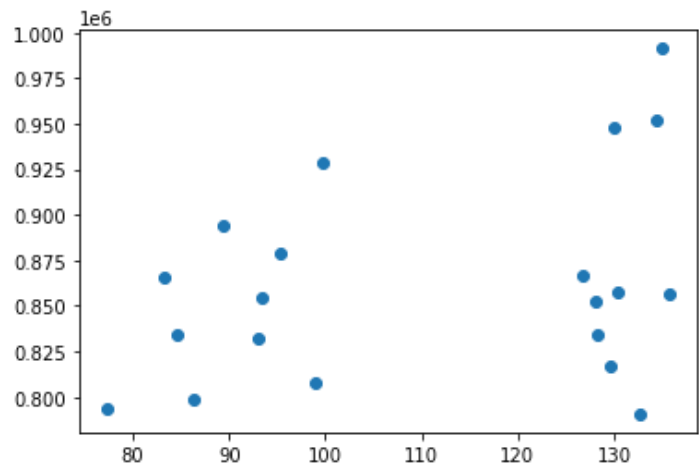
```
# Code cell 6
menMeanSmarts = menDf[["PIQ", "FSIQ", "VIQ"]].mean(axis=1)
plt.scatter(menMeanSmarts, menDf["MRI_Count"])
plt.show()
%matplotlib inline
```



In [6]:

```
# Code cell 7
womenMeanSmarts = womenDf[["PIQ", "FSIQ", "VIQ"]].mean(axis=1)
plt.scatter(womenMeanSmarts, womenDf["MRI_Count"])
plt.show()
```

```
%matplotlib inline
```



In [7]:

```
# Code cell 8
brainFrame.corr(method='pearson')
```

Out[7]:

	FSIQ	VIQ	PIQ	Weight	MRI_Count
FSIQ	1.000000	0.946639	0.934125	-0.051483	0.357641
VIQ	0.946639	1.000000	0.778135	-0.076088	0.337478
PIQ	0.934125	0.778135	1.000000	0.002512	0.386817
Weight	-0.051483	-0.076088	0.002512	1.000000	0.513378
MRI_Count	0.357641	0.337478	0.386817	0.513378	1.000000

In [8]:

```
# Code cell 9
womenDf.corr(method='pearson')
```

Out[8]:

	FSIQ	VIQ	PIQ	Weight	MRI_Count
FSIQ	1.000000	0.955717	0.939382	0.038192	0.325697
VIQ	0.955717	1.000000	0.802652	-0.021889	0.254933
PIQ	0.939382	0.802652	1.000000	0.113901	0.396157
Weight	0.038192	-0.021889	0.113901	1.000000	0.446271
MRI_Count	0.325697	0.254933	0.396157	0.446271	1.000000

In [9]:

```
menDf.corr(method='pearson')
```

Out[9]:

	FSIQ	VIQ	PIQ	Weight	MRI_Count
FSIQ	1.000000	0.944400	0.930694	-0.278140	0.498369
VIQ	0.944400	1.000000	0.766021	-0.350453	0.413105
PIQ	0.930694	0.766021	1.000000	-0.156863	0.568237
Weight	-0.278140	-0.350453	-0.156863	1.000000	-0.076875
MRI_Count	0.498369	0.413105	0.568237	-0.076875	1.000000

In [10]:

```
!pip install seaborn
```

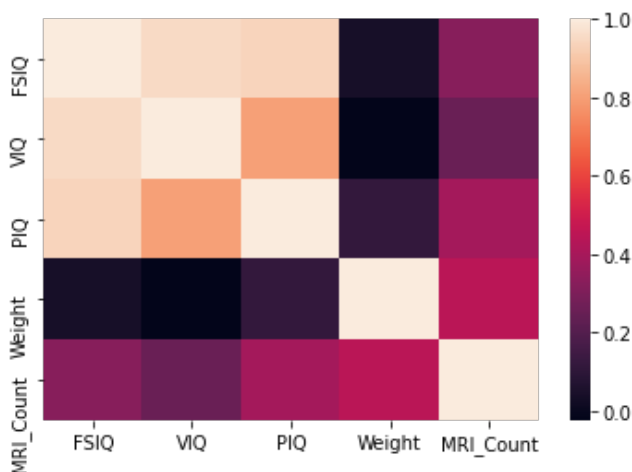
Requirement already satisfied: seaborn in d:\instalan\anaconda3\lib\site-packages (0.11.1)
Requirement already satisfied: numpy>=1.15 in d:\instalan\anaconda3\lib\site-packages (from seaborn) (1.20.1)
Requirement already satisfied: matplotlib>=2.2 in d:\instalan\anaconda3\lib\site-packages (from seaborn) (3.3.4)
Requirement already satisfied: pandas>=0.23 in d:\instalan\anaconda3\lib\site-packages (from seaborn) (1.2.4)
Requirement already satisfied: scipy>=1.0 in d:\instalan\anaconda3\lib\site-packages (from seaborn) (1.6.2)
Requirement already satisfied: kiwisolver>=1.0.1 in d:\instalan\anaconda3\lib\site-packages (from matplotlib>=2.2->seaborn) (1.3.1)
Requirement already satisfied: python-dateutil>=2.1 in d:\instalan\anaconda3\lib\site-packages (from matplotlib>=2.2->seaborn) (2.8.1)
Requirement already satisfied: pillow>=6.2.0 in d:\instalan\anaconda3\lib\site-packages (from matplotlib>=2.2->seaborn) (8.2.0)
Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.3 in d:\instalan\anaconda3\lib\site-packages (from matplotlib>=2.2->seaborn) (2.4.7)
Requirement already satisfied: cycler>=0.10 in d:\instalan\anaconda3\lib\site-packages (from matplotlib>=2.2->seaborn) (0.10.0)
Requirement already satisfied: six in d:\instalan\anaconda3\lib\site-packages (from cycler>=0.10->matplotlib>=2.2->seaborn) (1.15.0)
Requirement already satisfied: pytz>=2017.3 in d:\instalan\anaconda3\lib\site-packages (from pandas>=0.23->seaborn) (2021.1)

In [11]:

```
# Code cell 12
import seaborn as sns

wcorr = womenDf.corr()
sns.heatmap(wcorr)
plt.savefig('attribute_correlations-women.png', tight_layout=True)
```

<ipython-input-11-07b93646aa4f>:6: MatplotlibDeprecationWarning: savefig() got unexpected keyword argument "tight_layout" which is no longer supported as of 3.3 and will become an error two minor releases later
plt.savefig('attribute_correlations-women.png', tight_layout=True)

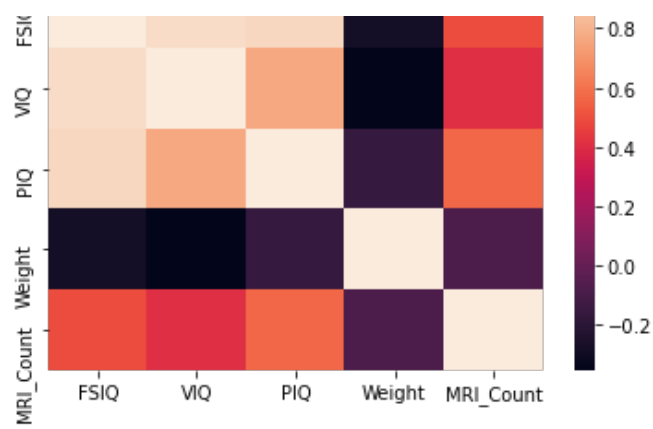


In [12]:

```
# Code cell 14
mcorr = menDf.corr()
sns.heatmap(mcorr)
plt.savefig('attribute_correlations-men.png', tight_layout=True)
```

<ipython-input-12-a2ded18c34da>:4: MatplotlibDeprecationWarning: savefig() got unexpected keyword argument "tight_layout" which is no longer supported as of 3.3 and will become an error two minor releases later
plt.savefig('attribute_correlations-men.png', tight_layout=True)





In []: