```
import pandas as pd
df = pd.read_csv('/content/Fish.csv')
df
```

	Species	Weight	Length1	Length2	Length3	Height	Width
0	Bream	242.0	23.2	25.4	30.0	11.5200	4.0200
1	Bream	290.0	24.0	26.3	31.2	12.4800	4.3056
2	Bream	340.0	23.9	26.5	31.1	12.3778	4.6961
3	Bream	363.0	26.3	29.0	33.5	12.7300	4.4555
4	Bream	430.0	26.5	29.0	34.0	12.4440	5.1340
...	...	...	...	...	...	...	...
154	Smelt	12.2	11.5	12.2	13.4	2.0904	1.3936
155	Smelt	13.4	11.7	12.4	13.5	2.4300	1.2690
156	Smelt	12.2	12.1	13.0	13.8	2.2770	1.2558
157	Smelt	19.7	13.2	14.3	15.2	2.8728	2.0672
158	Smelt	19.9	13.8	15.0	16.2	2.9322	1.8792

159 rows × 7 columns

```
df.shape
```

```
(159, 7)
```

```
df.size #Total number of elements in dataframe
```

```
1113
```

```
df.info() #It gives the complete information about the dataframe
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 159 entries, 0 to 158
Data columns (total 7 columns):
 #   Column   Non-Null Count  Dtype  
---  ------   --------------  -----  
 0   Species  159 non-null    object 
 1   Weight   159 non-null    float64
 2   Length1  159 non-null    float64
 3   Length2  159 non-null    float64
 4   Length3  159 non-null    float64
 5   Height   159 non-null    float64
 6   Width    159 non-null    float64
dtypes: float64(6), object(1)
memory usage: 8.8+ KB
```

```
#to check the null values officially
df.isnull().sum()
```

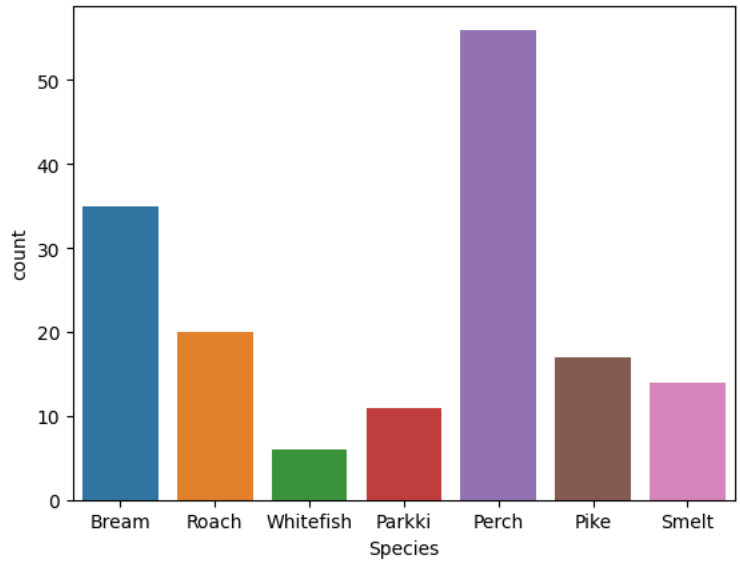
```
Species    0
Weight     0
Length1    0
Length2    0
Length3    0
Height     0
Width      0
dtype: int64
```

```
#I want to find out the exact count of unique elements in each and every column
df.nunique()
```

```
Species      7
Weight     101
Length1    116
Length2     93
Length3    124
Height     154
Width      152
dtype: int64
```

```
#VISUALISATION - SEABORN
import seaborn as sns #import the library
sns.countplot(x = 'Species',data = df)
```

```
<Axes: xlabel='Species', ylabel='count'>
```




```
#I want the exact count of species
df['Species'].value_counts()
```

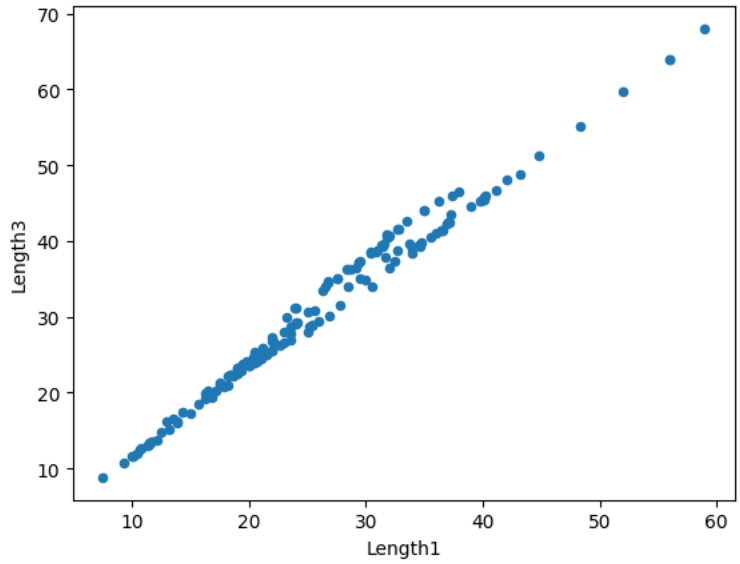
```
Perch        56
Bream        35
Roach        20
Pike         17
Smelt        14
Parkki       11
Whitefish     6
Name: Species, dtype: int64
```

```
df['Species'].describe()
```

```
count       159
unique        7
top       Perch
freq         56
Name: Species, dtype: object
```

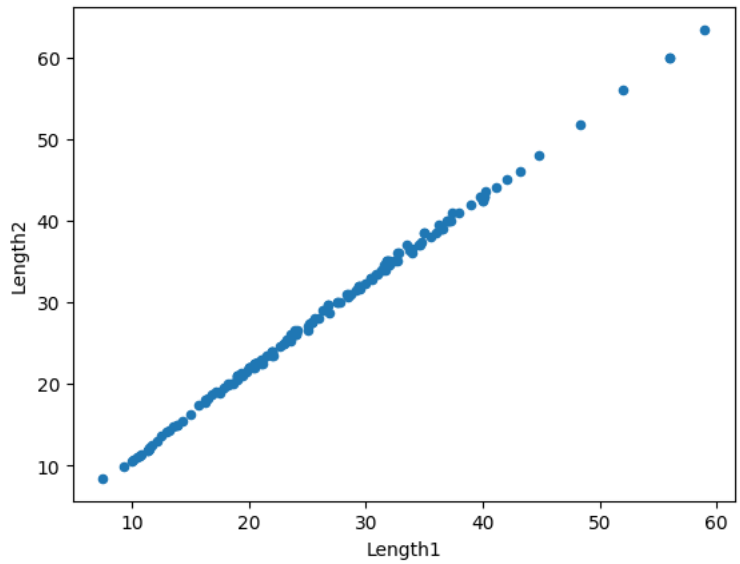
```
df.plot(x='Length1', y='Length3', kind='scatter')
```

```
<Axes: xlabel='Length1', ylabel='Length3'>
```



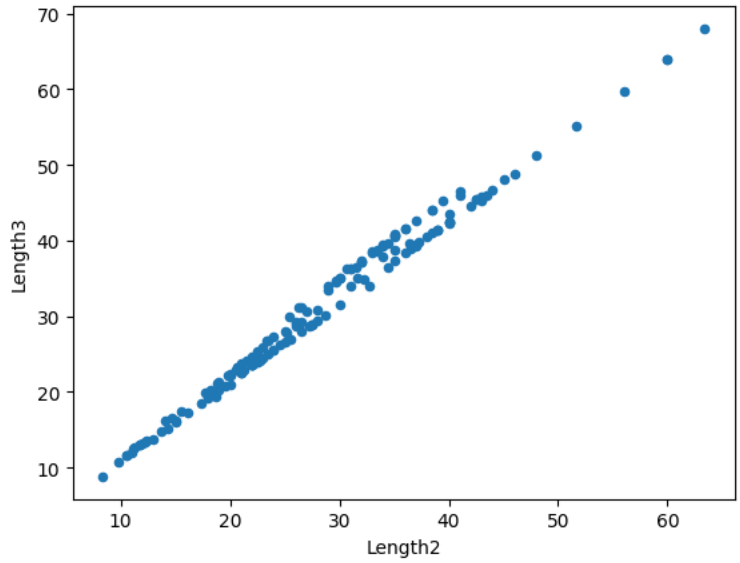
```
df.plot(x='Length1', y='Length2', kind='scatter')
```

```
<Axes: xlabel='Length1', ylabel='Length2'>
```




```
df.plot(x='Length2', y='Length3', kind='scatter')
```

```
<Axes: xlabel='Length2', ylabel='Length3'>
```




```
#This function can be used to compute pairwise correlation of columns, excluding NA/null values.
df.corr()
```

```
<ipython-input-13-c27ebe668f6b>:2: FutureWarning: The default value of numeric_onl
  df.corr()
```

	Weight	Length1	Length2	Length3	Height	Width
Weight	1.000000	0.915712	0.918618	0.923044	0.724345	0.886507
Length1	0.915712	1.000000	0.999517	0.992031	0.625378	0.867050
Length2	0.918618	0.999517	1.000000	0.994103	0.640441	0.873547
Length3	0.923044	0.992031	0.994103	1.000000	0.703409	0.878520
Height	0.724345	0.625378	0.640441	0.703409	1.000000	0.792881
Width	0.886507	0.867050	0.873547	0.878520	0.792881	1.000000

```
#This function can be used to create pivot tables, which are useful for summarizing data and identifying patterns in the data.
pivot = df.pivot_table(index = ['Species'], values=['Height'], aggfunc ='sum')
pivot
```

Species	Height
Bream	531.4124
Parkki	98.5867
Perch	440.2647
Pike	131.1341
Roach	133.8959
Smelt	30.9312
Whitefish	60.1630

```
#This function can be used to create pivot tables, which are useful for summarizing data and identifying patterns in the data.
pivot = df.pivot_table(index = ['Species'], values=['Height'], aggfunc =['sum','median','min'])
pivot
```

	sum	median	min
	Height	Height	Height
Species			
Bream	531.4124	14.9544	11.5200
Parkki	98.5867	8.8928	6.5772
Perch	440.2647	6.9218	2.1120
Pike	131.1341	7.2900	5.5680
Roach	133.8959	6.5126	4.1472
Smelt	30.9312	2.2002	1.7284
Whitefish	60.1630	9.7610	8.1454

```
#Return those species whose value is between the given range of height
df.query('6 > Height > 5 and Weight > 200')
```

	Species	Weight	Length1	Length2	Length3	Height	Width
129	Pike	300.0	31.7	34.0	37.8	5.7078	4.1580
130	Pike	300.0	32.7	35.0	38.8	5.9364	4.3844