

Data Analysis Assignment

173050043

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1 Introduction

This is the programming assignment of *Software Lab Course (CS699)*. In this assignment our aim is to do data analysis on a xls file which contain the statistic of import and export of India.

1.1 Description of Input data

The input data consist of two files:-

1. India_Imports_2011-12_And_2012-13.xls
2. India_Exports_2011-12_And_2012-13.xls

Each of these files contain data about:-

- Commodity
- Country
- Unit
- Quantity-2011-12
- Value-INR-2011-12
- Quantity-2012-13
- Value-INR-2012-13

Commodity:- It contain the name of the commodity Imported/Exported by India.

Country:- It contain the name of the Country with which Import/Export is done.

Unit:- It defines unit in which the quantity is defined.

Quantity:- It contains the quantity of the Commodity Exported/Imported.

Value:- It contains the value of the Commodity Exported/Imported.

2 Objective

Objective of this assignment was to:-

- ⇒ Getting top 5 import and export destination
- ⇒ Getting top 5 import and export commodity
- ⇒ Preparing single tablelong with trade deficit and import-export ratio
- ⇒ Implementing the use of query function
- ⇒ Learning how to rename the columns
- ⇒ Implementing the use of melt function
- ⇒ Learning how to do intersection of table

3 Graphs

We can conclude following graphs from the input file provided

3.1 Pie Chart

Top 5 Country pie chart for import of year 2011-12

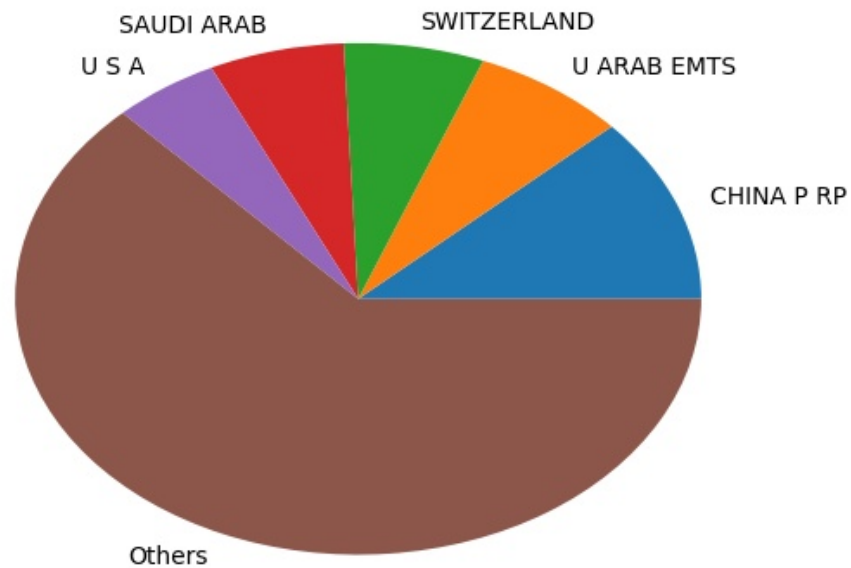


Figure 1: Import Pie Chart

Figure 1 shows Pie chart . It shows the total value imported by top 5 countries and other countries.

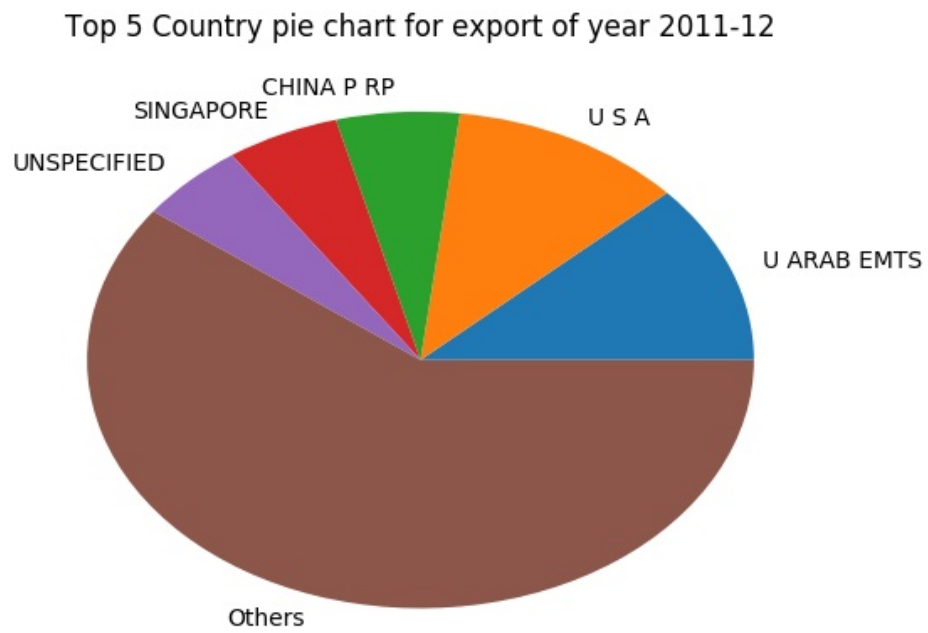


Figure 2: Export Pie Chart

Figure 2 shows Pie chart .It shows the total value exported by top 5 countries and other countries.

3.2 Bar Graph

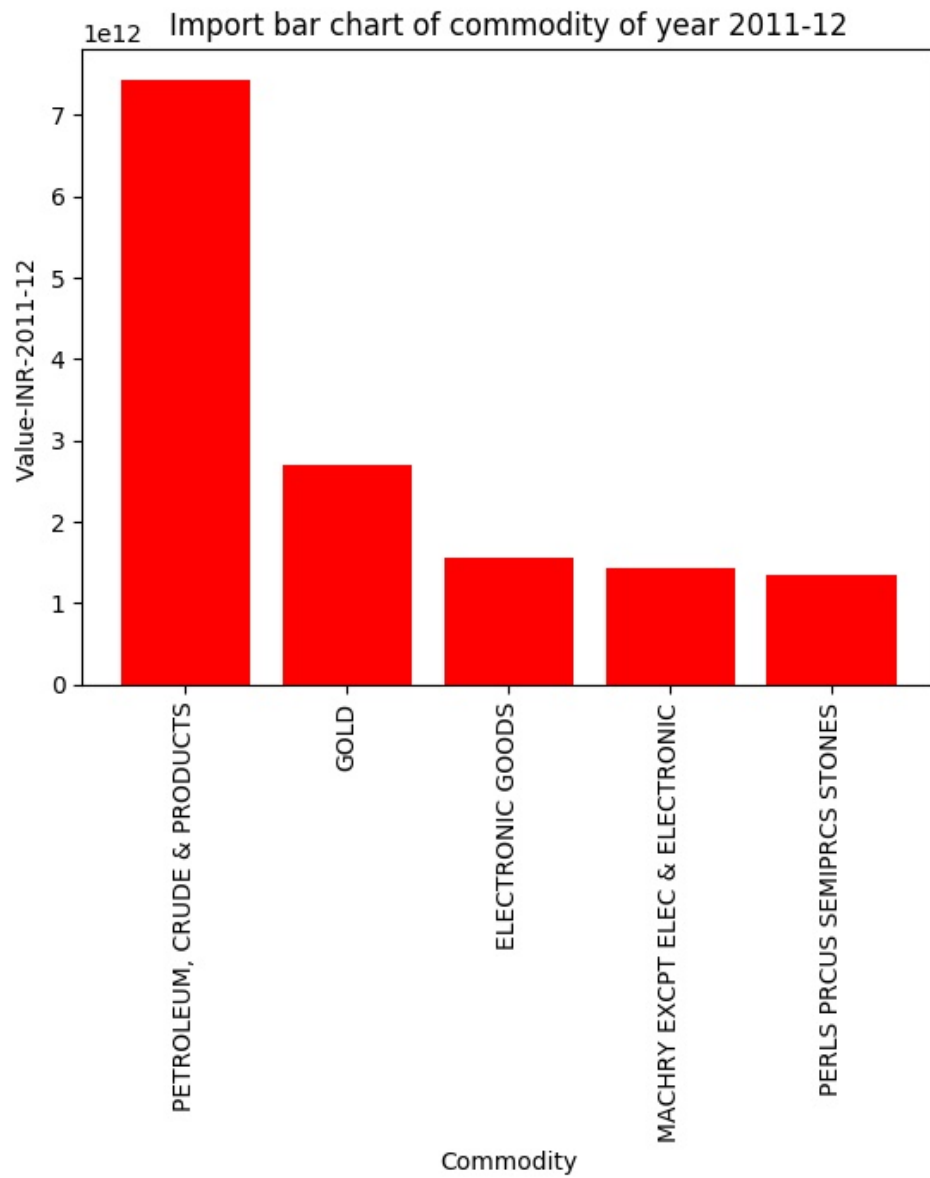


Figure 3: Import Bar Graph

Figure 3 shows a Bar Graph . It compare the import of top 5 commodities with respect to values.

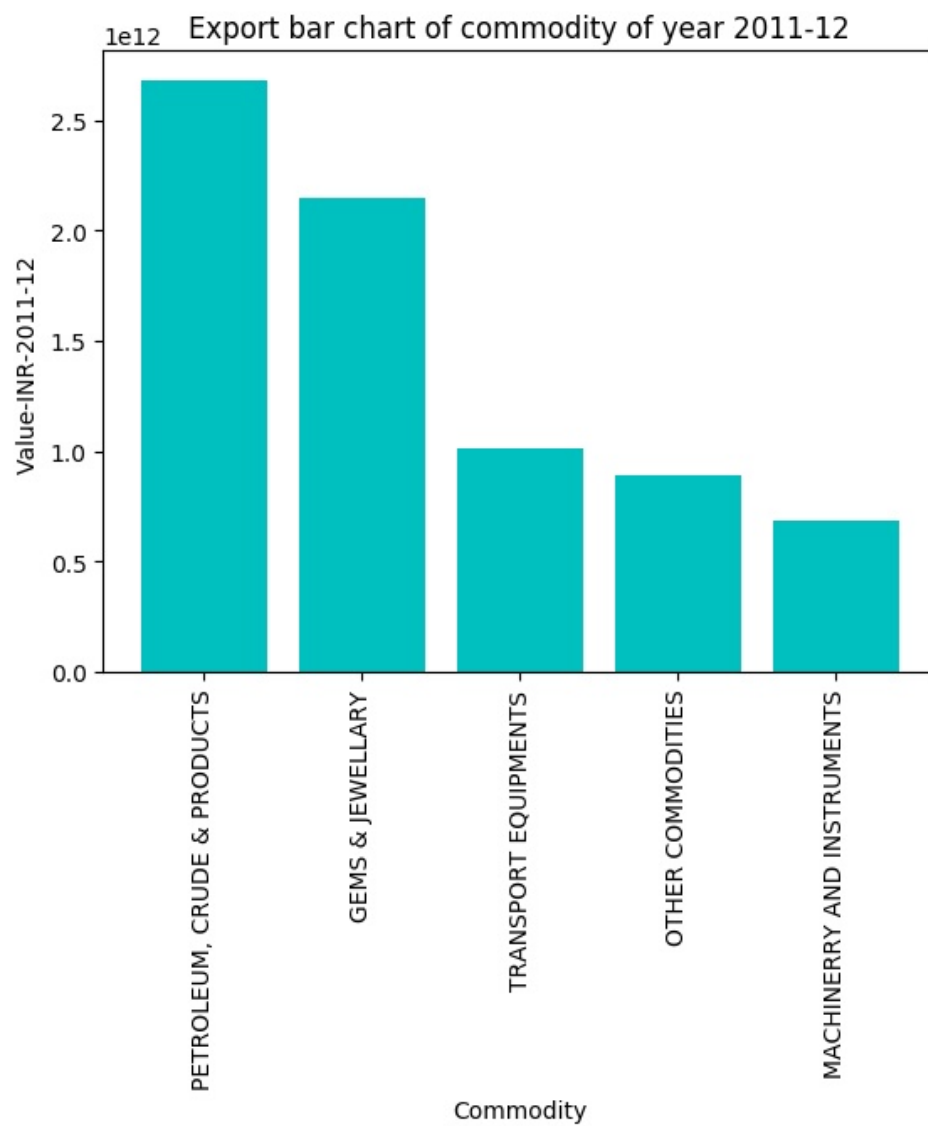


Figure 4: Export Bar Graph

Figure 4 shows Pie chart . It compare the export of top 5 commodities with respect to values.

3.3 Plot line

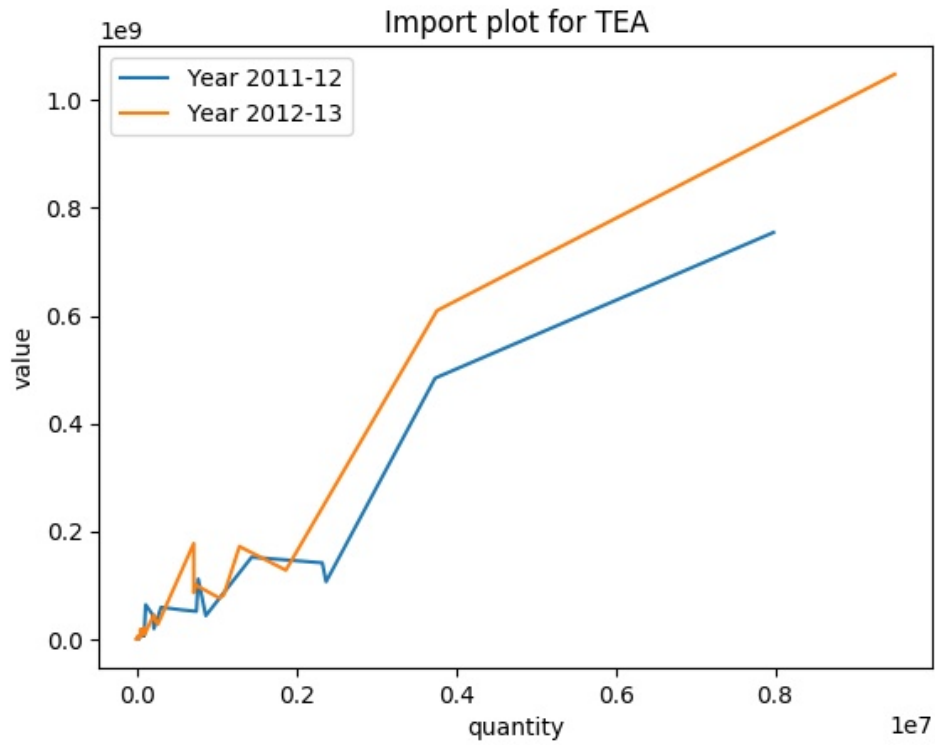


Figure 5: Import Plot Line for Tea

Figure 1 shows Plot line graph . It shows the quantity vs value plot of import for different years for the commodity TEA.

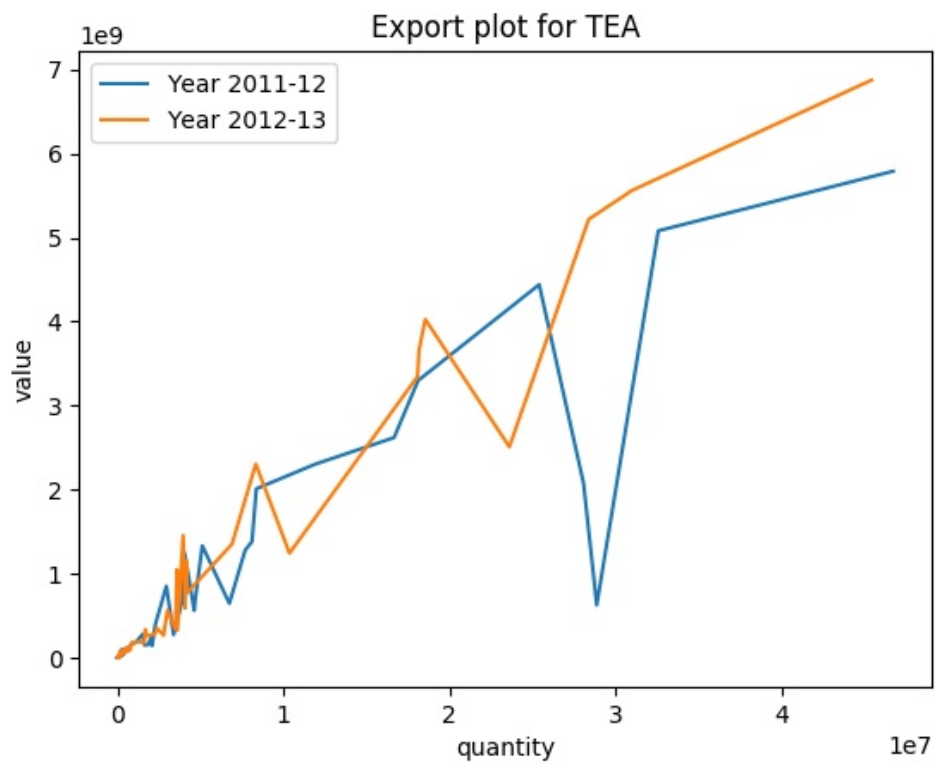


Figure 6: Export Plot Line for Tea

Figure 6 shows Plot line graph. It shows the quantity vs value plot of export for different years for the commodity TEA.

3.4 Scatter Plot

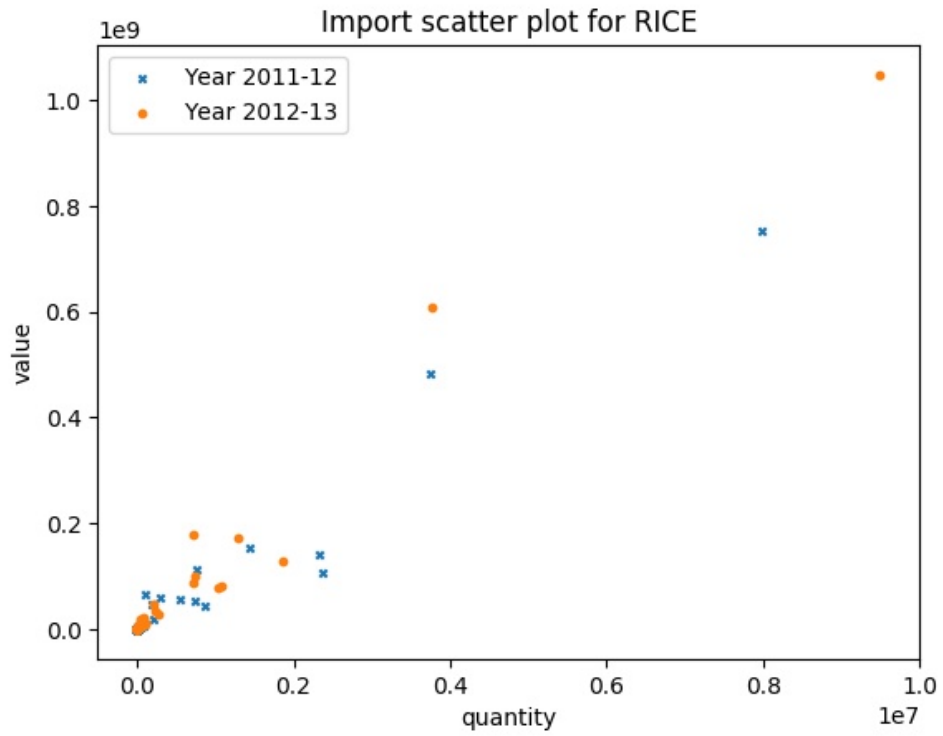


Figure 7: Import Scatter plot for Rice

Figure 7 shows Scatter Plot. It shows the quantity vs value scatter plot of import for different years for the commodity RICE.

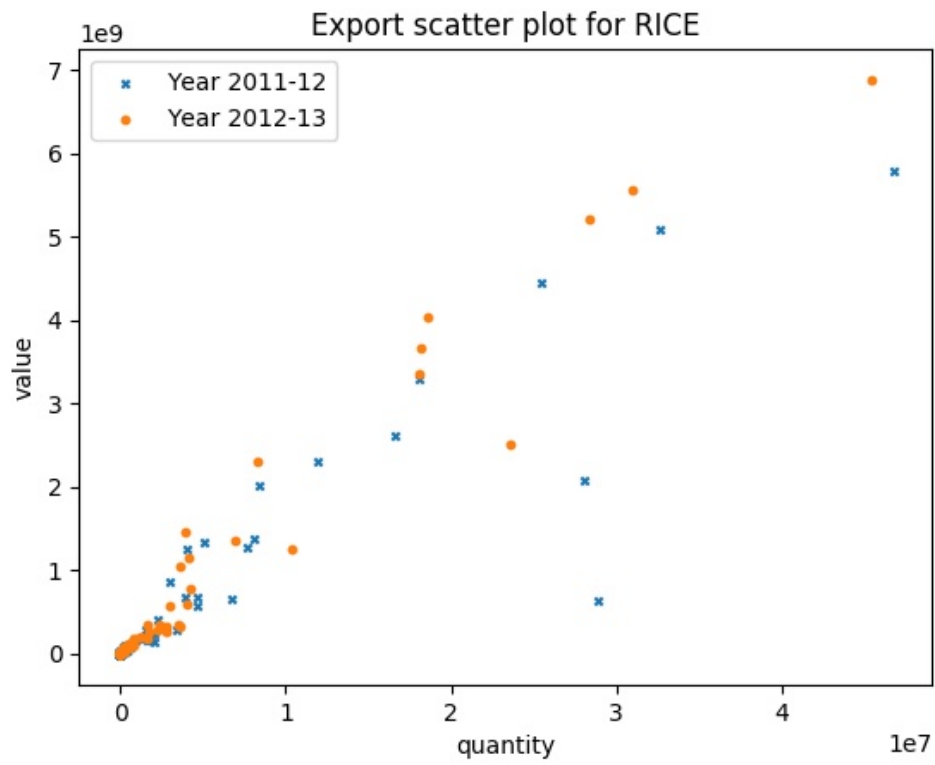


Figure 8: Export Scatter plot for Rice

Figure 8 shows Scatter Plot. It shows the quantity vs value scatter plot of export for different years for the commodity RICE.

3.5 Histogram

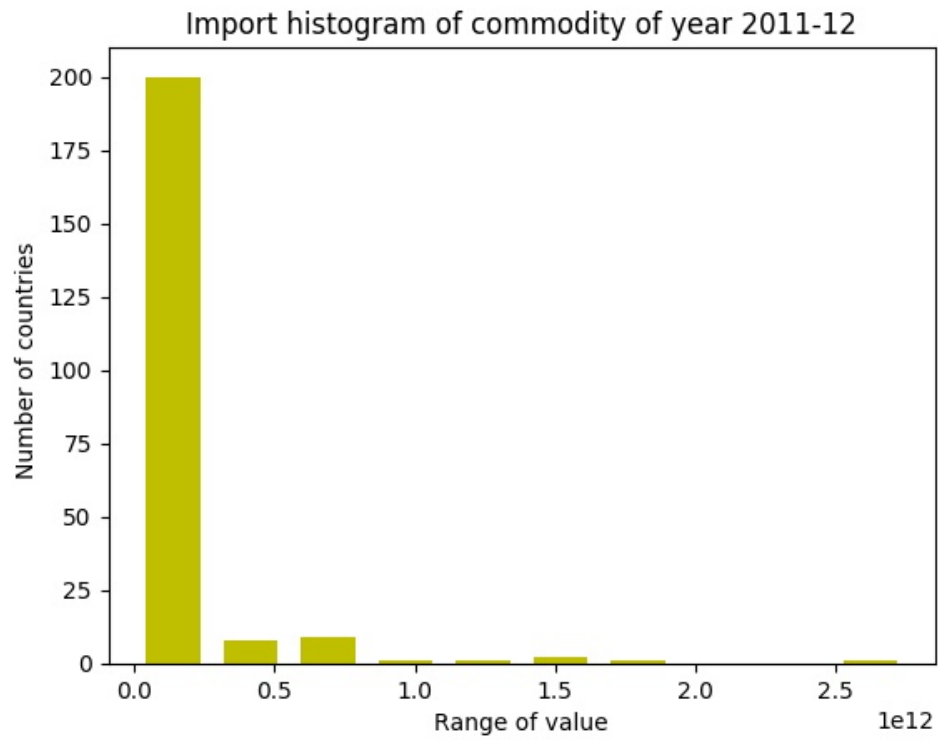


Figure 9: Import Scatter plot for Rice

Figure 9 shows Histogram. This histogram shows number of countries that import for specific range of values.

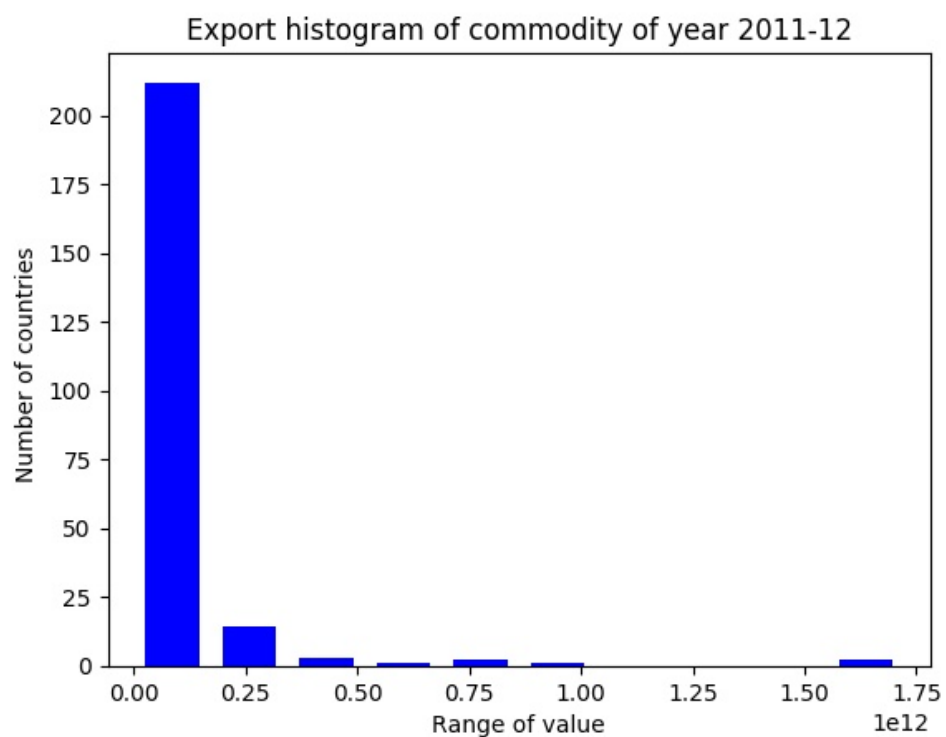


Figure 10: Export Scatter plot for Rice

Figure 10 shows Histogram. This histogram shows number of countries that export for specific range of values.

4 Mathematical Formula

4.1 Co relation Formula

$$cor = \frac{(\sum_{i=1}^n xy) - (\sum_{i=1}^n x)(\sum_{i=1}^n y)}{\sqrt{[n \sum_{i=1}^n x^2 - (\sum_{i=1}^n x)^2][n \sum_{i=1}^n y^2 - (\sum_{i=1}^n y)^2]}} \quad (1)$$

4.2 Combination

$$\binom{n}{k} = \frac{n!}{k!(n-k)!} \quad (2)$$

4.3 Integration

$$\int \frac{1}{\sqrt{1-(x)^2}} = \sin^{-1}x + c \quad (3)$$

4.4 Integration By Parts

$$\int v \frac{du}{dx} dx = uv - \int u \frac{dv}{dx} dx \quad (4)$$

5 Table

	index	Commodity	Country	Unit	Quantity-2011-12	Value-INR-2011-12	Quantity-2012-13	Value-INR-2012-13
0	242	TEA	GHANA	KGS	24740	2376296	0	0
1	260	TEA	OMAN	KGS	863875	43499659	0	0
2	269	TEA	SENEGAL	KGS	25560	3097004	0	0
3	232	TEA	BULGARIA	KGS	23760	2363662	0	0
4	238	TEA	CZECH REPUBLIC	KGS	20240	1065958	0	0
5	266	TEA	RUSSIA	KGS	13600	1982598	0	0
6	252	TEA	LUXEMBOURG	KGS	2500	1812176	0	0
7	261	TEA	PAKISTAN IR	KGS	1344	194681	0	0
8	224	TEA	ALBANIA	KGS	302	139530	0	0
9	225	TEA	ANTIGUA	KGS	25200	954815	0	0
10	272	TEA	SPAIN	KGS	90	26924	0	0
11	255	TEA	MEXICO	KGS	23	46062	0	0
12	265	TEA	PUERTO RICO	KGS	18	18182	0	0
13	263	TEA	PHILIPPINES	KGS	2	6335	0	0
14	246	TEA	ISRAEL	KGS	0	0	10	20690
15	231	TEA	BELGIUM	KGS	38515	3918695	45	29181
16	258	TEA	NETHERLAND	KGS	0	0	68	21533
17	229	TEA	BAHARAIN IS	KGS	0	0	72	11124
18	243	TEA	HONG KONG	KGS	1914	718882	205	100489
19	239	TEA	EGYPT A RP	KGS	0	0	361	222283
20	227	TEA	AUSTRALIA	KGS	8504	3585062	390	1082737
21	230	TEA	BANGLADESH PR	KGS	0	0	400	186039
22	228	TEA	AUSTRIA	KGS	8747	4382716	435	279033
23	240	TEA	FRANCE	KGS	328	190118	724	734413
24	233	TEA	CANADA	KGS	117	54721	1190	2868549
25	270	TEA	SINGAPORE	KGS	2745	445511	2196	900897
26	259	TEA	NIGERIA	KGS	0	0	2287	727901
27	264	TEA	POLAND	KGS	0	0	2380	412510
28	278	TEA	TURKEY	KGS	192	29343	3378	219549
29	277	TEA	THAILAND	KGS	26554	3819801	3520	1140135
30	234	TEA	CHILE	KGS	0	0	7703	1845903
31	235	TEA	TAIWAN	KGS	90130	5811797	10124	4577811
32	237	TEA	CROATIA	KGS	0	0	12000	2452140
33	254	TEA	MALAYSIA	KGS	89549	8429539	16771	3373767
34	247	TEA	ITALY	KGS	34620	6073987	22342	3601770
35	274	TEA	SWEDEN	KGS	0	0	24600	3635476
36	271	TEA	SOUTH AFRICA	KGS	46216	6606121	24837	4091225
37	256	TEA	MOZAMBIQUE	KGS	19500	1105418	25000	3143623
38	248	TEA	COTE D' IVOIRE	KGS	0	0	25025	2159435
39	282	TEA	UKRAINE	KGS	0	0	27625	2790567
40	251	TEA	KOREA RP	KGS	28072	5007017	28652	4294651
41	249	TEA	JAPAN	KGS	23829	2851395	35088	5410664
42	267	TEA	RWANDA	KGS	24500	4777177	42000	8610826
43	286	TEA	UNSPECIFIED	KGS	13340	2366318	44000	6070593
44	241	TEA	GERMANY	KGS	37446	7313960	44137	18263116
45	280	TEA	U ARAB EMTS	KGS	213832	19308708	56793	5923337
46	279	TEA	UGANDA	KGS	45960	4760287	70920	10377126
47	283	TEA	U S A	KGS	110243	63834911	70967	16629033
48	275	TEA	SWITZERLAND	KGS	1459	450548	88183	21607688
49	285	TEA	ZIMBABWE	KGS	0	0	93240	8790146
50	268	TEA	SAUDI ARAB	KGS	51924	6306172	107453	12032036
51	281	TEA	U K	KGS	193360	46256474	212267	45418018
52	276	TEA	TANZANIA REP	KGS	91280	7618679	235140	33778303
53	262	TEA	PAPUA N GNA	KGS	0	0	262800	27538489
54	273	TEA	SRI LANKA DSR	KGS	303770	59203851	712866	177600862
55	253	TEA	MALAWI	KGS	554120	54451319	713314	86122998
56	236	TEA	CHINA P RP	KGS	768909	111570421	736662	100479409
57	226	TEA	ARGENTINA	KGS	2324180	141630070	1031578	76419725
58	284	TEA	VIETNAM SOC REP	KGS	746250	51607297	1088139	81292795
59	244	TEA	INDONESIA	KGS	1437805	151993681	1285877	171952081
60	245	TEA	IRAN	KGS	2371693	106578227	1867517	127929594
61	250	TEA	KENYA	KGS	3738669	484114505	3762870	609421144
62	257	TEA	NEPAL	KGS	7979966	754340185	9499350	1047699721

Table 1: Tea import table

Table 1 represents the deatail of Tea import. It shows all the countriess from which teaa is imported along with quantity and value for the year 2011-12 and 2012-13.

6 Conclusion

From this assignment we learn how to analyse a given set of raw data according to various parameters and extract meaningful information from it.

7 Summary

This summary contains reference to all table, figure and sections:-

- *Section 1 Gives the intoduction of the Assingment*
- *Section 2 Gives the objective of the Assignment*
- *Section 3 Shows all the graphical analysis of the Assignment*
 - *Graph 1 is the pie chart for import*
 - *Graph 2 is the pie chart for export*
 - *Graph 3 is the bar chart for import*
 - *Graph 4 is the bar chart for export*
 - *Graph 5 is the plot line for tea import*
 - *Graph 6 is the plot line for tea export*
 - *Graph 7 is the scatter plot for rice import*
 - *Graph 8 is the scatter plot for rice export*
 - *Graph 9 is he histogtam of export (no of country vs range)*
 - *Graph 10 is he histogtam of export (no of country vs range)*
- *Section 4 Represent some complex mathematical formula*
 - *Formula 1 is the formula for co relation*
 - *Formula 2 is the formula for Combination*

- *Formula 3 is the formula for Integration*
 - *Formula 4 is the formula for Integration By parts*
- *Section 5 Contains a sub table of the data frame*
 - *Table 1 conatins in information about tea import*
- *Section 6 contains the conclusion if the assignment*
- *Section 7 contains summary of the assignment*