

**DASHBOARD TO ANALYZE IMPORT AND EXPORT  
ANALYSIS OF INDIA**

**MINI PROJECT REPORT**

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**22ADF01 DATA ANALYSIS**

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**22ADF01–Data Analysis Project Report**

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**EXAMINER I**

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## **ABSTRACT**

The import-export industry is important to the economy of the nation. A country participates in international trade when it purchases goods and services from another nation; by contrast, a nation participates in international trade when it sells goods and services to other nations. To balance and benefit one nation, it imports what it lacks and exports what it has in huge quantities. And that is how one way or the other, all the countries grow their economy. India is one of the growing countries and it's growing demand for consumer goods and services has also led to an increase in imports, while the continued growth of the Indian economy has allowed the country to become competitive in the global export market. This report shows a clear understanding of India's import and export by establishing charts and dashboard using the power BI service. The dataset "EXPORTS AND IMPORTS ANALYSIS OF INDIA" is taken from kaggle. Before using the data it should be cleaned, then the data is visualized. Data modeling is the act of creating a visual representation of a full information system or specific parts of it in order to express relationships between data points and structures. After preprocessing and modeling the data, the pie charts, bar charts, tree map, slicer and some other charts are created to understand the import and export of India by using a visualization field. Finally, the charts are uploaded in the power BI service to create the dashboards with slicer under some category and to make the analysis clear.

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Introduction**

The logistics involved in international trade are referred to as import and export. An import is a good or service that is made overseas and bought in your native nation. When native industries are unable to provide comparable goods and services affordably or effectively, customers are attracted to imported goods and services. Products and resources are less expensive to import frequently depending on free trade agreements and tariff schedules. A good or service that is exported is one that is produced in one nation but is sold to a customer abroad. Export is one of the earliest forms of trade and occurs often between nations. Exporting to new areas can increase sales and profits and even provide companies the possibility to capture a large portion of the global market. The Indian economy greatly benefits from international trade. International trade is important since the nation needs to import a variety of goods. India imports and exports the same number of goods in both ways. Let's look at the import and export data for India.

#### **History of Indian trade**

Trade agreements existed between ancient India and China, Europe, Iran, and Egypt. India joined the Commonwealth of Nations in 1947, after its freedom from the British. However, the economy of the nation was closed. The government kept a watchful eye on imports and exports. India's economy was modernized following that. No one has turned around since then. In this sense, the word "Indian Trade" refers to the participants of India in the trade. India showed improvement than other modern undeveloped nations in terms of trade volume and the variety of commodities joining trading lists.

#### **Current Indian trade**

India imported 367 million in thousands of dollars and exported 275 million in thousands of dollars. The top fifteen trading partners of India account for 60% of its overall trade. US, China, Hong Kong, Singapore, UK, Bangladesh, Germany, Netherlands, Nepal, Malaysia, Italy, and Saudi

Arabia are a few of these. According to the trading partner agreements, all of these Indian trading partners import and export goods to India.

### **India's major import and export**

Crude oil, electronic equipment, gold, silver, electrical machinery and equipment, electronic equipment, including computers, iron and steel, organic and inorganic chemicals, and electronic products and machinery are India's top imports. Refined petroleum, jewelry, ready-to-wear clothing, ready-to-eat foods, packaged medications, vehicles and other forms of transportation, ready-to-eat foods, cotton, ready-to-eat foods, ready-to-eat foods, and ready-to-eat foods are among India's top exports. India's growing demand for consumer goods and services has also led to an increase in imports, while the continued growth of the Indian economy has allowed the country to become competitive in the global export market.

### **Analysis of import and export using power bi**

Power BI is a software that is developed by Microsoft. It is used to visualize the data which mainly focus on business intelligence. Power BI is the cluster of computer programs, applications, and connectors that analyze different and unrelated data sources and provide useful insights and conclusions.

**Power BI desktop :** It is a Microsoft Business Intelligence which helps the users to import, analyze and create reports for the data which has more complex information and the data from a number of sources. Small and medium-sized enterprises often utilize Power BI Desktop, which is a free Windows-based program for PCs and laptops.

**Power BI service :** Power BI Service is an online Software as a Service application for developing and visualizing dashboards and reports.

Here the Power BI Desktop is used to create the pie charts, bar charts, tree map etc... using the visualization field to make insight about the data. And the Power Bi Service is used to create a dashboard to make them look better.

## 1.2 Data collection

Data collection is the procedure of collecting, measuring and Analyzing accurate insights for research using standard validated techniques.

<https://www.kaggle.com/datasets/rajanand/import-and-export-by-india>

The dataset was provided by the Kaggle challenge. Users of Kaggle have access to data sets that they may search and share, analyze, and build models in a web-based data science environment, collaborate with other data scientists and machine learning experts, and participate in competitions to solve data science objectives.

The dataset is available in Excel format. The data is directly downloaded from Kaggle. For better understanding of the imports and exports by India, the data is available by principle commodity and country wise for 3 years from Apr '2014 to Mar'2017. There are 6 tables in which three of the tables are for import and the other three tables for export data.

1. PC\_Export\_2014\_2015
2. PC\_Export\_2015\_2016
3. PC\_Export\_2016\_2017
4. PC\_Import\_2014\_2015
5. PC\_Import\_2015\_2016
6. PC\_Import\_2016\_2017

Each table contains seven attributes. The attributes are

1. pc\_code : Integer, Principle Commodity Code
2. pc: String, Principal Commodity Name
3. unit: String, measurement of quantity
4. country\_code: Integer, country code
5. country\_name: String, country name
6. quantity: Integer, quantify of export or import
7. value: Integer, monetary value of the quantity (in million USD)

### **1.3 Problem statement**

Maintaining the proper balance between import and export is essential for a country and to reduce the Indian import expenditure and raise its profit through exports. A country's import and export activities can have an impact on its GDP, exchange rate, degree of inflation, and interest rates. They will benefit from it as the economy of our nation grows. For that, the comparison of the products that India imports from other countries and try to reduce the import of some products by producing that product on our own, but it can be done only with the help of clear knowledge about the past records of import and export of our country. So analyzing this data will give a clear insight about the products which are included in imports and exports, it will lead to improve the country's economy.

### **1.4 Business objective**

1. From the analysis the production of the highly exporting products increases.
2. From the analysis, the imports from other countries decrease to increase our economy.
3. Introduce some new products according to the demand of the previous product.



## CHAPTER 2

### DATA PREPARATION AND MODELING

#### 2.1 Data cleaning

Data cleansing is the process of deleting, altering, or manipulating data to enhance its quality and accuracy before it is used for analysis. Errors are fixed, duplications are eliminated, and missing data are filled in to achieve this. Data cleaning ensures that the data is correct and reliable before any analysis is done on it, making it a crucial step in the data analysis process. When it comes to data analysis, this information is typically not required or useful because it could impede the process or produce unreliable results. Data cleaning is not just about deleting data to create room for new data; rather, it is about figuring out how to increase an accuracy set without necessarily deleting data.

#### 2.2 Data transformation

The process of data transformation consists of several sub-processes including cleaning, standardization, deduplication, verification, sorting, and other duties. Transformation is generally considered to be the most important part of the ETL process. By deleting duplicates and ensuring that raw data arrives at its new location reasonably satisfied and ready for use, data transformation promotes data integrity.

#### ETL Process

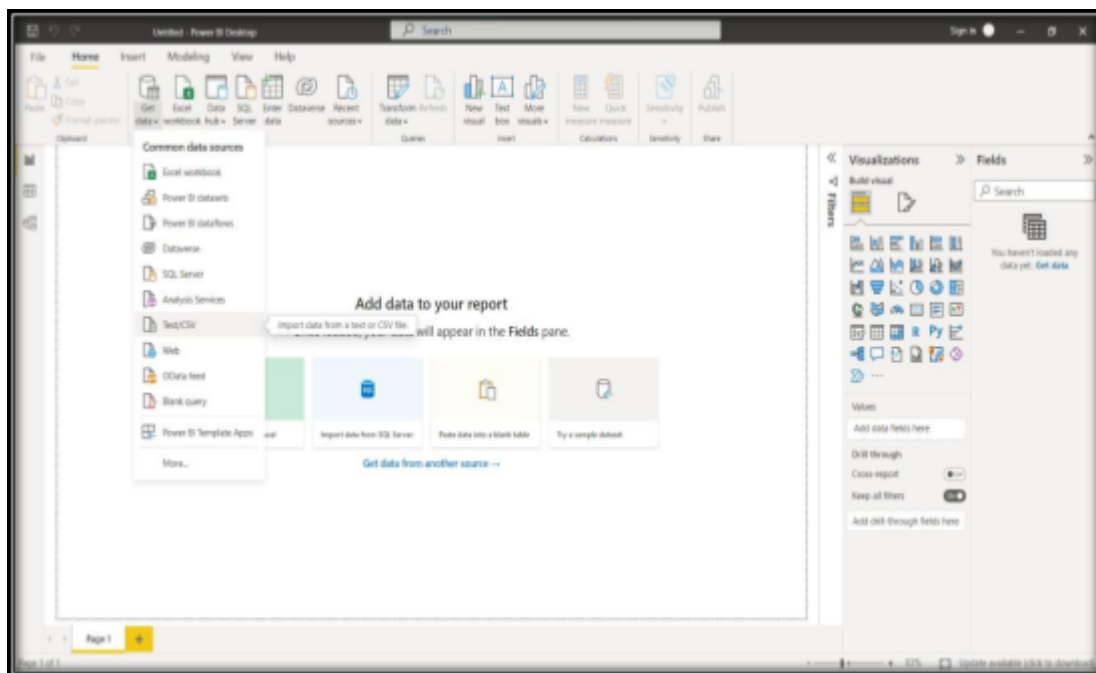
**Extraction** - The majority of firms utilize a variety of data analysis techniques to develop business intelligence while working with data from numerous sources. The data needs to be free to move between platforms and apps in order to implement such a complicated data approach. Data must first be extracted from its original sources, such as a data warehouse or data lake, before it can be moved to a new location. Both structured and unstructured data are imported and combined into a single repository in this initial step of the ETL process..

**Transformation** - Sorting and normalizing the data in the database or data warehouse keeps some or all of it on hand and available for customized reporting. Although there is more cost associated with holding this much data, there are more opportunities to mine it for useful business intelligence in close to real-time.

**Loading-** The final stage of the ETL procedure is data loading into the target data storage database. Typically, a large volume of data must be loaded into a database system in a little amount of time (nights). Therefore, performance optimization should be applied to the load process. In case of load failure, recovery mechanisms should be configured to restart from the point of failure without data integrity loss. Data Warehouse admins need to monitor, resume, and cancel loads as per prevailing server performance.

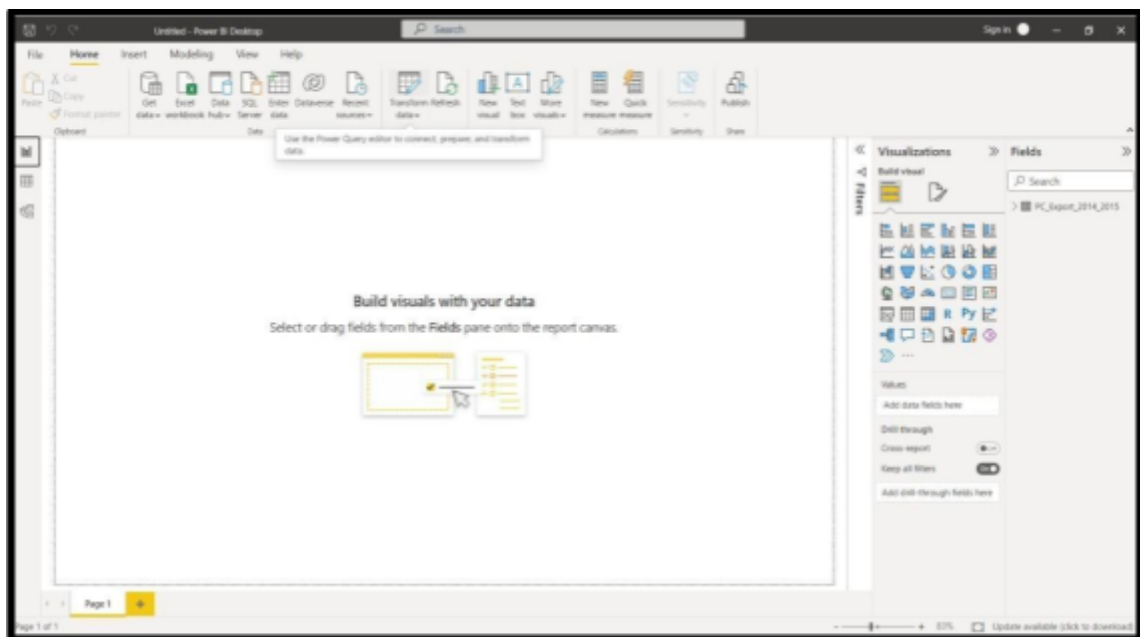
### Steps involved in transformation are

1. Load the data into the Power BI Desktop by using get data in the top of the screen.



**Figure: 2.1 Loading the data into Power BI**

- Then go to the Power Query Editor by clicking transform data in the ribbon at the home tab.



**Figure: 2.2 Transformation of data**

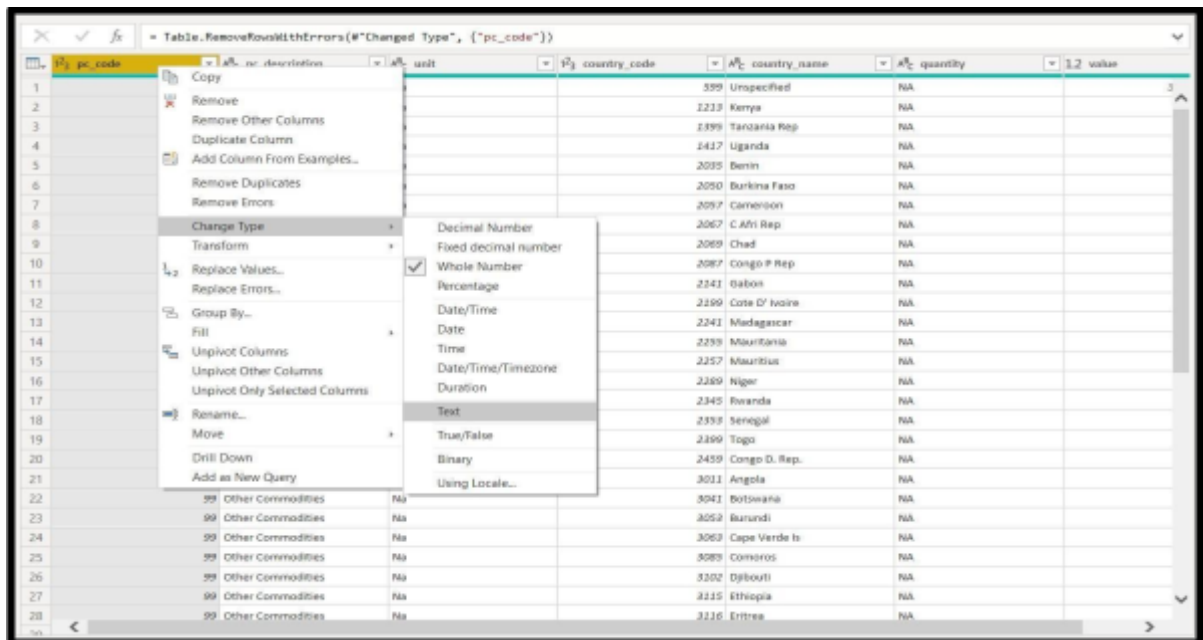
- Make an insight of data and be sure that the column names are used as header, if not change the first row as header.

The screenshot shows the Microsoft Power BI Desktop application with the 'Transform' tab selected in the ribbon. The 'Use First Row as Headers' button is highlighted. The main canvas displays a table of data with the following columns: pc\_code, pc\_description, unit, country\_code, country\_name, quantity, and value. The first row of data is highlighted in yellow.

pc_code	pc_description	unit	country_code	country_name	quantity	value
1	tea	Kgs	2277647	Kenya	4.276186	
2	tea	Kgs	1095	Tanzania Rep	0.004961	
3	tea	Kgs	1417	Uganda	0.064078	
4	tea	Kgs	2035	Burkina Faso	0.928308	
5	tea	Kgs	2050	Burkina Faso	0.358694	
6	tea	Kgs	2057	Cameroun	0.003121	
7	tea	Kgs	2087	Congo P Rep	0.195797	
8	tea	Kgs	2141	Gabon	0.084173	
9	tea	Kgs	2196	Cote D' Ivoire	0.881743	
10	tea	Kgs	2257	Mauritius	0.3819	
11	tea	Kgs	2289	Niger	0.099108	
12	tea	Kgs	2353	Senegal	0.884054	
13	tea	Kgs	2399	Togo	0.967152	
14	tea	Kgs	2459	Congo D. Rep.	0.153834	
15	tea	Kgs	3013	Angola	0.001098	
16	tea	Kgs	3043	Botswana	0.002887	
17	tea	Kgs	3116	Eritrea	0.018333	
18	tea	Kgs	3143	Gambia	0.007661	
19	tea	Kgs	3148	Ghana	1.232927	
20	tea	Kgs	3167	Guinea	0.110971	
21	tea	Kgs	3229	Liberia	0.001594	
22	tea	Kgs	3243	Malawi	0.001231	
23	tea	Kgs	3249	Mali	0.060506	
24	tea	Kgs	3267	Mozambique	0.01392	
25	tea	Kgs	3293	Nigeria	1.074481	
26	tea	Kgs	3339	Reunion	0.053127	
27	tea	Kgs	3355	Seychelles	0.02689	

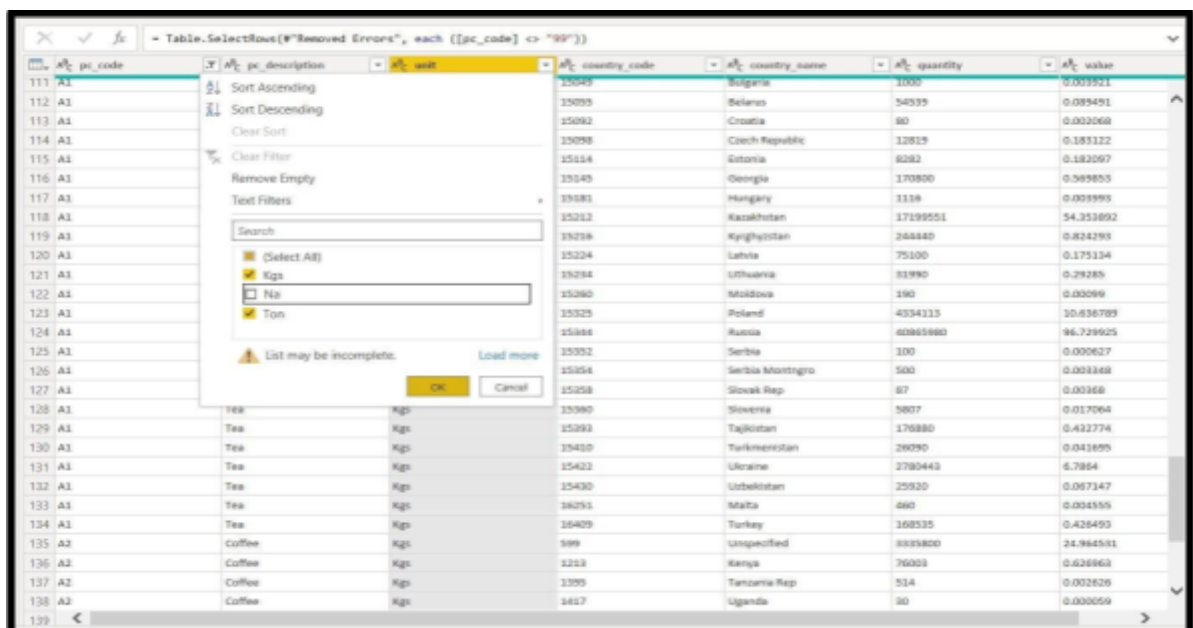
**Figure: 2.3 Changing the first row as header**

4. It is necessary to check all the fields are in the correct data type. The datatype of `pc_code` is changed from number to integer, and the field quantity is converted into whole numbers for easy use.



### Figure: 2.4 changing the datatype

5. Removing null values plays an important role in accuracy. The value NA is removed from the units.



### Figure: 2.5 Removal of null values

6. While changing from one type to another type or removing null values, there may be possibilities of occurring errors. And it needs to be removed for better

pc_code	pc_description	unit	country_code	country_name	quantity	value
	incommodities	Na	389	Unspecified	NA	371.289831
	incommodities	Na	3238	Kenya	NA	18.251365
	incommodities	Na	3385	Tanzania Rep	NA	21.8443
	incommodities	Na	3437	Uganda	NA	8.896805
	incommodities	Na	3035	Benin	NA	1.812688
	incommodities	Na	2090	Burkina Faso	NA	0.388851
7 99	Other Commodities	Na	2057	Cameroon	NA	0.893831
8 99	Other Commodities	Na	2087	C. Afr. Rep.	NA	0.520455
9 99	Other Commodities	Na	3049	Chad	NA	0.300746
10 99	Other Commodities	Na	2087	Congo P. Rep.	NA	1.925544
11 99	Other Commodities	Na	2341	Gabon	NA	0.389981
12 99	Other Commodities	Na	2299	Cote D'ivoire	NA	2.01028
13 99	Other Commodities	Na	2341	Madagascar	NA	0.526892
14 99	Other Commodities	Na	2295	Mauritania	NA	0.179651
15 99	Other Commodities	Na	2257	Mauritius	NA	2.165696
16 99	Other Commodities	Na	2289	Niger	NA	0.254779
17 99	Other Commodities	Na	2949	Rwanda	NA	0.894902
18 99	Other Commodities	Na	2253	Senegal	NA	0.583421
19 99	Other Commodities	Na	2399	Togo	NA	1.836732
20 99	Other Commodities	Na	2459	Congo D. Rep.	NA	1.552282
21 99	Other Commodities	Na	3031	Angola	NA	0.862527
22 99	Other Commodities	Na	3045	Botswana	NA	0.250752
23 99	Other Commodities	Na	3035	Demond	NA	2.800889
24 99	Other Commodities	Na	3042	Cape Verde Is.	NA	0.127725
25 99	Other Commodities	Na	3085	Comoros	NA	0.257967
26 99	Other Commodities	Na	3352	Djibouti	NA	0.228739
27 99	Other Commodities	Na	3325	Ethiopia	NA	4.334386
28 99	Other Commodities	Na	3136	E. Timor	NA	0.388851

accuracy.

**Figure: 2.6 Removing the errors**

7. Then the important and required values should be selected for better understanding of those values. Here the required and essential commodities are taken.

pc_code	pc_description	unit	country_code	country_name	quantity	value
	incommodities	Na	389	Unspecified	NA	371.289831
	incommodities	Na	3238	Kenya	NA	18.251365
	incommodities	Na	3385	Tanzania Rep	NA	21.8443
	incommodities	Na	3437	Uganda	NA	8.896805
	incommodities	Na	3035	Benin	NA	1.812688
	incommodities	Na	2090	Burkina Faso	NA	0.388851
7 99	Other Commodities	Na	2057	Cameroon	NA	0.893831
8 99	Other Commodities	Na	2087	C. Afr. Rep.	NA	0.520455
9 99	Other Commodities	Na	3049	Chad	NA	0.300746
10 99	Other Commodities	Na	2087	Congo P. Rep.	NA	1.925544
11 99	Other Commodities	Na	2341	Gabon	NA	0.389981
12 99	Other Commodities	Na	2299	Cote D'ivoire	NA	2.01028
13 99	Other Commodities	Na	2341	Madagascar	NA	0.526892
14 99	Other Commodities	Na	2295	Mauritania	NA	0.179651
15 99	Other Commodities	Na	2257	Mauritius	NA	2.165696
16 99	Other Commodities	Na	2289	Niger	NA	0.254779
17 99	Other Commodities	Na	2949	Rwanda	NA	0.894902
18 99	Other Commodities	Na	2253	Senegal	NA	0.583421
19 99	Other Commodities	Na	2399	Togo	NA	1.836732
20 99	Other Commodities	Na	2459	Congo D. Rep.	NA	1.552282
21 99	Other Commodities	Na	3031	Angola	NA	0.862527
22 99	Other Commodities	Na	3045	Botswana	NA	0.250752
23 99	Other Commodities	Na	3035	Demond	NA	2.800889
24 99	Other Commodities	Na	3042	Cape Verde Is.	NA	0.127725
25 99	Other Commodities	Na	3085	Comoros	NA	0.257967
26 99	Other Commodities	Na	3352	Djibouti	NA	0.228739
27 99	Other Commodities	Na	3325	Ethiopia	NA	4.334386
28 99	Other Commodities	Na	3136	E. Timor	NA	0.388851

**Figure:2.7 Selecting the important commodities**

8. Finally, close the Power Query Editor and apply the changes to use the data for analyzing the import and export of India.

## DAX function

Data Analysis Expressions (DAX), a package of expressions, functions, operators, and constants, that helps users to create tables, columns, and measurements. DAX function is used to yield one or more values that make a relationship between the variables of the data and used for the data analysis process. The existing model is used to create the new information about the data. For this import and export dataset, some of the measures are

**Measure :** 2014 to 2015 max sale = `MAX(PC_Export_2014_2015[Total sales])`

pc_code	pc_description	unit	country_code	country_name	quantity	value	total sales
0	Organic Chemicals	Kg	5113	Kenya	1230508	13.080109	23402424.043
0	Organic Chemicals	Kg	1230	Tanzania Rep	2204700	4.867227	35240976.333
0	Organic Chemicals	Kg	1417	Uganda	800700	6.389913	2579189.733
0	Organic Chemicals	Kg	2020	Benin	8	0.000007	0.003
0	Organic Chemicals	Kg	2054	Burkina Faso	4000	0.000013	18.524
0	Organic Chemicals	Kg	2057	Cameroon	193400	6.521488	62117.499
0	Organic Chemicals	Kg	2067	Congo P Rep	120000	8.136410	57495.139
0	Organic Chemicals	Kg	1149	Cote D'Ivoire	1716000	3.576479	4620163.503
0	Organic Chemicals	Kg	1141	Madagascar	400000	0.344304	159463.633
0	Organic Chemicals	Kg	1150	Mauritania	500	0.000410	10.709
0	Organic Chemicals	Kg	1157	Mauritius	171700	0.113603	27125.859
0	Organic Chemicals	Kg	1168	Niger	2000	0.000733	8.509
0	Organic Chemicals	Kg	1145	Rwanda	14900	0.000184	868.109
0	Organic Chemicals	Kg	1153	Senegal	231104	0.490399	114044.179
0	Organic Chemicals	Kg	1138	Togo	804176	0.794112	478899.079
0	Organic Chemicals	Kg	2438	Congo R. Rep.	184304	0.626302	119112.333
0	Organic Chemicals	Kg	5012	Angola	751195	1.050608	20812.943
0	Organic Chemicals	Kg	3042	Botswana	1175	0.000124	0.457
0	Organic Chemicals	Kg	3013	Burundi	28154	0.000004	2703.967
0	Organic Chemicals	Kg	1130	Dominican	100000	0.180011	10800.509
0	Organic Chemicals	Kg	1115	Ethiopia	1515000	2.501100	2762497.159
0	Organic Chemicals	Kg	1143	Gambia	88000	0.070804	2367.312
0	Organic Chemicals	Kg	1149	Ghana	870800	2.091231	1777287.979
0	Organic Chemicals	Kg	1187	Greece	80000	0.000008	2088.217
0	Organic Chemicals	Kg	1129	Liberia	68000	0.125115	8645.447
0	Organic Chemicals	Kg	1140	Malawi	34000	0.149513	24190.059
0	Organic Chemicals	Kg	1149	Mali	267	0.007872	22.792
0	Organic Chemicals	Kg	1167	Moldova	188615	0.160100	66902.802

Figure: 2.8 DAX function for maximum total sales

**Measure :** 2014 to 2015 min sale = `MIN(PC_Export_2014_2015[Total sales])`

Figure 2.9 shows the Power BI Desktop interface with the DAX measure `2014 to 2015 min sale = MIN(PC_Export_2014_2015[Total sales])` applied. The table view displays the following data:

pc_code	pc_description	unit	country_code	country_name	quantity	value	Total sales
13	Organic Chemicals	Kgs	2213	Kenya	2229590	13.880339	259433424.843
18	Organic Chemicals	Kgs	2185	Tanzania Rep	8186700	4.887227	262403676.832
19	Organic Chemicals	Kgs	1417	Uganda	815730	6.588913	5375588.731
19	Organic Chemicals	Kgs	2035	Benin	8	0.000087	0.002
19	Organic Chemicals	Kgs	2050	Burkina Faso	4039	0.003613	24.524
19	Organic Chemicals	Kgs	2057	Cameroon	299842	0.521486	42327.489
19	Organic Chemicals	Kgs	2087	Congo P Rep	128005	0.136433	17454.109
19	Organic Chemicals	Kgs	2189	Cote d' Ivoire	1718068	2.576475	4420832.522
19	Organic Chemicals	Kgs	2241	Madagascar	403309	0.344364	139440.631
19	Organic Chemicals	Kgs	2255	Mauritania	520	0.005439	20.700
19	Organic Chemicals	Kgs	2257	Mauritius	173758	0.213863	37525.636
19	Organic Chemicals	Kgs	2289	Niger	2080	0.002769	8.504
19	Organic Chemicals	Kgs	2345	Rwanda	34910	0.000704	806.289
19	Organic Chemicals	Kgs	2353	Senegal	231234	0.493199	114044.378
19	Organic Chemicals	Kgs	2399	Togo	804376	0.794113	472896.679
19	Organic Chemicals	Kgs	2489	Congo D. Rep.	384384	0.626202	114112.583
19	Organic Chemicals	Kgs	3011	Angola	771285	1.081808	838812.342
19	Organic Chemicals	Kgs	3041	Botswana	1175	0.00124	2.457
19	Organic Chemicals	Kgs	3053	Burundi	29156	0.058854	1715.347
19	Organic Chemicals	Kgs	3102	Djibouti	303609	0.184011	24836.349
19	Organic Chemicals	Kgs	3131	Ethiopia	1515009	2.501739	3790297.198
19	Organic Chemicals	Kgs	3143	Gambia	29856	0.071954	2947.511
19	Organic Chemicals	Kgs	3149	Ghana	870855	2.041231	3777207.879
19	Organic Chemicals	Kgs	3167	Guinea	30227	0.088258	2096.257
19	Organic Chemicals	Kgs	3229	Liberia	69130	0.125115	8645.447
19	Organic Chemicals	Kgs	3243	Malawi	94909	0.149519	24236.899
19	Organic Chemicals	Kgs	3249	Mal	267	0.047872	12.762
19	Organic Chemicals	Kgs	3267	Mozambique	188025	0.344195	64920.240

**Figure: 2.9 DAX function for minimum total sales**

**Measure :** avg of export from 2014 to 2015 = `AVERAGE(PC_Export_2014_2015[Total sales])`

Figure 2.10 shows the Power BI Desktop interface with the DAX measure `avg of export from 2014 to 2015 = AVERAGE(PC_Export_2014_2015[Total sales])` applied. The table view displays the same data as Figure 2.9, but the measure is now applied to the 'Total sales' column.

**Figure: 2.10 DAX function for average total sales**

## Calculated columns

Calculated columns are the columns that are created to add new information about the data in the existing dataset by using DAX function. Unlike DAX function calculated column returns separate value for each rows

**Columns :** Total sales = (PC\_Export\_2014\_2015[quantity])\*(PC\_Export\_2014\_2015[value])

The screenshot shows the Power BI Desktop interface. The 'Columns tools' ribbon is active, displaying the formula bar with the DAX formula: `Total sales = (PC_Export_2014_2015[quantity])*(PC_Export_2014_2015[value])`. Below the formula bar, a table is displayed with the following columns: `pc_code`, `pc_description`, `unit`, `country_code`, `country_name`, `quantity`, `value`, and `Total sales`. The table contains 20 rows of data for various countries including Kenya, Tanzania, Uganda, Benin, Burkina Faso, Cameroon, Congo P Rep, Cote D'ivoire, Madagascar, Mauritania, Mauritius, Niger, Rwanda, Senegal, Togo, Congo D. Rep., Angola, Botswana, Burundi, Djibouti, Ethiopia, Gambia, Ghana, Guinea, Liberia, Malawi, Mali, and Mozambique. The 'Total sales' column shows the calculated values for each row. The Fields pane on the right shows the table structure with columns: `country_code`, `country_name`, `pc_code`, `pc_description`, `quantity`, `unit`, `value`, and `Total sales`.

**Figure: 2.11 Calculated column for total sales**

## Calculated tables

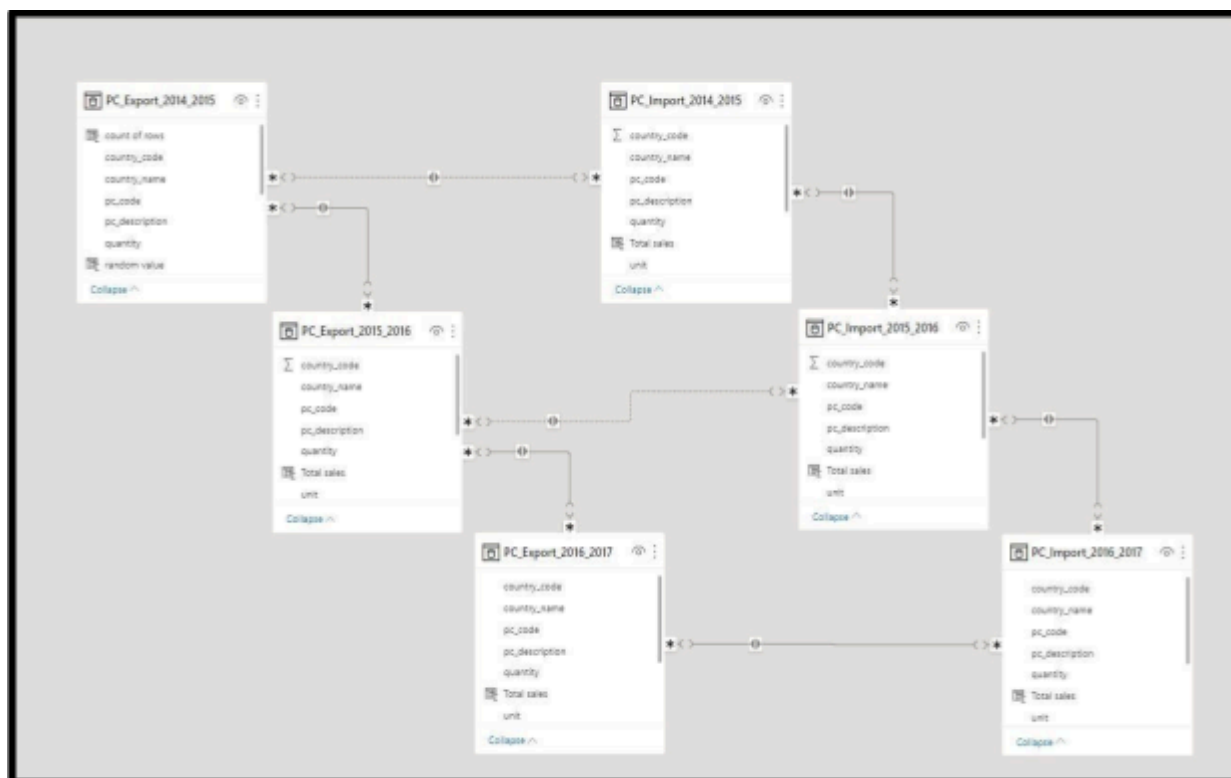
The flexibility to add new tables based on data that are already entered into the model is given by calculated tables. In order to set the values of the table, there is a need to construct a Data Analysis Expressions (DAX) formula rather than querying and loading data into the columns of your new table from a data source. Likewise, the measures and calculated columns are created for all the six tables.



## 2.4 Data modeling

Data modeling is the act of creating a visual representation of a full information system or specific parts of it in order to express relationships between data points and structures. The goal is to show how various types of data are used and stored within the system, the connections between these various types of data, the various ways that data can be organized and classified, as well as its formats and features. Data models are created to meet business requirements. Prior to the design of a new system or during an iteration of an existing one, rules and requirements are developed through input from business stakeholders.

In the import and export dataset which contains six tables, where all the attributes of each table are interrelated with each other. The main attributes are pc\_code and country\_code. The attribute pc\_code says how other countries import and export commodities to and from India. It is used to analyze the top commodities imported and exported from India. Similarly, the country\_code represents the countries who are the partners of Indian trade.



**Figure: 2.12 Data modeling**

## **CHAPTER 3**

### **DATA ANALYSIS AND INTERPRETATION**

#### **3.1 Data analysis**

Data analysis is the process of modifying, processing, and cleaning raw data in order to obtain useful, relevant information that supports business decision-making. The process offers helpful insights and statistics, frequently presented in charts, graphics, tables, and graphs, which minimize the risks involved in making decisions.

Power Bi tool is used to make the charts in order to analyze India's import and export, estimate the value, and find key facts about the trade. For the analysis, the data are divided into 3 categories.

##### **1. Total sales**

- Which country is most profitable for the year 2014 to 2015?
- Compare the total sales of imports for all the three years.
- Give the maximum sales for import and export based on the year.
- Compare the average sales for the export between the year 2014 to 2015 and 2015 to 2016.
- Which product has the most profit based on the total sales?

##### **2. Products**

- List the top 3 countries which export marine products for the year 2016 to 2017.
- How many countries export tea and sugar based on the year.
- What are the countries that export petroleum products?
- Which country imports the largest quantity of iron and steel exported from India ?

##### **3. Country**

- Which country imports a large amount of vegetable oil?
- What are the countries that import minimum products from India?
- Which country exports a mass quantity of product?
- Which unit is mostly transported to a country?

## CHARTS

1. Which country is most profitable for the year 2014 to 2015 ?

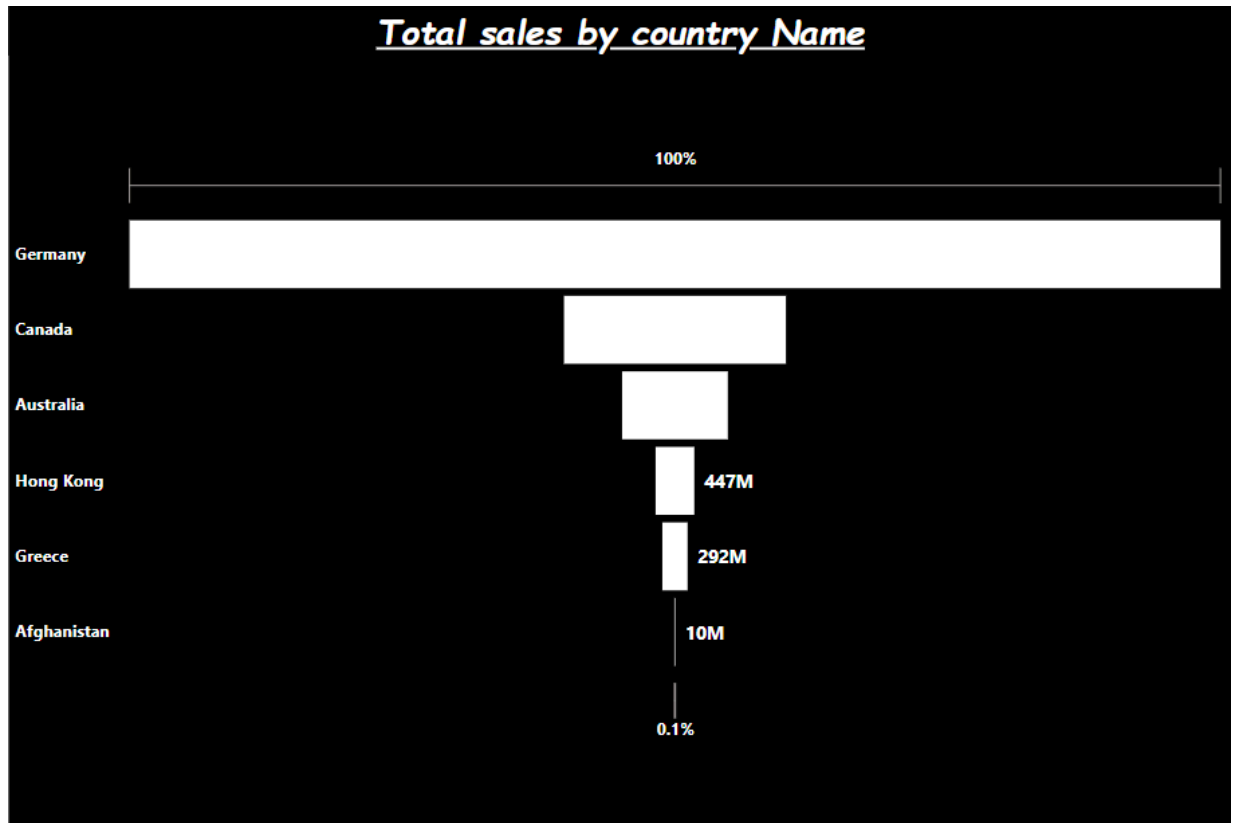


Figure: 3.1 Country based in total sales

2. Compare the total sales of imports for all the three years.

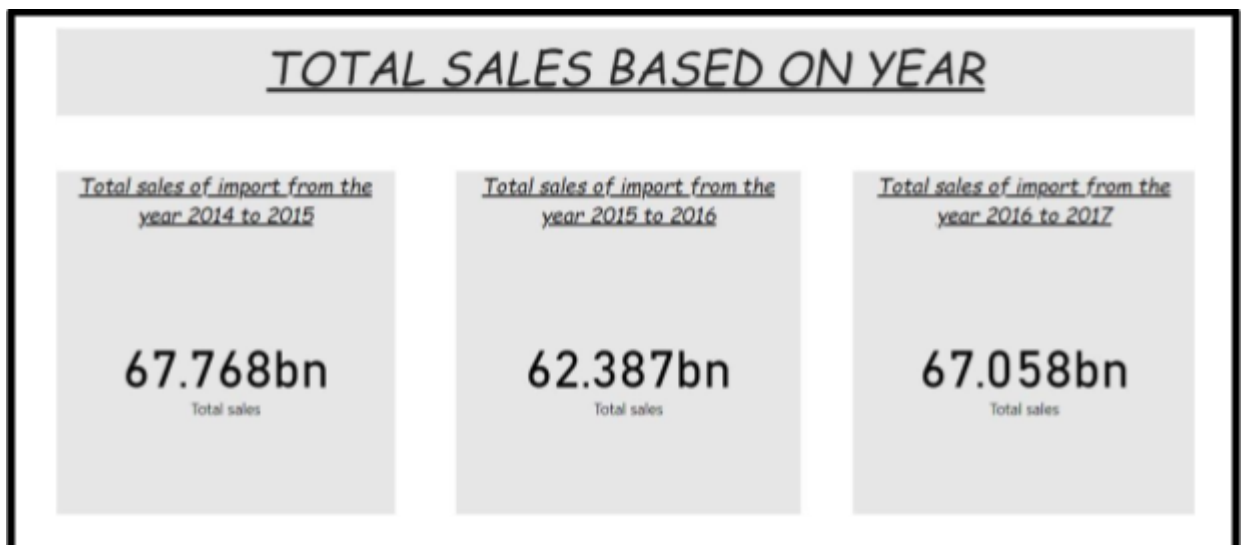


Figure: 3.2 Total sales by year

3. Give the maximum sales for import and export based on the year.

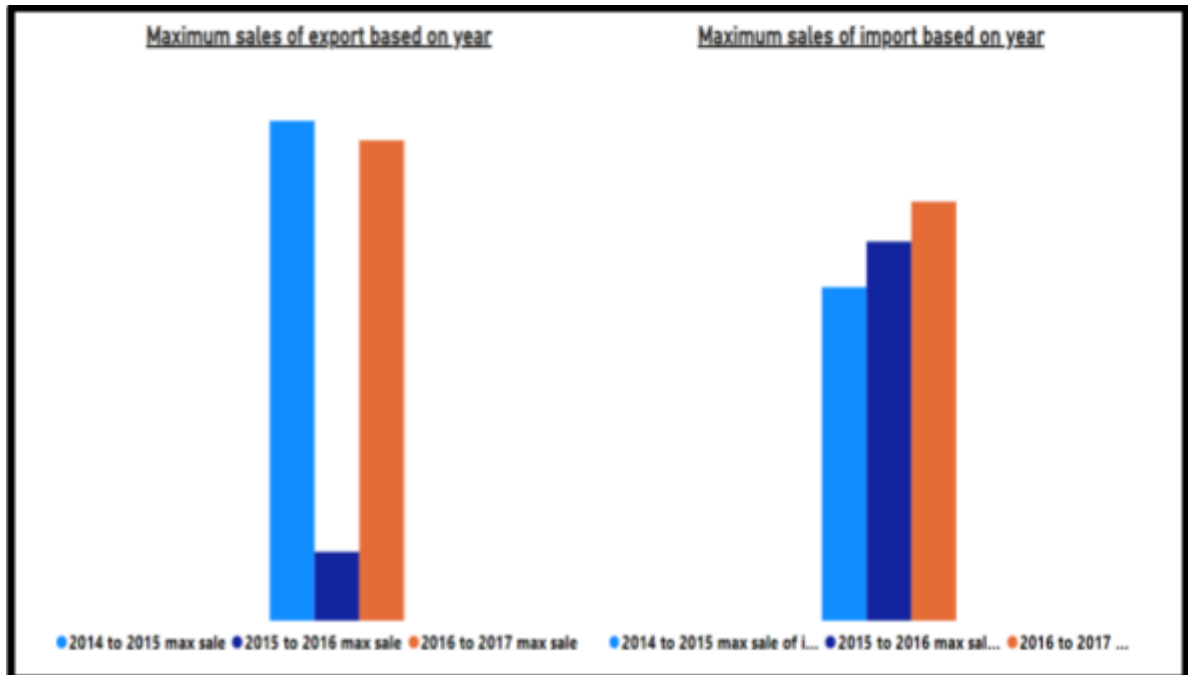


Figure: 3.3 Maximum sales for import

4. Compare the average sales for the export between the year 2014 to 2015 and 2015 to 2016.

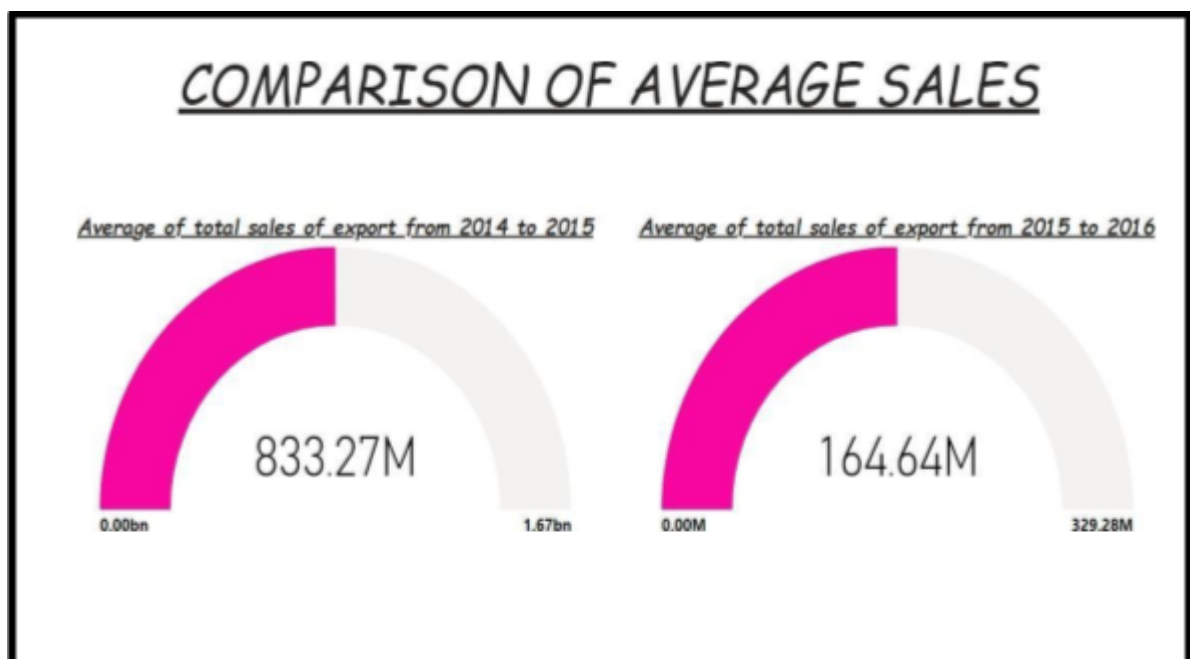


Figure: 3.4 Comparison of average sales

5. Which product has the most profit based on the total sales?

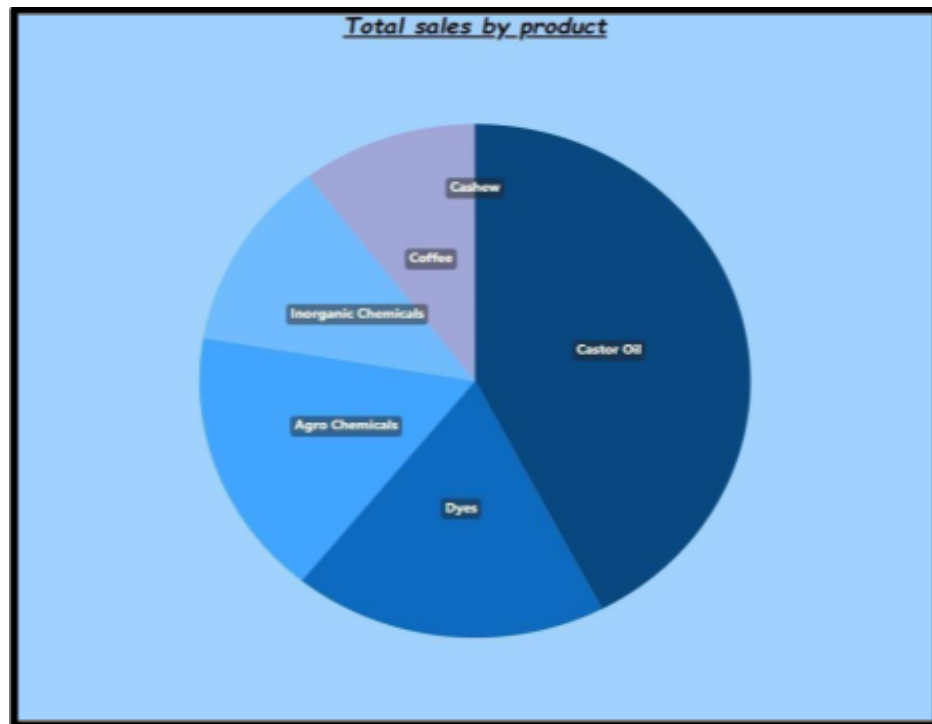


Figure: 3.5 Total sales of products

6. List the top 3 countries which export marine products for the year 2016 to 2017.

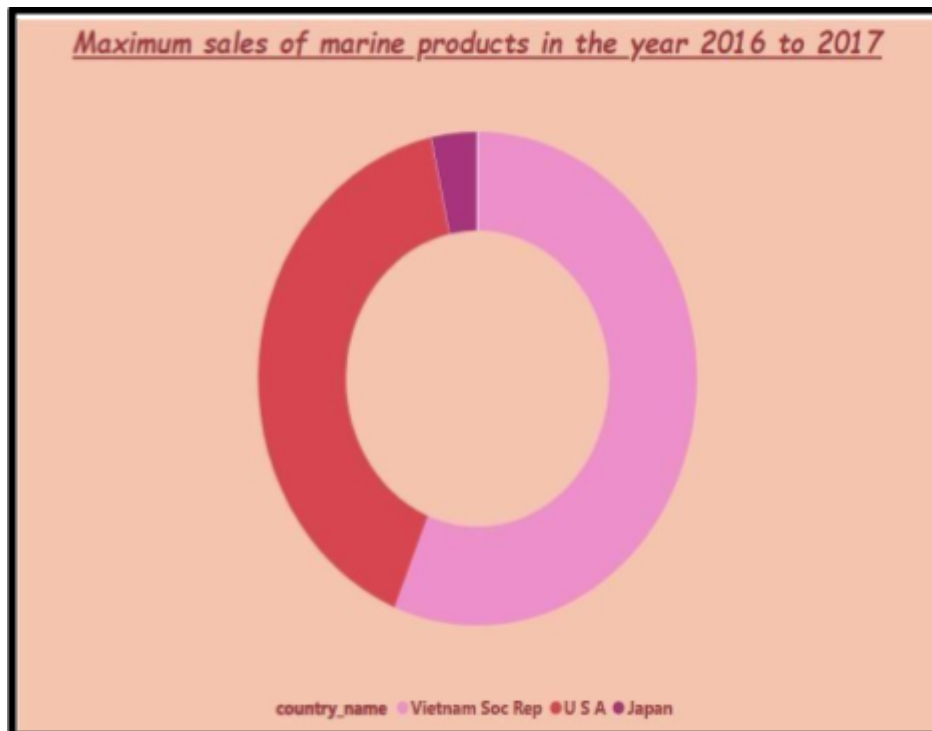


Figure: 3.6 Maximum sales of marine products

7. How many countries export tea and sugar based on the year.

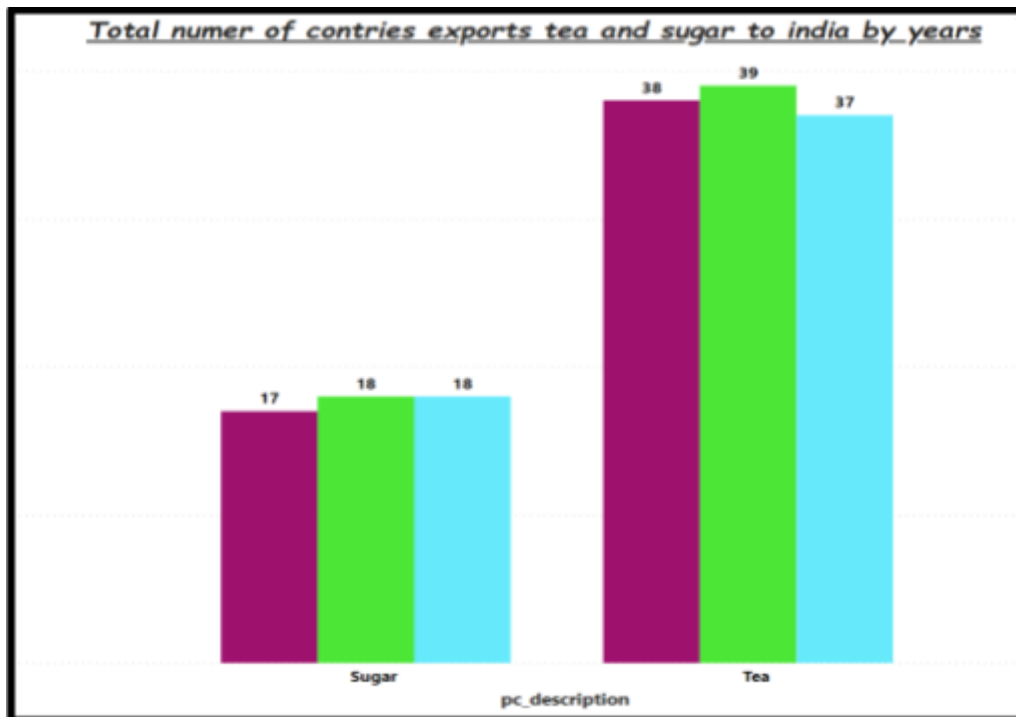


Figure: 3.7 Number of countries export tea and sugar

8. What are the countries that export petroleum products?

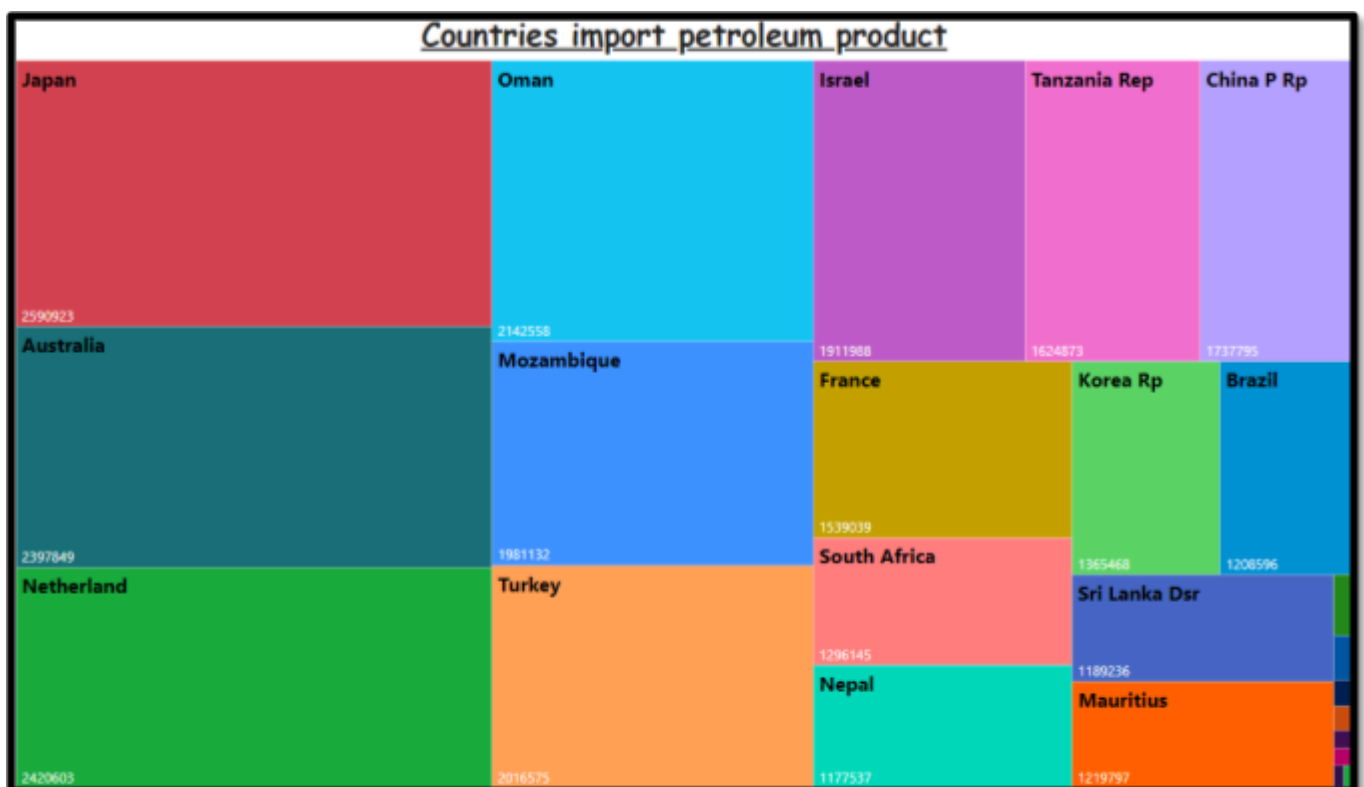


Figure: 3.8 Petroleum product importing country

9. Which country imports the largest quantity of iron and steel exported from India ?

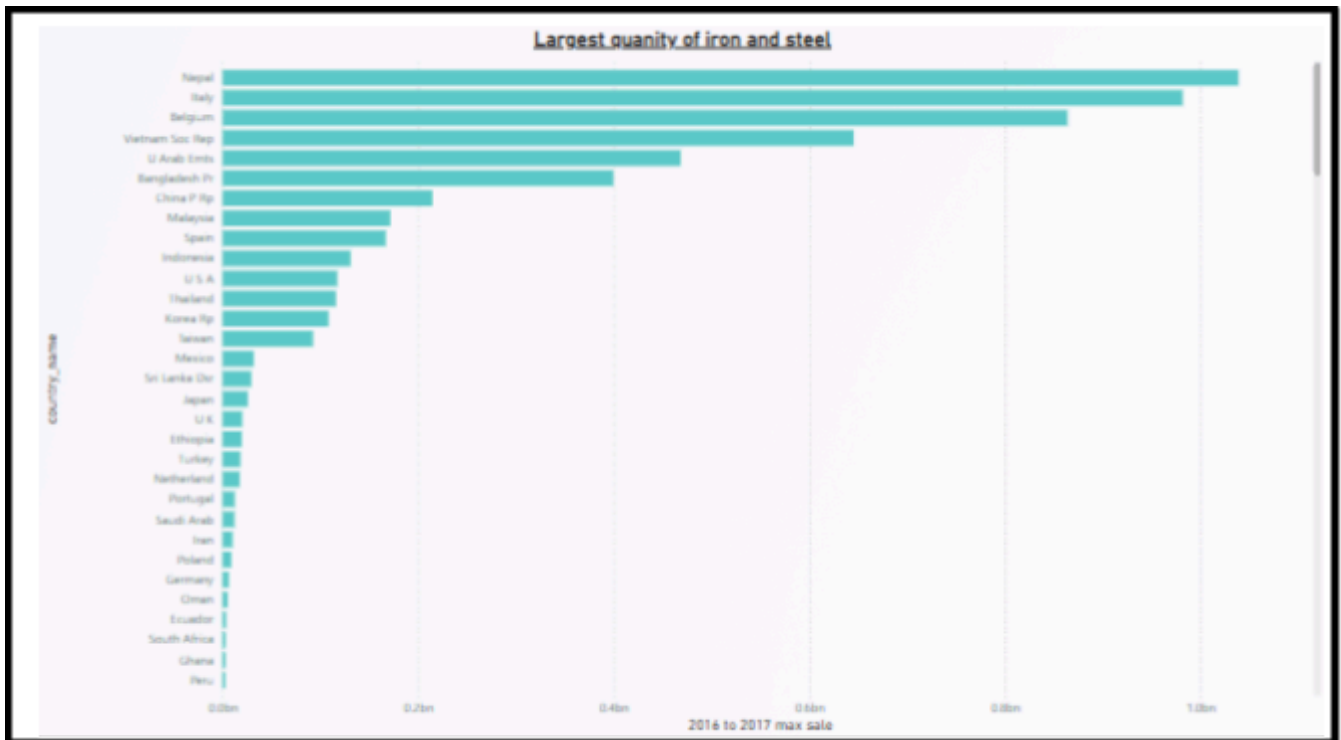


Figure: 3.9 Largest quantity of iron and steel exported from India

10. Which country imports a large amount of vegetable oil?

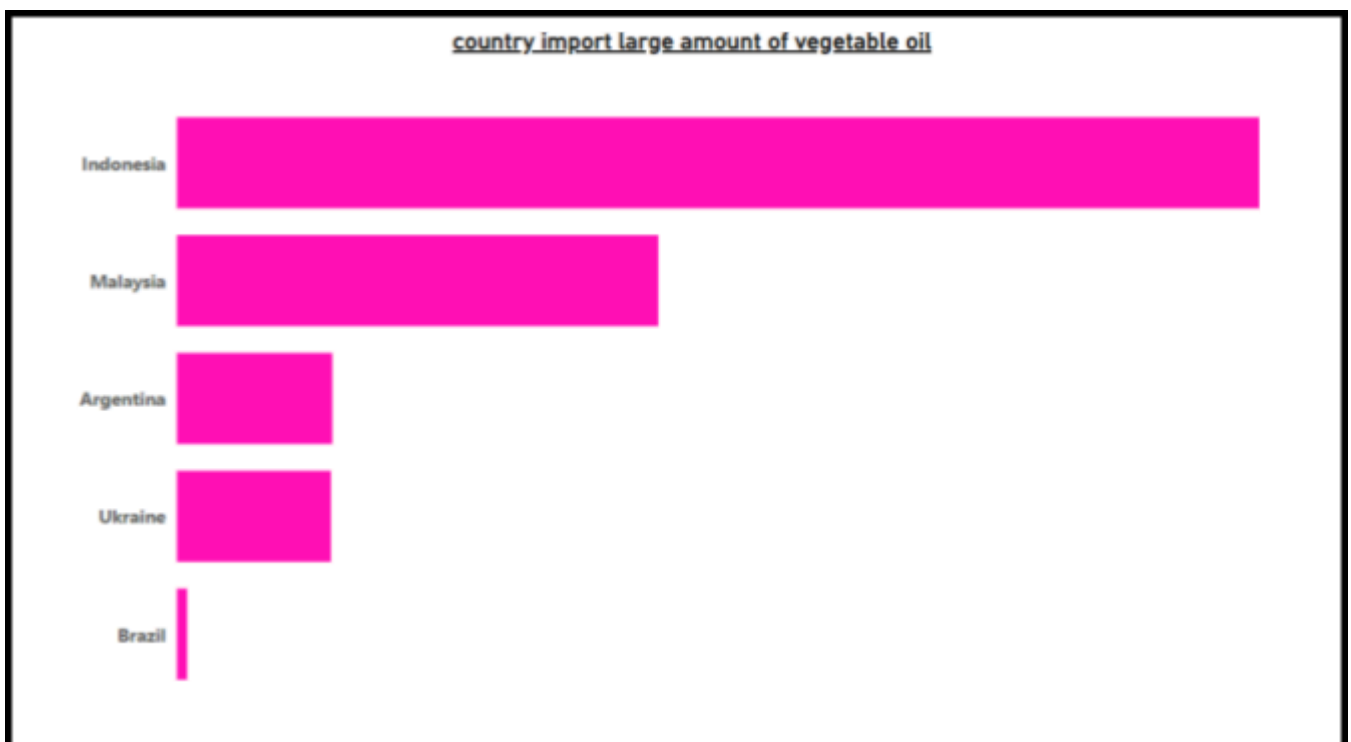


Figure: 3.10 country import vegetable oil

11. What are the countries that import minimum products from India?

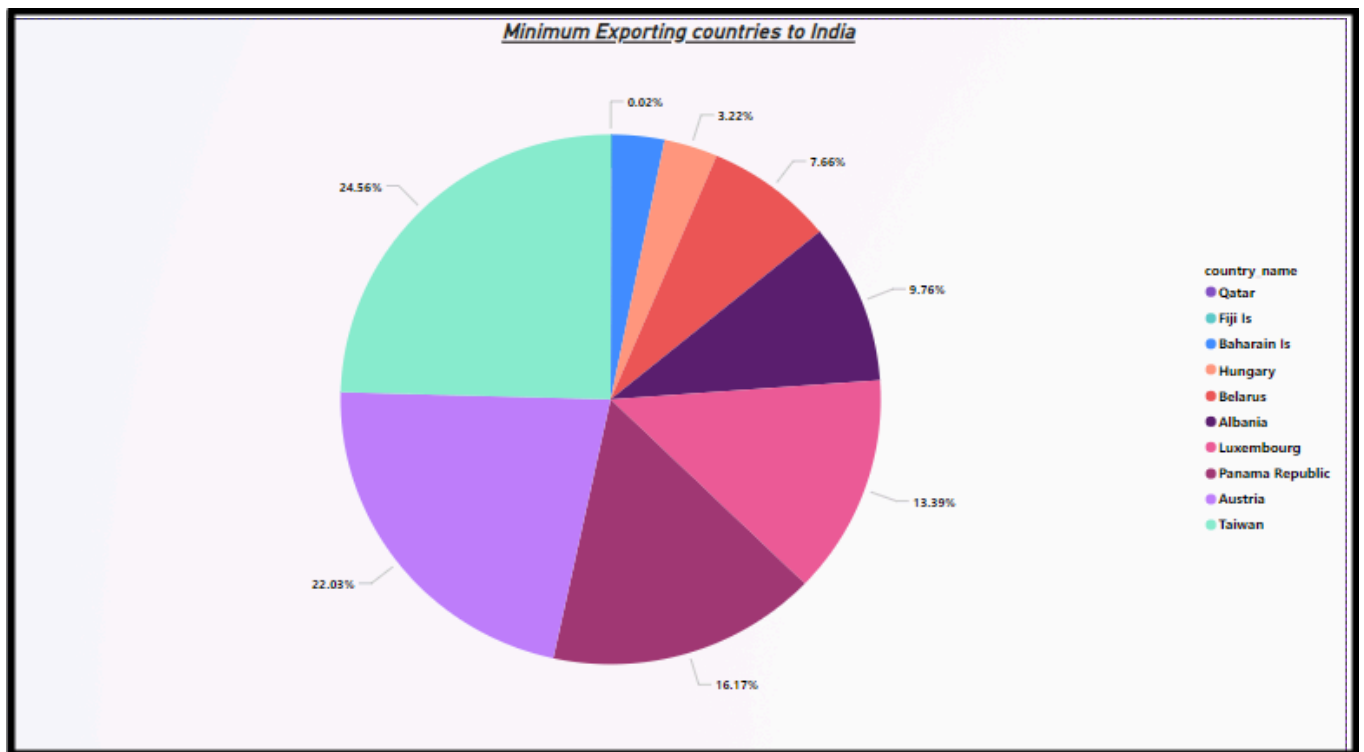


Figure: 3.11 Minimum importing countries

12. Which country exports a mass quantity of product?

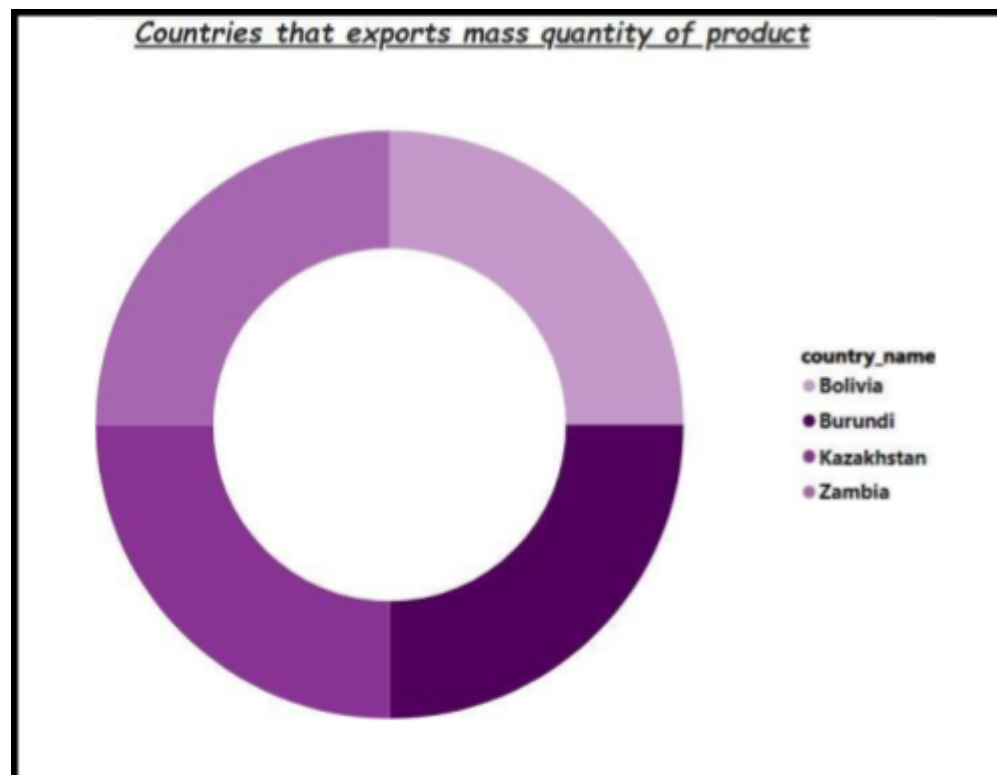


Figure: 3.12 Mass quantity of country's export



### 13. Which unit is mostly transported to a country?

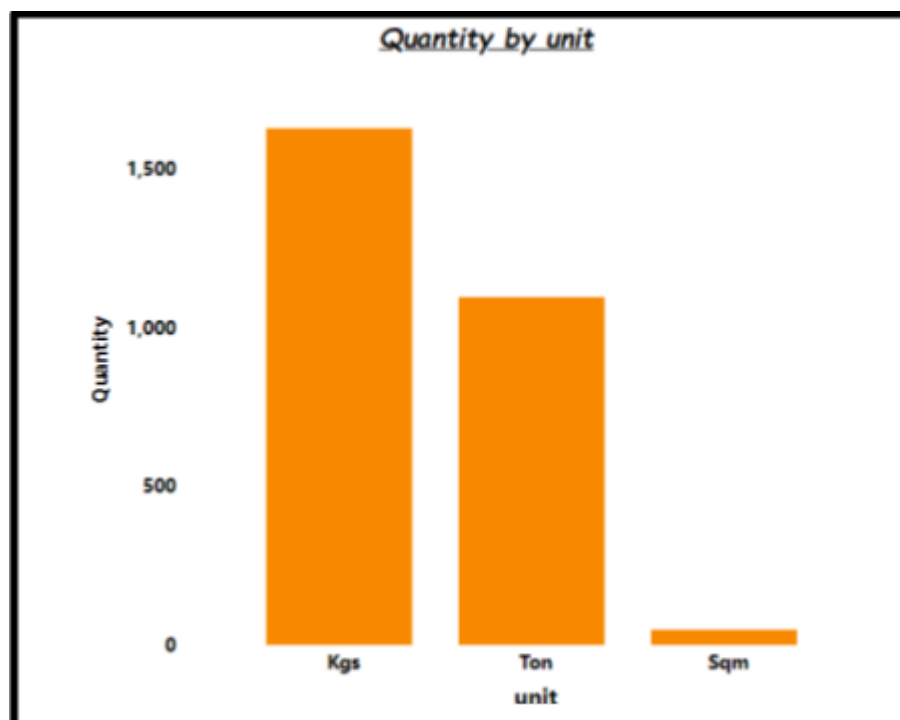


Figure: 3.13 Unit preferred by countries

Finally the slicers are created for all the six tables which give insight about the total sales and units imported by other countries from India by taking country name, quantity and pc\_description as the value.



Figure: 3. 14 summary for import of India

### 3.2 Publishing dashboard

The Power BI publishing dashboard is a powerful tool that enables users to easily create, share and publish interactive Power BI dashboards with their colleagues, friends and family. With the dashboard, you can quickly create visualizations and insights from your data, as well as gain access to a range of advanced features, such as automatic refresh, data alert notifications, security and privacy settings, and more. Power BI publishing dashboard also provides an easy-to-use interface for users to customize the look and feel of their dashboards, and allows for simple sharing and collaboration with others.

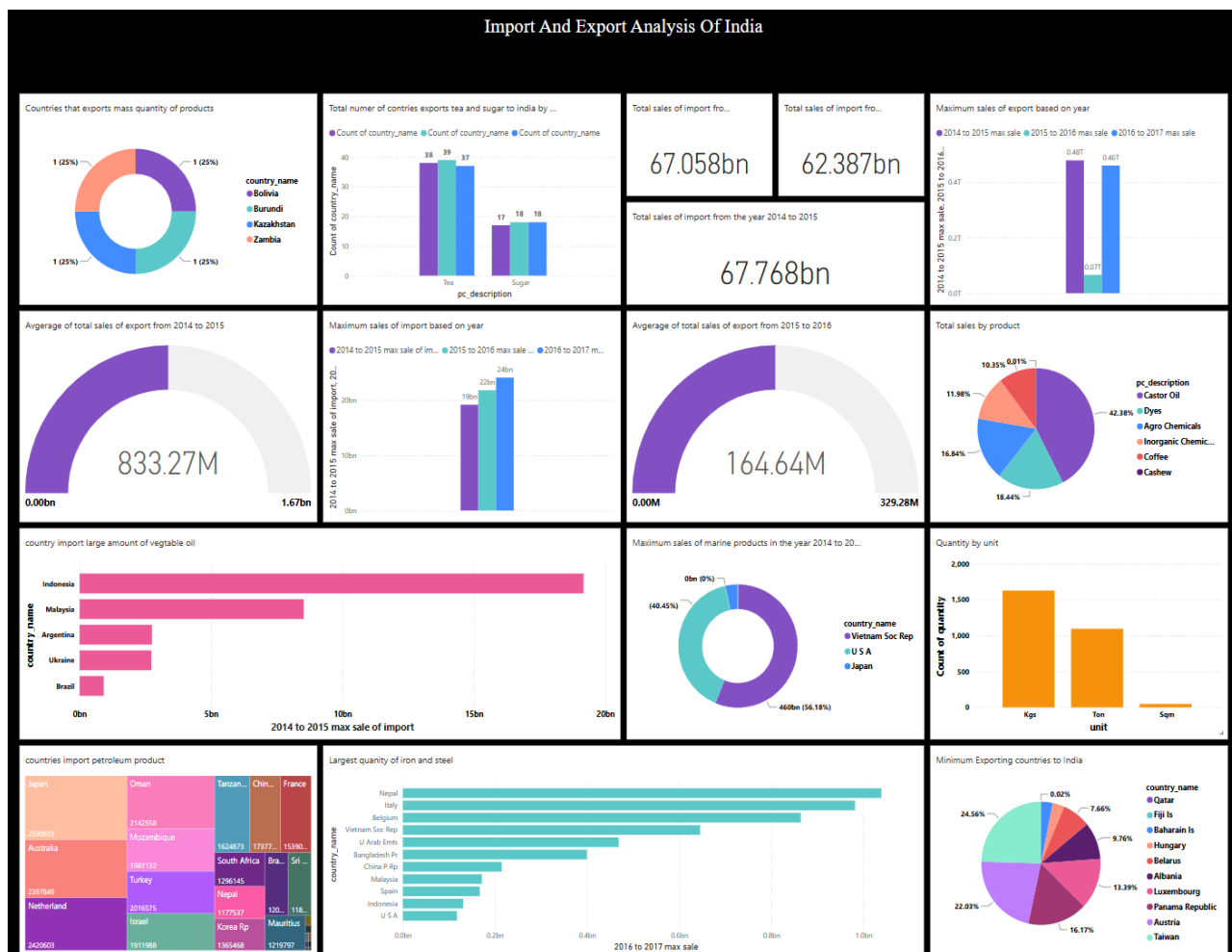


Figure: 3.15 Dashboard for import and export analysis

### 3.3 Inferences

- Among Germany, Canada, Australia, Hong Kong, Greece and Afghanistan, Germany is the most profitable country and the next country is Canada.
- The total cost of imports in the year 2014-2015 is the highest among the three years.
- The maximum sales were achieved in imports in 2016-2017 and exports in 2014-2015.
- The average export sales from India is highest in 2014-2015.
- Castor oil and dyes were the most profitable products.
- Most of the marine products were exported to Vietnam, USA and Japan from India.
- While comparing the export of tea from India is higher in 2015-2016 as 39 countries and the export of sugar from India is higher in the year 2015-2016 and 2016-2017 as 18 countries.
- Japan is the country which imports large amounts of petroleum.
- Among Nepal, Italy, Belgium, Vietnam, U Arab Emsts and Bangladesh, Nepal is the country which has a large quantity of iron and Steel imports from India and the next country is Italy.
- A large amount of vegetable oil is imported to Indonesia.
- The minimum products were imported to India from Qatar and Fiji.
- The countries which export in mass quantities are Bolivia, Burundi, Kazakhstan and Zambia.
- Maximum products were transported in quantities of Kilograms.

## **CHAPTER 4**

### **CONCLUSION AND FUTURE WORK**

#### **4.1 Recommendations**

1. It can be used to calculate the number of countries importing or exporting that particular product to India.
2. It is used to calculate which type of goods are imported and exported to the specific country.
3. It is used to calculate a particular product's minimum export or import.
4. It is used to calculate a particular product's maximum export or import.
5. Year wise analysis can be done with this dashboard.

## REFERENCES

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