

```
In [1]: import pandas as pd
data = pd.read_csv('/Users/xxx/Desktop/Anaconda/109_Fish.csv')
print(data)
```

	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 x 7 columns]

```
In [ ]:
```

```
In [32]: data = data[['Weight', 'Length1', 'Length2', 'Length3', 'Height', 'Width']]
print(data.mean())
```

```
Weight      398.326415
Length1     26.247170
Length2     28.415723
Length3     31.227044
Height       8.970994
Width       4.417486
dtype: float64
```

```
In [31]: print(data.std())
```

```
Weight      357.978317
Length1      9.996441
Length2     10.716328
Length3     11.610246
Height       4.286208
Width        1.685804
dtype: float64
```

```
In [18]: data.var()
```

```
Out[18]: Weight      128148.475121
Length1      99.928837
Length2     114.839688
Length3     134.797808
Height      18.371576
Width        2.841935
dtype: float64
```

```
In [19]: data.cov()
```

Out [19] :

	Weight	Length1	Length2	Length3	Height	Width	
	Weight	128148.475121	3276.882797	3524.013253	3836.368648	1111.413300	534.990098

```
data.corr(method='kendall')
```

Length1	3276.882797	99.928837	107.073431	115.136248	26.795457	14.611556
Length2	3524.013253	107.073431	114.839688	123.685458	29.416988	15.781169
Length3	3836.368648	115.136248	123.685458	134.797808	35.004389	17.194921
Height	1111.413300	26.795457	29.416988	35.004389	18.371576	5.729125
Width	534.990098	14.611556	15.781169	17.194921	5.729125	2.841935

In [20]:

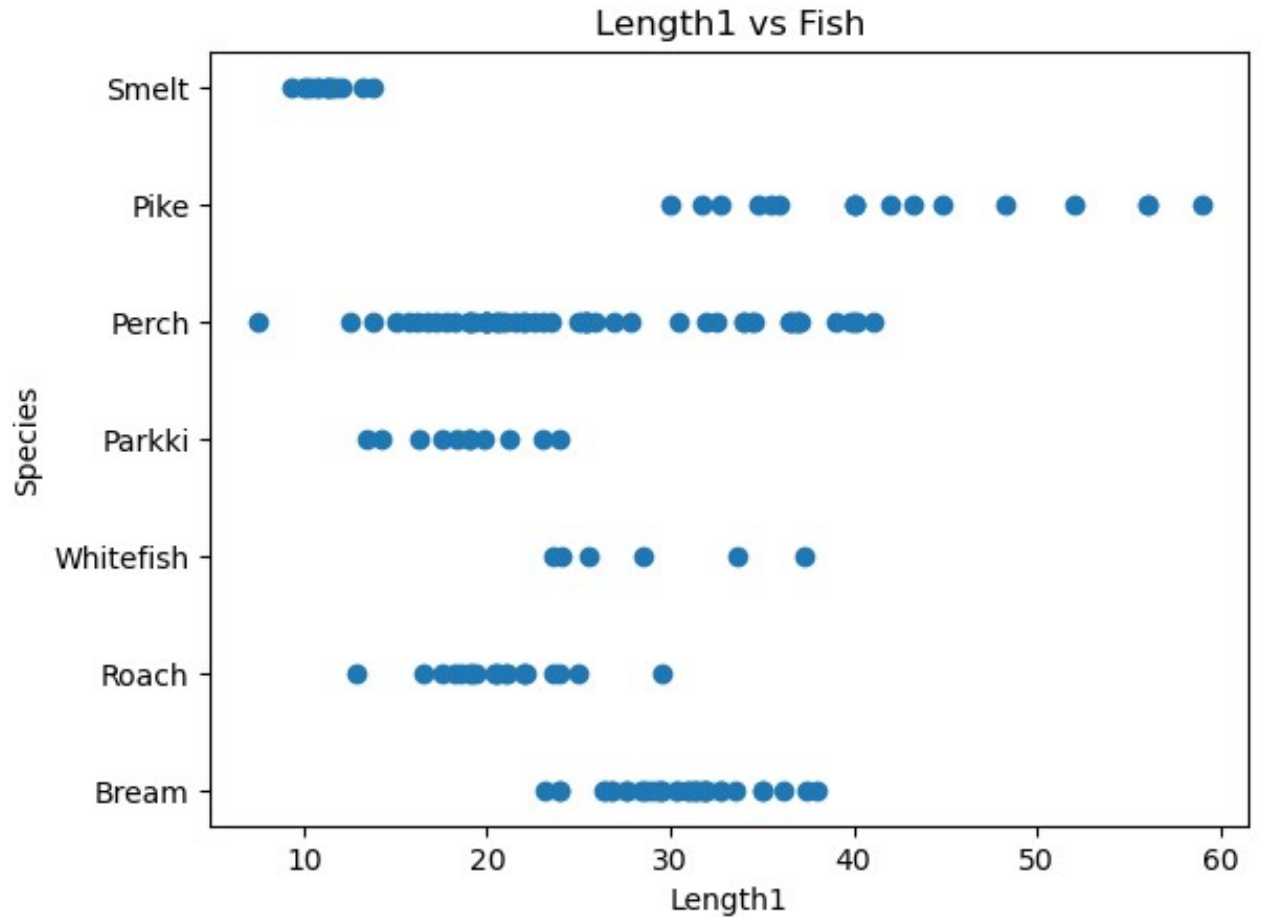
Out[20]:

	Weight	Length1	Length2	Length3	Height	Width
Weight	1.000000	0.850766	0.857476	0.867304	0.689884	0.856201
Length1	0.850766	1.000000	0.988813	0.944258	0.573255	0.801216
Length2	0.857476	0.988813	1.000000	0.946828	0.578396	0.805882
Length3	0.867304	0.944258	0.946828	1.000000	0.623375	0.785177
Height	0.689884	0.573255	0.578396	0.623375	1.000000	0.658330
Width	0.856201	0.801216	0.805882	0.785177	0.658330	1.000000

In [43]:

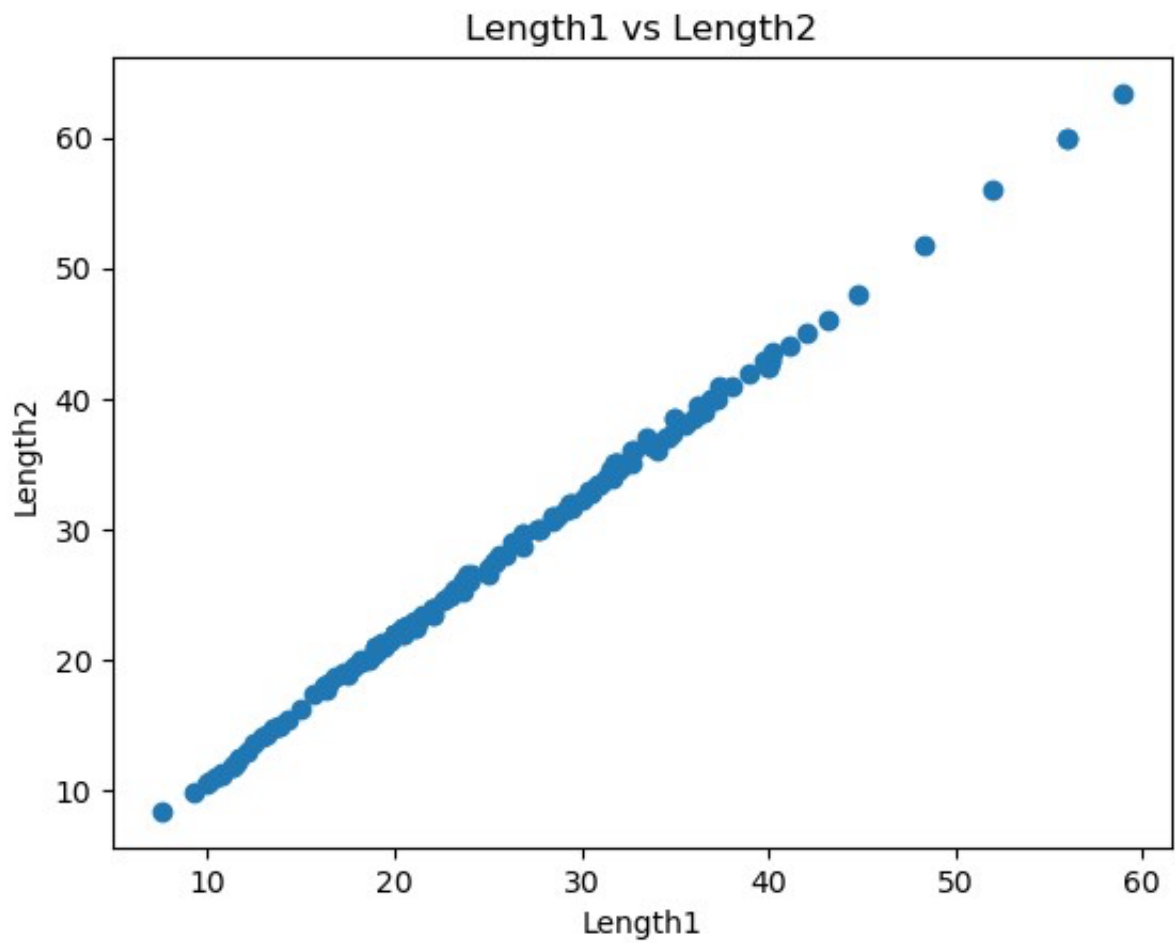
```
from matplotlib import pyplot as plot
data = pd.read_csv('/Users/xxx/Desktop/Anaconda/CPRG 109_Fish.csv')
plot.title('Length1 vs Fish') plot.xlabel('Length1')
plot.ylabel('Species') #Create the scatter plot
plot.scatter(data['Length1'], data['Species'])
#Show scatter plot x-axis = Length1 , y-axis = Length2 plot.show()
```

Out[43]: <matplotlib.collections.PathCollection at 0x14f298520>



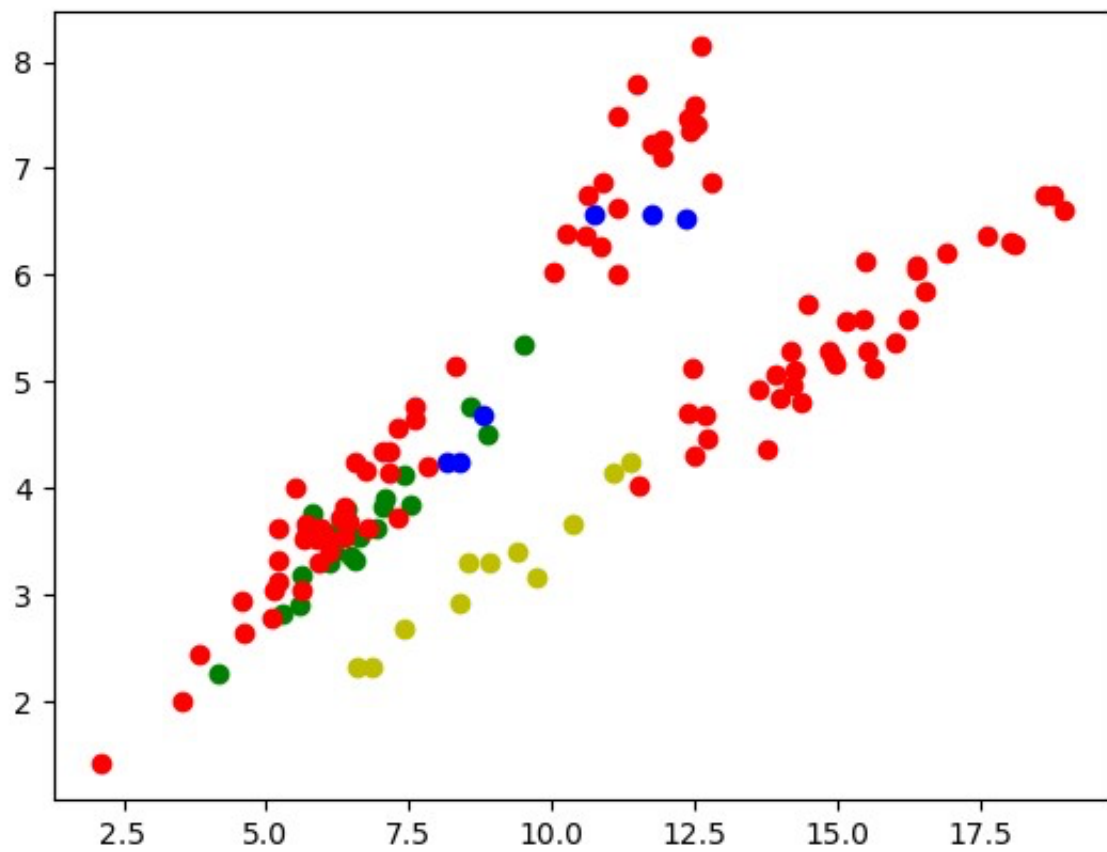
In [36]:

```
from matplotlib import pyplot as plot
plot plot.title('Length1 vs
Length2') plot.xlabel('Length1')
plot.ylabel('Length2') #Create the
scatter plot
plot.scatter(data['Length1'], data['Length2'])
#Show scatter plot x-axis = Length1 , y-axis = Length2
plot.show()
```



```
In [27]: from matplotlib import pyplot as plot
data = pd.read_csv('/Users/xxx/Desktop/Anaconda/CPRG 109_Fish.csv')
colors={'Bream': 'r', 'Roach': 'g', 'Whitefish': 'b', 'Parkki': 'y',
'Perch': 'fig, ax=plot.subplots() for i in range(len(data['Height'])):
    ax.scatter(data['Height'][i], data['Width'][i],
color=colors[data['Specie
#set a title and labels
ax.set_title('Fish Dataset')
ax.set_xlabel('Height')
ax.set_ylabel('Width')

```



In []:

In []: