

pk-frtlizer-consum

February 3, 2022

```
[ ]: import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
import numpy as np

frtlizer = pd.read_csv('pk-frtlizer.csv')
print(frtlizer.head(5))
frtlizer
```

	Domain Code	Domain	Area Code	Area	Element Code \
0	RFN	Fertilizers by Nutrient	165	Pakistan	5157
1	RFN	Fertilizers by Nutrient	165	Pakistan	5157
2	RFN	Fertilizers by Nutrient	165	Pakistan	5157
3	RFN	Fertilizers by Nutrient	165	Pakistan	5157
4	RFN	Fertilizers by Nutrient	165	Pakistan	5157

	Element	Item Code	Item	Year Code \
0	Agricultural Use	3102	Nutrient nitrogen N (total)	1961
1	Agricultural Use	3103	Nutrient phosphate P205 (total)	1961
2	Agricultural Use	3103	Nutrient phosphate P205 (total)	1962
3	Agricultural Use	3102	Nutrient nitrogen N (total)	1962
4	Agricultural Use	3102	Nutrient nitrogen N (total)	1963

	Year	Unit	Value	Flag	Flag Description
0	1961	tonnes	41659	Qm	Official data from questionnaires and/or natio...
1	1961	tonnes	500	Qm	Official data from questionnaires and/or natio...
2	1962	tonnes	210	Qm	Official data from questionnaires and/or natio...
3	1962	tonnes	41160	Qm	Official data from questionnaires and/or natio...
4	1963	tonnes	67620	Qm	Official data from questionnaires and/or natio...

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[ ]: Domain Code          Domain Area Code      Area Element Code \
0      RFN  Fertilizers by Nutrient      165  Pakistan      5157
1      RFN  Fertilizers by Nutrient      165  Pakistan      5157
2      RFN  Fertilizers by Nutrient      165  Pakistan      5157
3      RFN  Fertilizers by Nutrient      165  Pakistan      5157
4      RFN  Fertilizers by Nutrient      165  Pakistan      5157
..      ...      ...      ...      ...      ...
167     RFN  Fertilizers by Nutrient      165  Pakistan      5157
```

168	RFN	Fertilizers by Nutrient	165	Pakistan	5157
169	RFN	Fertilizers by Nutrient	165	Pakistan	5157
170	RFN	Fertilizers by Nutrient	165	Pakistan	5157
171	RFN	Fertilizers by Nutrient	165	Pakistan	5157

	Element	Item Code	Item	Year	Code \
0	Agricultural Use	3102	Nutrient nitrogen N (total)	1961	
1	Agricultural Use	3103	Nutrient phosphate P205 (total)	1961	
2	Agricultural Use	3103	Nutrient phosphate P205 (total)	1962	
3	Agricultural Use	3102	Nutrient nitrogen N (total)	1962	
4	Agricultural Use	3102	Nutrient nitrogen N (total)	1963	
..	
167	Agricultural Use	3102	Nutrient nitrogen N (total)	2018	
168	Agricultural Use	3104	Nutrient potash K20 (total)	2018	
169	Agricultural Use	3104	Nutrient potash K20 (total)	2019	
170	Agricultural Use	3102	Nutrient nitrogen N (total)	2019	
171	Agricultural Use	3103	Nutrient phosphate P205 (total)	2019	

	Year	Unit	Value	Flag	\
0	1961	tonnes	41659	Qm	
1	1961	tonnes	500	Qm	
2	1962	tonnes	210	Qm	
3	1962	tonnes	41160	Qm	
4	1963	tonnes	67620	Qm	
..	
167	2018	tonnes	3446922	Fm	
168	2018	tonnes	54173	Fm	
169	2019	tonnes	47260	Qm	
170	2019	tonnes	3505356	Qm	
171	2019	tonnes	1099707	Qm	

	Flag Description
0	Official data from questionnaires and/or natio...
1	Official data from questionnaires and/or natio...
2	Official data from questionnaires and/or natio...
3	Official data from questionnaires and/or natio...
4	Official data from questionnaires and/or natio...
..	...
167	Manual Estimation
168	Manual Estimation
169	Official data from questionnaires and/or natio...
170	Official data from questionnaires and/or natio...
171	Official data from questionnaires and/or natio...

[172 rows x 14 columns]

```
[ ]: frtlizer.describe()
```

```
[ ]:      Area Code  Element Code   Item Code   Year Code      Year \
count      172.0         172.0   172.000000   172.000000   172.000000
mean       165.0        5157.0  3102.970930  1990.784884  1990.784884
std         0.0          0.0     0.812385    16.678775    16.678775
min        165.0        5157.0  3102.000000  1961.000000  1961.000000
25%        165.0        5157.0  3102.000000  1976.750000  1976.750000
50%        165.0        5157.0  3103.000000  1991.000000  1991.000000
75%        165.0        5157.0  3104.000000  2005.000000  2005.000000
max        165.0        5157.0  3104.000000  2019.000000  2019.000000
```

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      Value
count  1.720000e+02
mean   7.064396e+05
std    9.709749e+05
min    1.440000e+02
25%    2.615950e+04
50%    2.689255e+05
75%    9.193622e+05
max    3.505356e+06
```

```
[ ]: frtlizer.groupby(['Value', 'Item']).mean()
```

```
[ ]:      Area Code  Element Code  Item Code \
Value  Item
144    Nutrient potash K20 (total)    165.0    5157.0    3104.0
210    Nutrient phosphate P205 (total)  165.0    5157.0    3103.0
212    Nutrient potash K20 (total)    165.0    5157.0    3104.0
500    Nutrient phosphate P205 (total)  165.0    5157.0    3103.0
630    Nutrient phosphate P205 (total)  165.0    5157.0    3103.0
...
3241907 Nutrient nitrogen N (total)    165.0    5157.0    3102.0
3270531 Nutrient nitrogen N (total)    165.0    5157.0    3102.0
3446922 Nutrient nitrogen N (total)    165.0    5157.0    3102.0
3451900 Nutrient nitrogen N (total)    165.0    5157.0    3102.0
3505356 Nutrient nitrogen N (total)    165.0    5157.0    3102.0
```

```

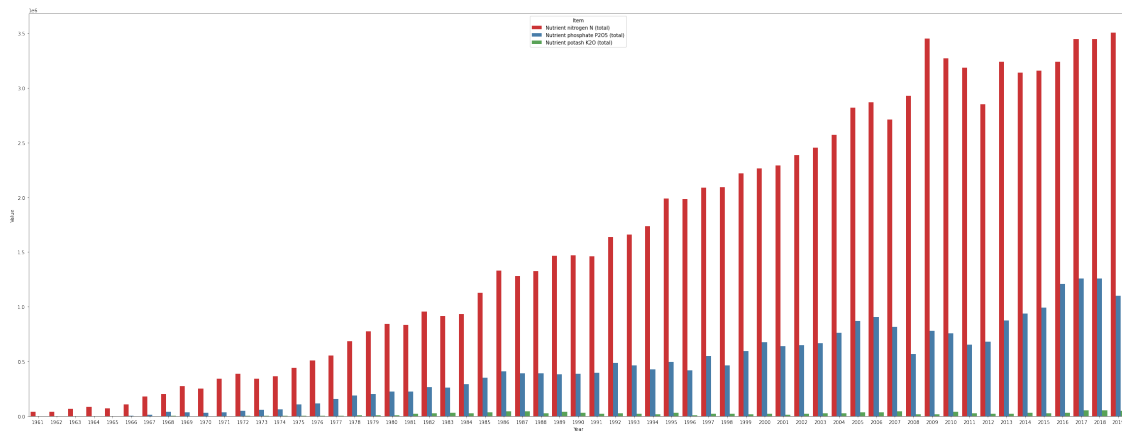
      Year Code  Year
Value  Item
144    Nutrient potash K20 (total)    1966.0  1966.0
210    Nutrient phosphate P205 (total)  1962.0  1962.0
212    Nutrient potash K20 (total)    1967.0  1967.0
500    Nutrient phosphate P205 (total)  1961.0  1961.0
630    Nutrient phosphate P205 (total)  1963.0  1963.0
...
3241907 Nutrient nitrogen N (total)    2016.0  2016.0
3270531 Nutrient nitrogen N (total)    2010.0  2010.0
3446922 Nutrient nitrogen N (total)    2017.5  2017.5
```

3451900 Nutrient nitrogen N (total)	2009.0	2009.0
3505356 Nutrient nitrogen N (total)	2019.0	2019.0

[169 rows x 5 columns]

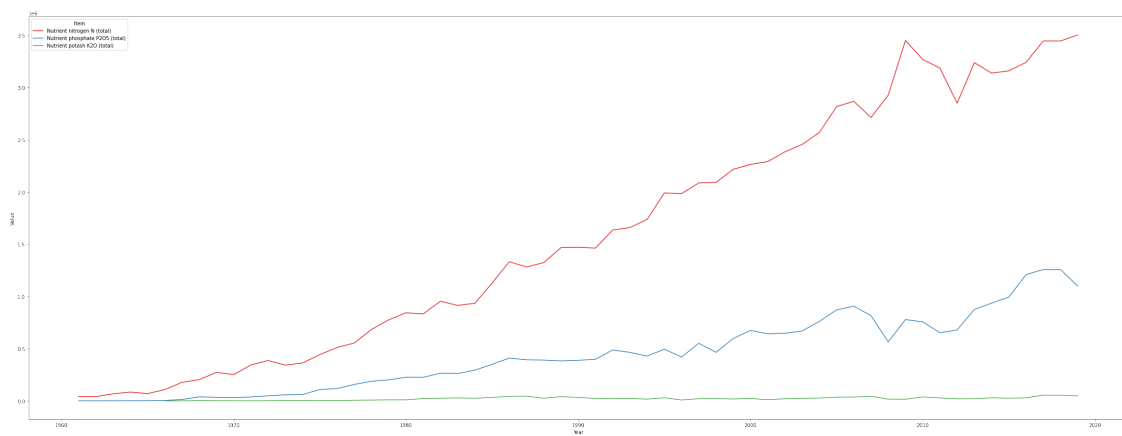
```
[ ]: data = pd.read_csv('pk-frtlizer.csv')
plt.figure(figsize=(40,15))
sns.barplot(x="Year", y="Value", hue="Item", data=data,
            palette="Set1")

plt.show()
```



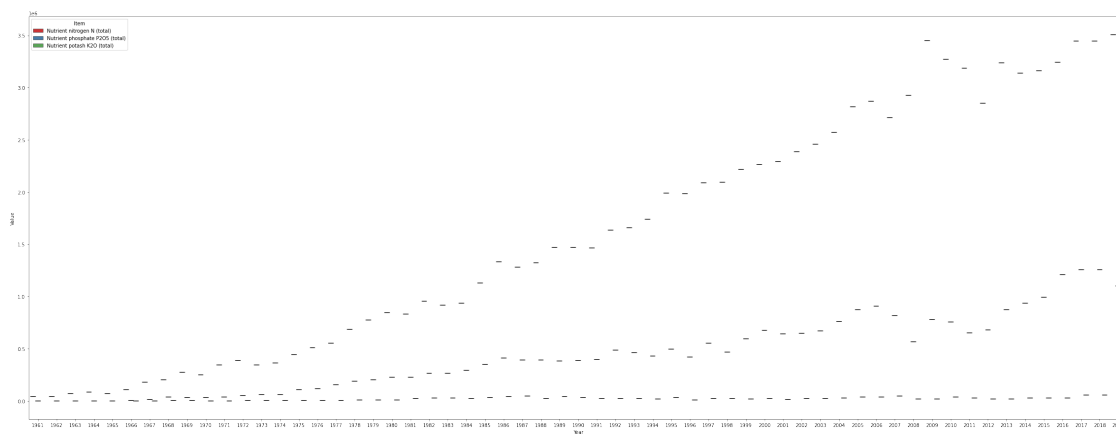
```
[ ]: data = pd.read_csv('pk-frtlizer.csv')
plt.figure(figsize=(40,15))
sns.lineplot(x="Year", y="Value", hue="Item", data=data,
            palette="Set1")

plt.show()
```



```
[ ]: data = pd.read_csv('pk-frtlizer.csv')
plt.figure(figsize=(40,15))
sns.boxplot(x="Year", y="Value", hue="Item", data=data,
            palette="Set1")

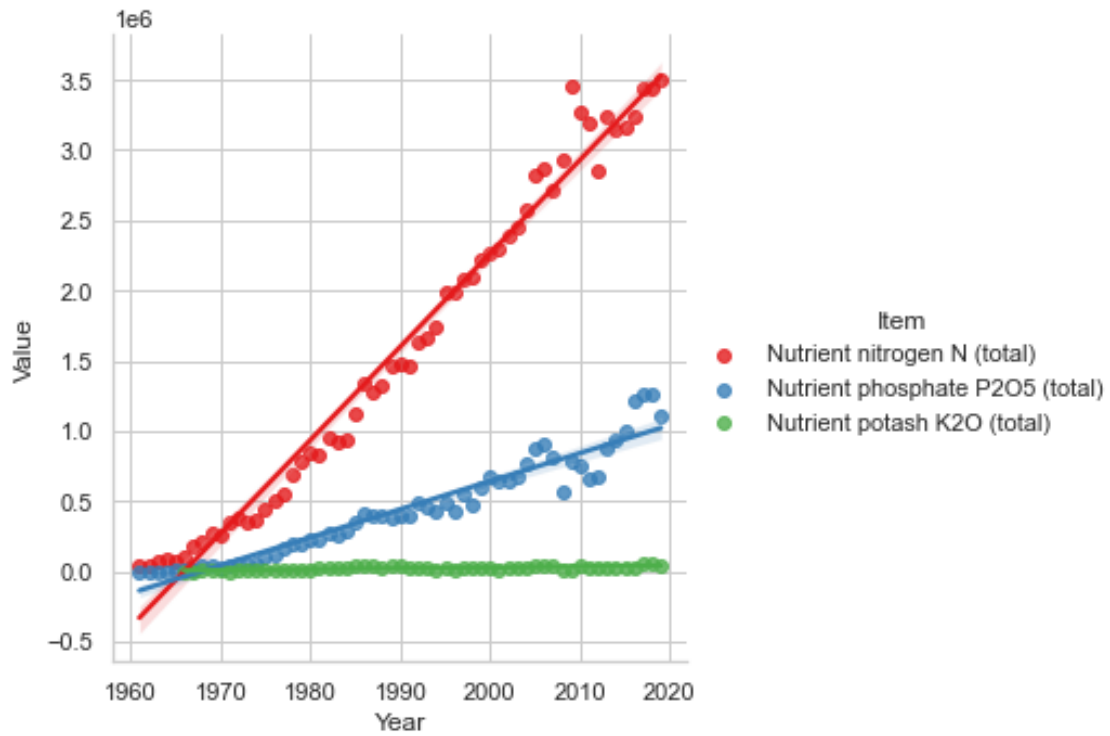
plt.show()
```



```
[ ]: data = pd.read_csv('pk-frtlizer.csv')
sns.set(style='whitegrid')
plt.figure(figsize=(40,15))
sns.lmplot(x="Year", y="Value", hue="Item", data=data,
           palette="Set1")

plt.show()
```

<Figure size 2880x1080 with 0 Axes>



```
[ ]: data = pd.read_csv('pk-fertilizer.csv')
plt.figure(figsize=(40,15))
sns.kdeplot(x="Year", y="Value", hue="Item", data=data,
            palette="Set1")

plt.show()
```

