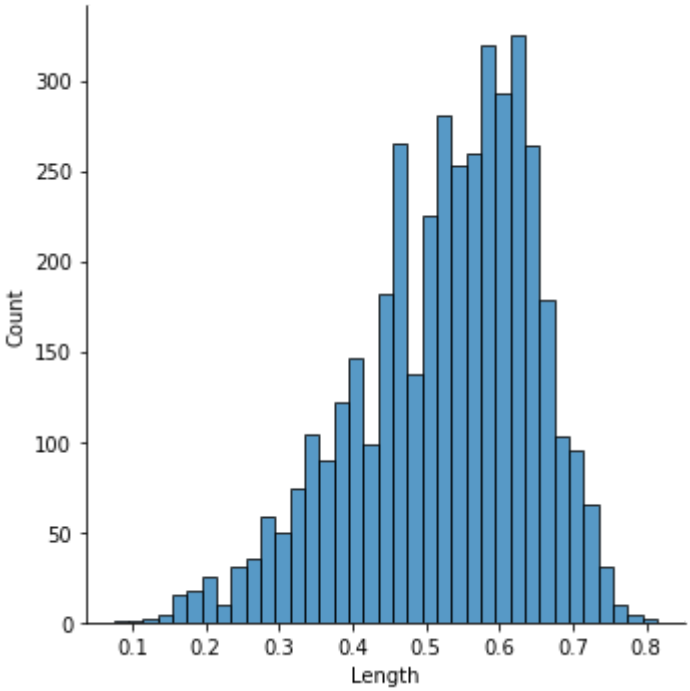
```
import numpy as np

import pandas as pd

ab=pd.read_csv('abalone.csv')

import matplotlib.pyplot as plt

import seaborn as sns

sns.displot(ab['Length'])
```

```
<seaborn.axisgrid.FacetGrid at 0x7faaf145df10>
```

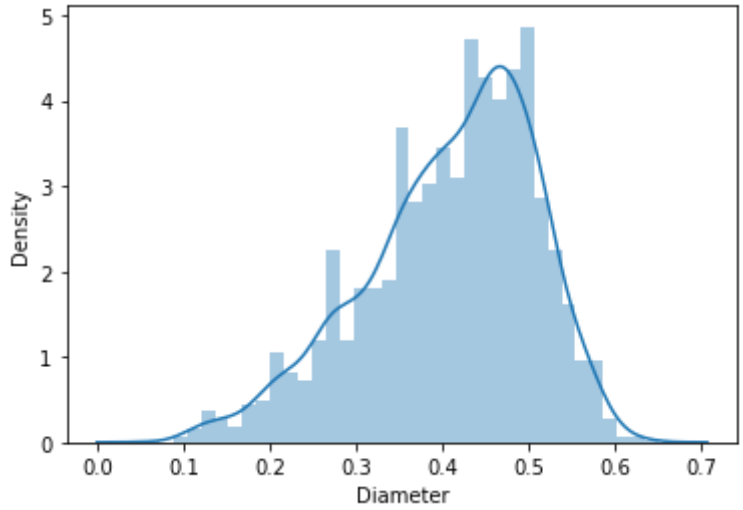



```
sns.countplot(ab['Sex'])
```

```
/usr/local/lib/python3.7/dist-packages/seaborn/_decorators.py:43: FutureWarning: P
  FutureWarning
<matplotlib.axes._subplots.AxesSubplot at 0x7faaee695b90>
```

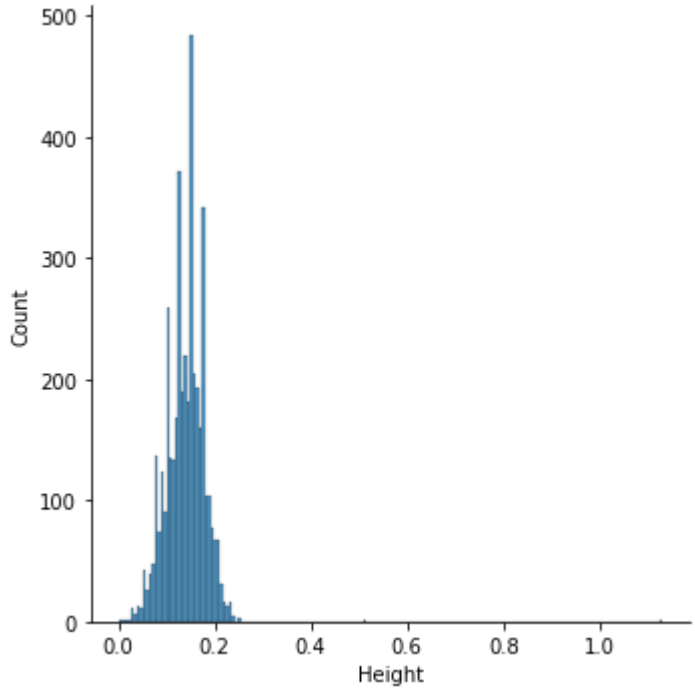
```
sns.distplot(ab['Diameter'])
```

```
/usr/local/lib/python3.7/dist-packages/seaborn/distributions.py:2619: FutureWarnin
  warnings.warn(msg, FutureWarning)
<matplotlib.axes._subplots.AxesSubplot at 0x7faaee555290>
```



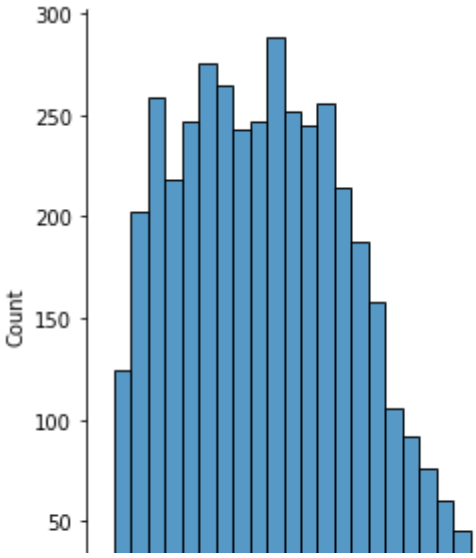

```
sns.displot(ab['Height'])
```

```
<seaborn.axisgrid.FacetGrid at 0x7faaee50e390>
```



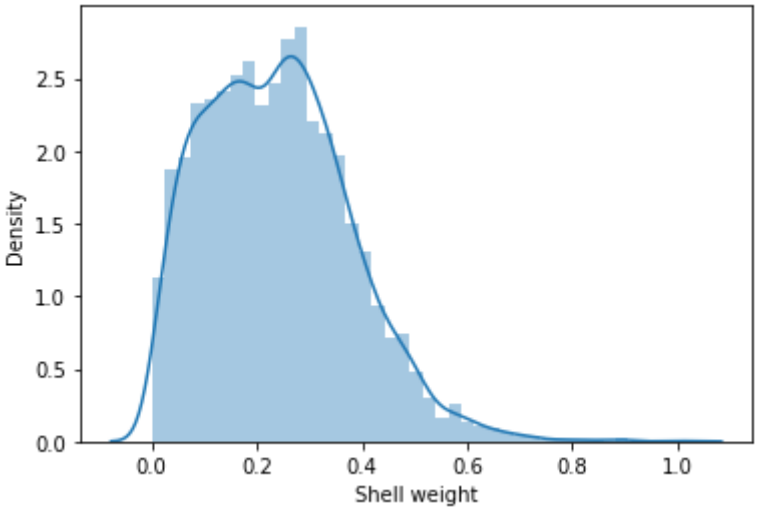

```
sns.displot(ab['Whole weight'])
```

```
<seaborn.axisgrid.FacetGrid at 0x7faaee2206d0>
```




```
sns.distplot(ab['Shell weight'])
```

```
/usr/local/lib/python3.7/dist-packages/seaborn/distributions.py:2619: FutureWarnin
  warnings.warn(msg, FutureWarning)
<matplotlib.axes._subplots.AxesSubplot at 0x7faaee62b390>
```

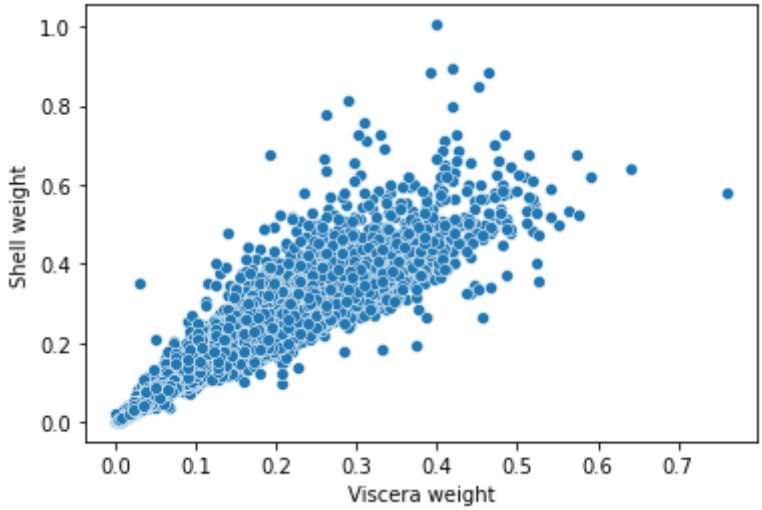



```
sns.barplot(ab['Sex'],ab['Length'])
```

```
/usr/local/lib/python3.7/dist-packages/seaborn/_decorators.py:43: FutureWarning: Pas
  FutureWarning
<matplotlib.axes._subplots.AxesSubplot at 0x7faaee11f050>
```

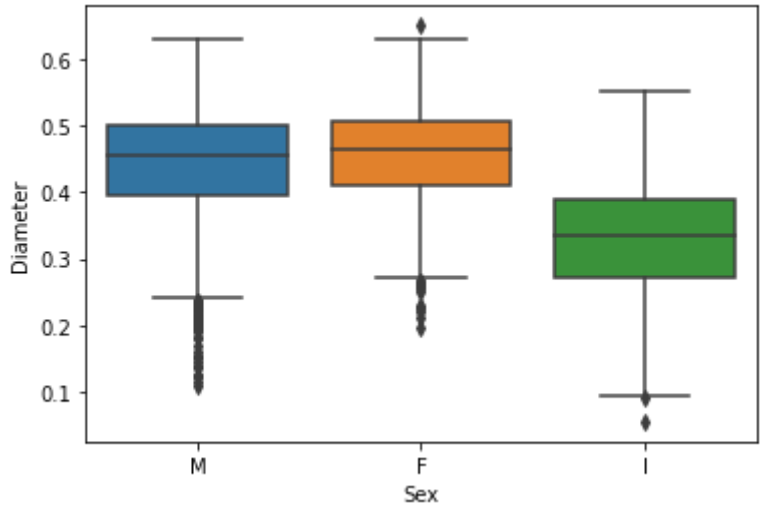
```
sns.scatterplot(ab['Viscera weight'],ab['Shell weight'])
```

```
/usr/local/lib/python3.7/dist-packages/seaborn/_decorators.py:43: FutureWarning: P
  FutureWarning
<matplotlib.axes._subplots.AxesSubplot at 0x7faaed5ac150>
```



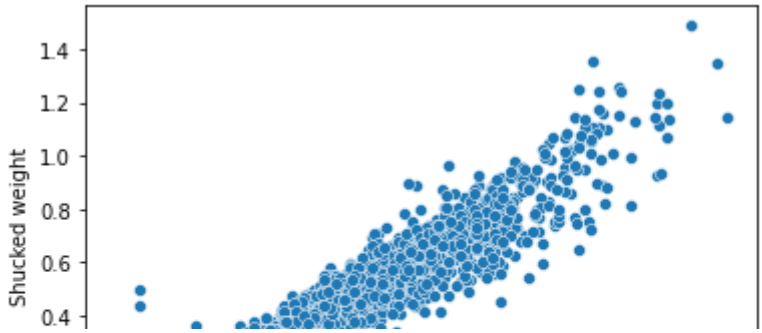

```
sns.boxplot(ab['Sex'],ab['Diameter'])
```

```
/usr/local/lib/python3.7/dist-packages/seaborn/_decorators.py:43: FutureWarning: P
  FutureWarning
<matplotlib.axes._subplots.AxesSubplot at 0x7faaed58fc90>
```




```
sns.scatterplot(ab['Whole weight'],ab['Shucked weight'])
```

```
/usr/local/lib/python3.7/dist-packages/seaborn/_decorators.py:43: FutureWarning: P
  FutureWarning
<matplotlib.axes._subplots.AxesSubplot at 0x7faaed452890>
```




```
ab.isnull().sum()
```

```
Sex               0
Length            0
Diameter          0
Height            0
Whole weight      0
Shucked weight    0
Viscera weight    0
Shell weight      0
Rings             0
dtype: int64
```

```
ab.replace({'Sex':{'M':1,'F':0,'I':10}},inplace=True)
```

```
X=ab.drop(columns=['Rings'],axis=1)
```

```
Y=ab['Rings']
```

```
ab.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 4177 entries, 0 to 4176
Data columns (total 9 columns):
 #   Column          Non-Null Count  Dtype  
---  ------          --------------  -----  
 0   Sex             4177 non-null   int64  
 1   Length          4177 non-null   float64
 2   Diameter        4177 non-null   float64
 3   Height          4177 non-null   float64
 4   Whole weight    4177 non-null   float64
 5   Shucked weight  4177 non-null   float64
 6   Viscera weight  4177 non-null   float64
 7   Shell weight    4177 non-null   float64
 8   Rings           4177 non-null   int64  
dtypes: float64(7), int64(2)
memory usage: 293.8 KB
```

```
from sklearn.model_selection import train_test_split
```

```
X_train, X_test, Y_train, Y_test= train_test_split(X, Y, test_size=0.2, random_state=2)
```

```
print(X.shape,X_train.shape,X_test.shape)
```

```
(4177, 8) (3341, 8) (836, 8)
```

```
from sklearn.ensemble import RandomForestRegressor
```

```
model3= RandomForestRegressor()
model3.fit(X_train, Y_train)
```

```
RandomForestRegressor()
```

```
test_data_prediction= model3.predict(X_test)
```

```
model3.score(X_train, Y_train)
```

```
0.934936769612555
```