DATA SCIENCE PROJECT REPORT

(Project Semester August-December 2019)

INDIA TRADE DATA

Submitted by

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Computer Science and Engineering

Section: KM063

Course Code INT217

Under the Guidance of

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Discipline of CSE/IT

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CERTIFICATE

This is to certify that Sonu Kumar Saw bearing Registration no. 11704210 has completed Data Science project titled, **"India Trade Data"** under my guidance and supervision. To the best of my knowledge, the present work is the result of his/her original development, effort and study.

Signature and Name of the Supervisor

Designation of the Supervisor

School of Computer Science

Lovely Professional University

Phagwara, Punjab.

Date:

<u>DECLARATION</u>

I, Sonu Kumar Saw, student of Lovely Professional University under CSE/IT Discipline at, Lovely Professional University, Punjab, hereby declare that all the information furnished in this assignment is based on my own intensive work and is genuine.

Name of the student: Sonu Kumar Saw

Date:

Signature

Registration No. 11704210

ACKNOWLEDGEMENT

A project work is a combination of views, ideas, suggestions and contribution of many people. Thus, one of the pleasant parts of writing the report is to thank those who have contributed towards its fulfilment.

I consider it as great privilege to have esteemed Lecturer Ms. Maneet Kaur as my project guide. I take this opportunity to express my sincere gratitude to him through constant advice and constructive criticism nourished my interest in the subject and provided a free and pleasant atmosphere to work against all odd situations. I avail this opportunity to extend my heart full thanks and deep respect to faculty member for their able guidance during this project.

My gratitude to all those, who **responded to my questionnaire** in a well-defined manner and helped me acquiring knowledge.

I would like to communicate a deep sense of gratitude to all these people without whom my project would not have been such a great learning experience.

Sonu Kumar Saw

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Introduction

India is one of the fastest developing nations in the world and trade between nations is the major component of any developing nation.

This dataset includes the trade data for India for commodities in the HS2 basket. **India** had a total **export** of 294,364,490.16 in thousands of US$ and total **imports** of 444,052,353.84 in thousands of US$ leading to a negative **trade balance** of -149,687,863.67 in thousands of US$.

GDP of India is 2,600,818,243,559.65 in current US$. India **services export** is 185,294,014,276.93 in BoP, current US$ and **services import** is 109,371,141,905.17 in Bop, current US$. India **exports of goods and services as percentage of GDP** is 19.05% and **imports of goods and services as percentage of GDP** is 22.03%.

- **Dataset**

Column	Definition
HSCode	Harmonized System (HS2) Code
Commodity	Name of Commodity as per HS2
Country	Country of Export
Year	Year of Export
Value	Value of Export (In Million US$)

Scope of The Analysis

Foreign trade Includes Import and Export. Importing means buying foreign goods and services by citizens, businesses and government of a country. No matter, how they are sent to the country. They can be shipped, sent it by e-mail, or even hand carried in personal luggage on a plane. A country importing more than its export, runs a trade deficit. Whereas, a country importing less than its exports, create a trade surplus.

Exporting means goods and services which are produced in one country are purchased in another country. It is produced domestically and sold to someone in a foreign country. Most countries want to increase their exports as it increases the GDP of the country.

In India at the level of Central Government it is administered by the Ministry of Commerce and Industry.
Prior to the 1991 economic liberalization, India was a closed economy due to the average tariffs exceeding 200 percent and the extensive quantitative restrictions on imports. Foreign investment was strictly restricted to only allow Indian ownership of businesses. Since the liberalization, India's economy has improved mainly due to increased foreign trade.

Since such vast field of data present of the Indian Trade there is wide range of scope of the analysis of date. For example:
a) Country wise import and export
b) Commodity wise import and export
c) Country wise import and export, etc.

Existing System

Before existence of Data Science, analyzing data used to be hectic task and existing system didn't used to analyses the data with perfection.

Without existence of current cutting-edge technology of data science, we can get actionable insights in the dataset of the Indian Trade.

Following are the benefits which weren't present in the existing system of data analyzing:

1. Making Better Decision with The Help of Data
2. Directing actions based on trends- which later defines the goals required for profit.
3. Doing challenging stuffs with the help of prediction which is done by data.
4. Identifying various opportunities to increase the profit,
5. Making decision with Quantifiable, data driven evidence so that loss doesn't happens.
6. Testing the decisions taken by the data and watching and analyzing the trend.

Source of The Dataset

- The dataset is taken from the Kaggle with the name 'India Trade Dataset'.

    https://www.kaggle.com/lakshyaag/india-trade-data

    https://commerce-app.gov.in/eidb/Default.asp

- Author of the Dataset
    Lakshya Agrawal

- Data last updated
    August 2019

<p style="text-align: center;"><u>Analysis of Dataset</u></p>
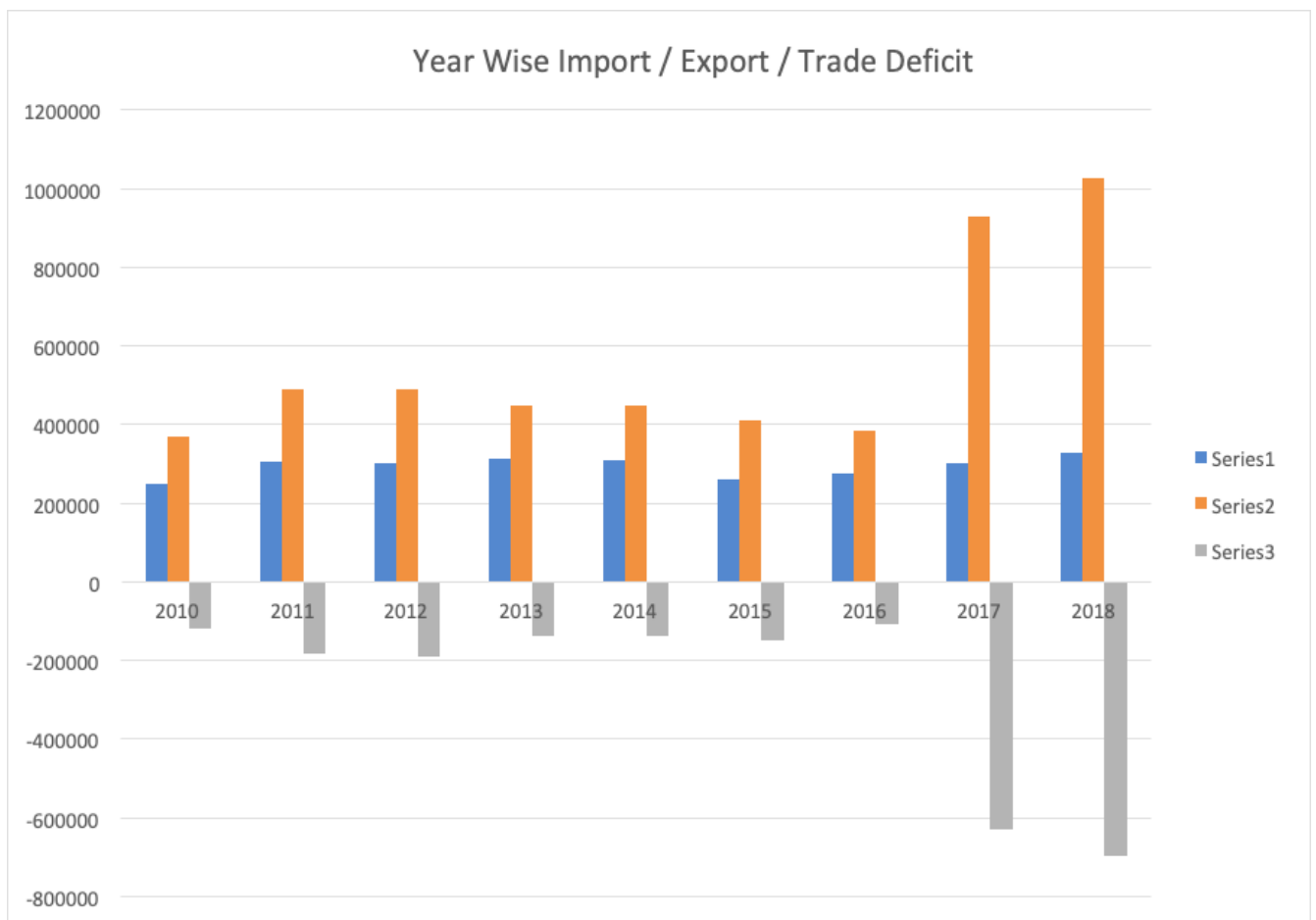
1. **Year Wise Import/Export/Trade Deficit:**

    a) Introduction: The analysis shows the year wise data of the import, export and the trade deficit of the India.

    b) Specific Requirements/Functions and Formulas:
      i)Pivot table of Import Data
      ii)Pivot table of Export Data
      iii)VLOOKUP Function
      iv)Clustered Column Chart

    c) Analysis Results:

    - Import is always more than the export creating a trade deficit which we can see in read bar graph.

    - In 2011 and 2012 showing a huge huge trade deficit and after which it gradually decreases till 2016 and then increased 2017 and 2018.

2. **Country Wise Import:**
    a) Introduction: The analysis shows the country wise data of import of the India.

    b)Specific Requirements/Functions and Formulas:
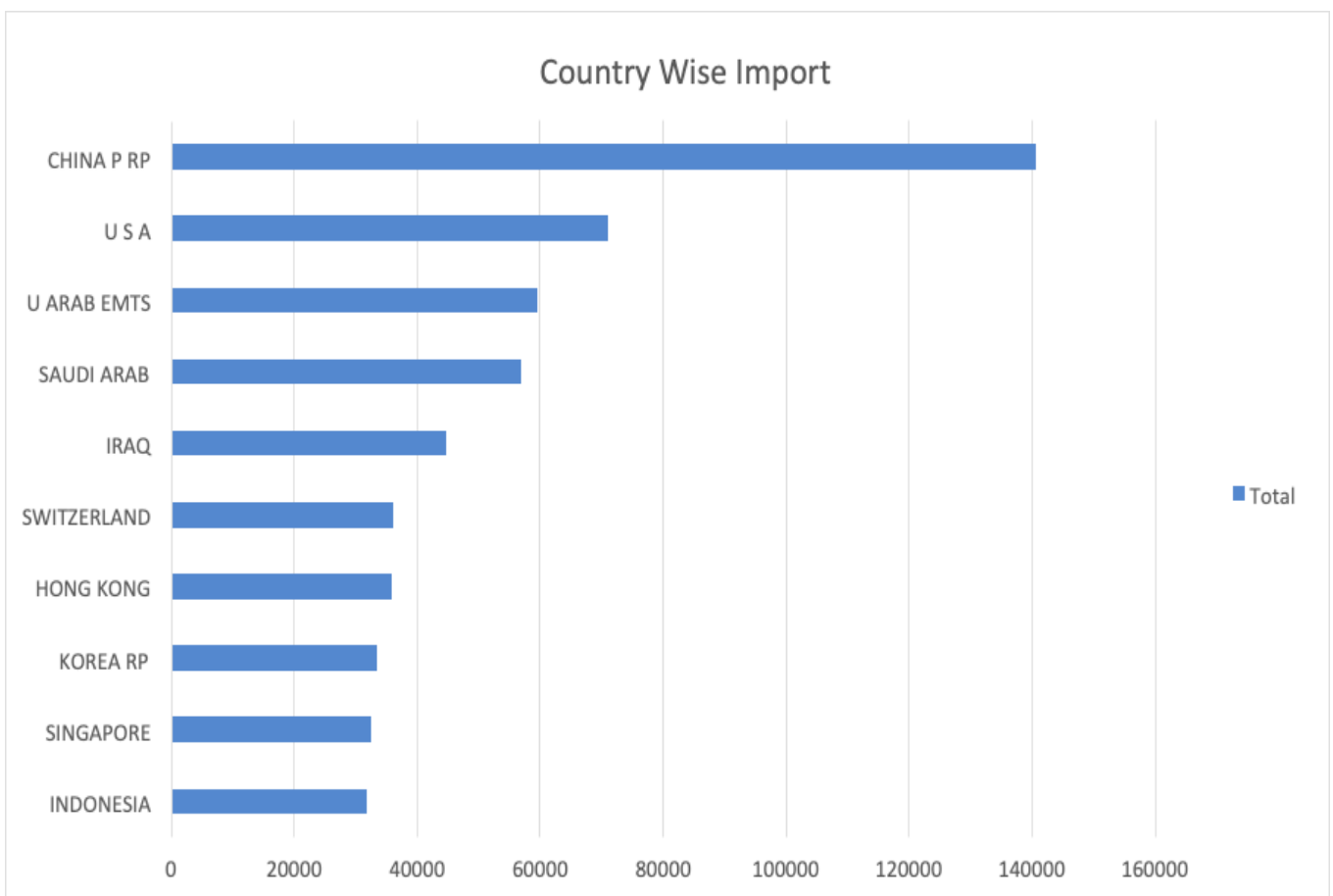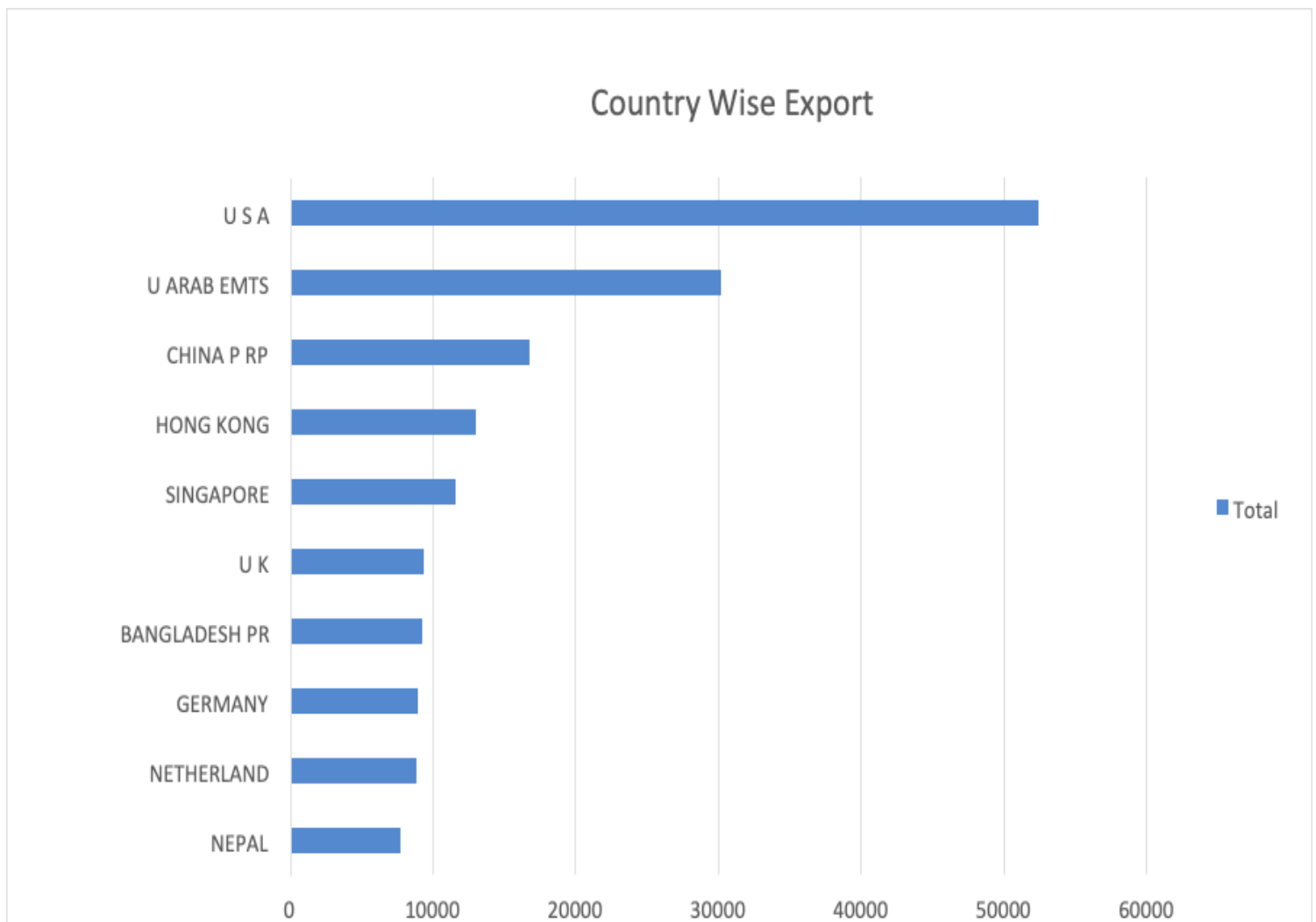   i)Pivot table of the data of Import
      ii)With the help of data Clustered Bar chart is plotted.

    c)Analysis Results:

    - People's Republic Of China has biggest market in India followed by United Arab Emirates, Saudi Arabia and United States Of America.

    d)Visualization:

3. Country Wise Export:

a) Introduction: The analysis shows the country wise data of export of the India.

b) Specific Requirements/Functions and Formulas:
   i) Pivot table of the data of Import
   ii)With the help of data Clustered Bar chart is plotted.

c)Analysis Results:

- United States of America is our biggest importer followed by United Arab Emirates and People's Republic Of China.

4. **Top 10 Commodities Being Exported By India:**
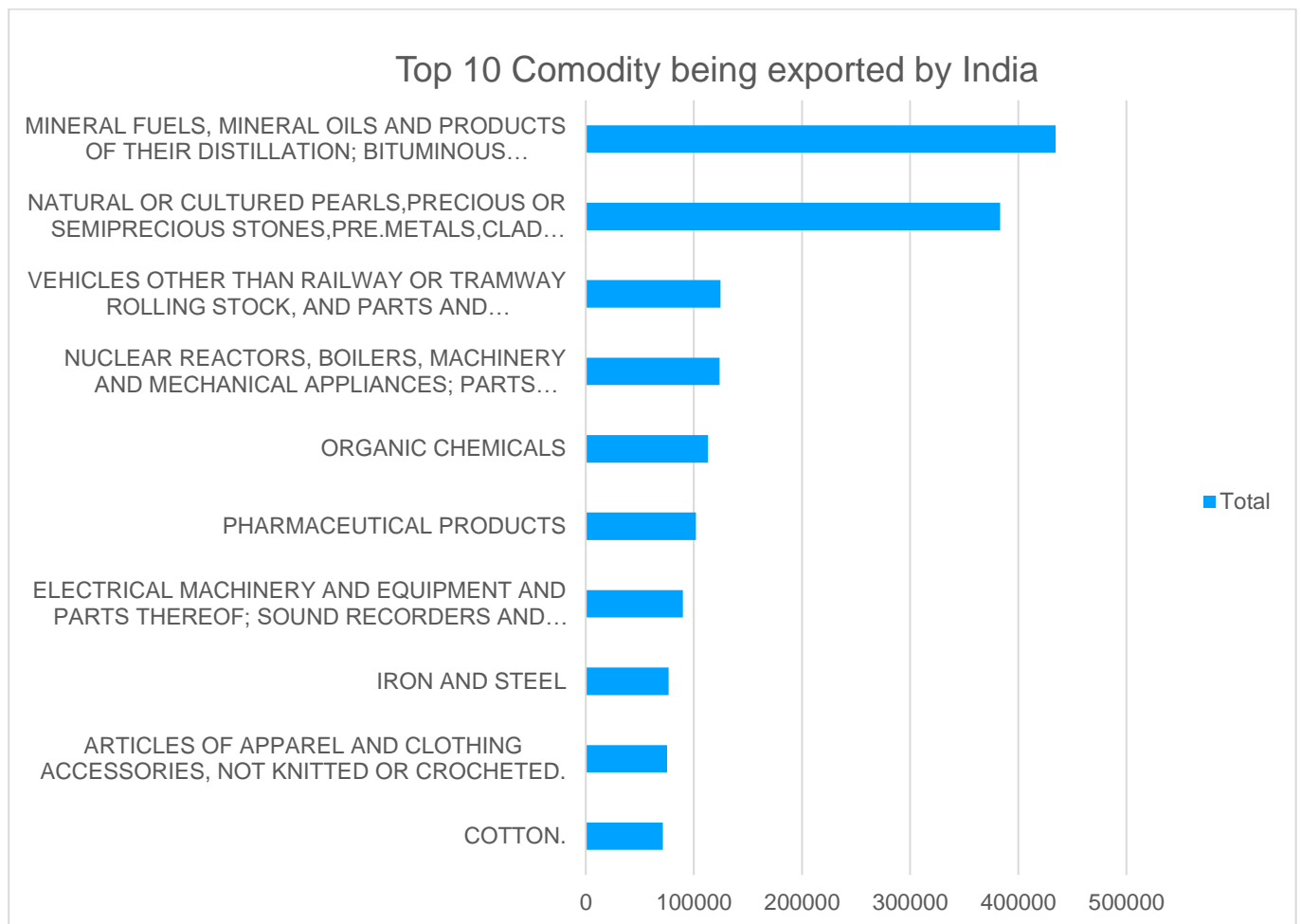   a)Introduction: The analysis shows the country wise data of export of particular commodities by the India.

   b)Specific Requirements/Functions and Formulas:
     i)Pivot table of the data of Export
     ii)With the help of data Clustered Bar chart is plotted.

   c)Analysis Results:

   - Mineral Fuels, Mineral Oils And Mineral Products are most exported.

   - Cotton is least exported product among top 10.

5. **Top 10 Commodities Being Imported By India:**

a)Introduction: The analysis shows the country wise data of import of particular commodities by the India.
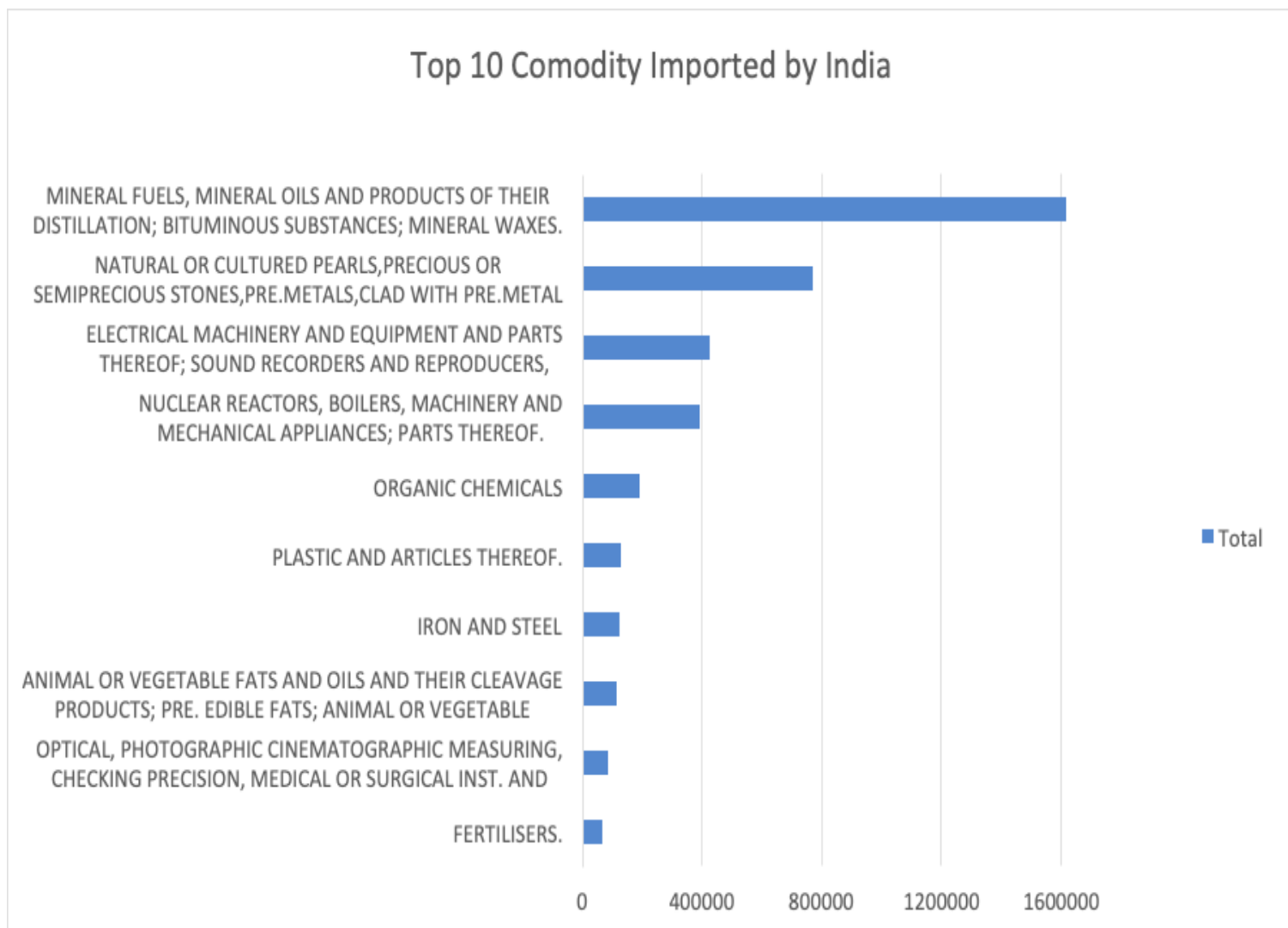
b)Specific Requirements/Functions and Formulas:
i)Pivot table of the data of Import.
ii)With the help of data Clustered Bar chart is plotted.

c)Analysis Results:

- Mineral Fuels, Mineral Oils And Mineral Products are most imported.

- Fertiliser is least imported product among top 10.

Top 10 Comodity Imported by India

6. Top 10 Commodities Being Exported to USA:

a)Introduction: The analysis shows the country wise data of export of particular commodities to USA.
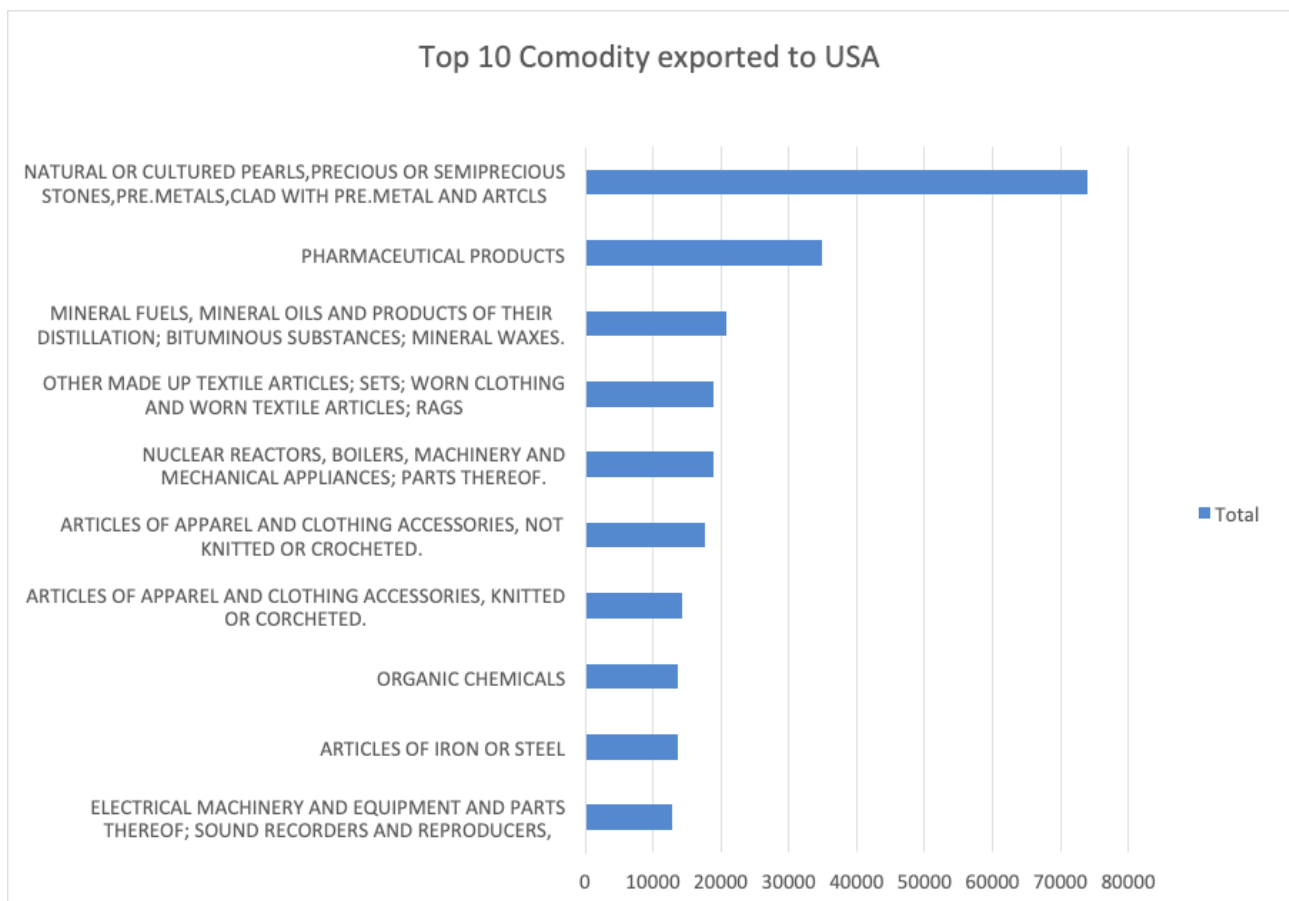
b)Specific Requirements/Functions and Formulas:
i)Pivot table of the data of Export
ii)With the help of data Clustered Bar chart is plotted.

c)Analysis Results:

- Natural or Artificial Pearls, Precious Stones are most exported to USA.

- Electrical Instruments are least exported product among top 10.

7. Top 10 Commodities Being Imported From China:

a)Introduction: The analysis shows the country wise data of import of particular commodities from China.

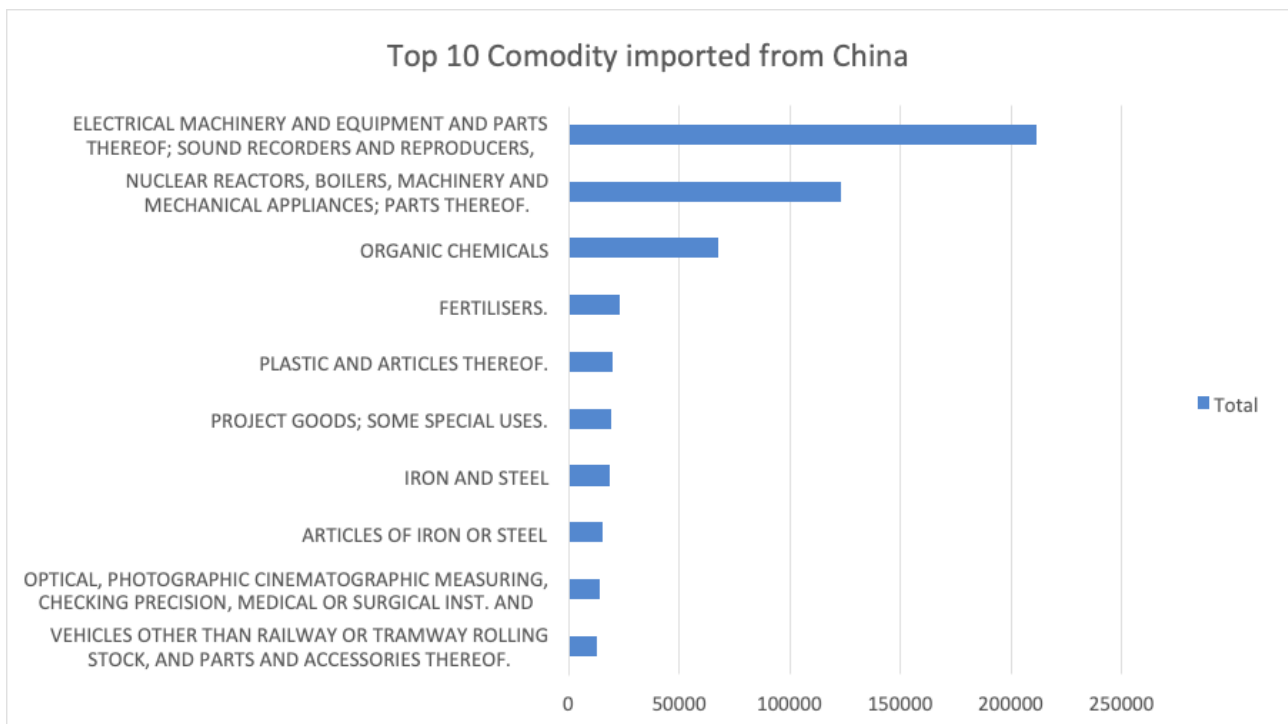b)Specific Requirements/Functions and Formulas:
i)Pivot table of the data of Import
ii)With the help of data Clustered Bar chart is plotted.

c)Analysis Results:

- Electrical Machineries and parts are most imported from China.

- Vehicles other than railway parts are least imported product among top 10.

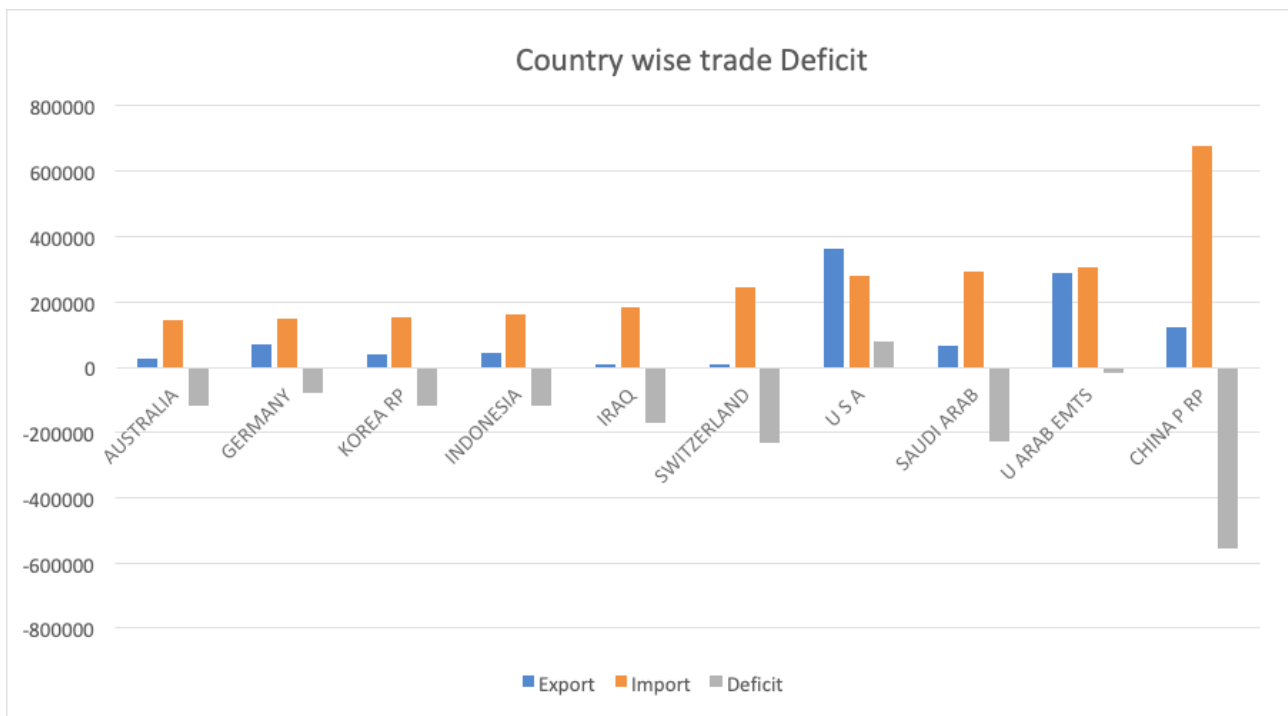d)Visualisation:

8. **Country Wise Trade Deficit:**
   a)Introduction: The analysis shows the country wise trade deficit of India.

   b)Specific Requirements/Functions and Formulas:
     i)Pivot table of the data of Import
    ii)VLookup function is used
    ii)With the help of data Clustered Column chart is plotted.

   c)Analysis Results:

   • China-Very Huge Trade Deficit.

   • UAE-Little Trade Surplus.

   • Saudi Arabia- Huge Trade Deficit.
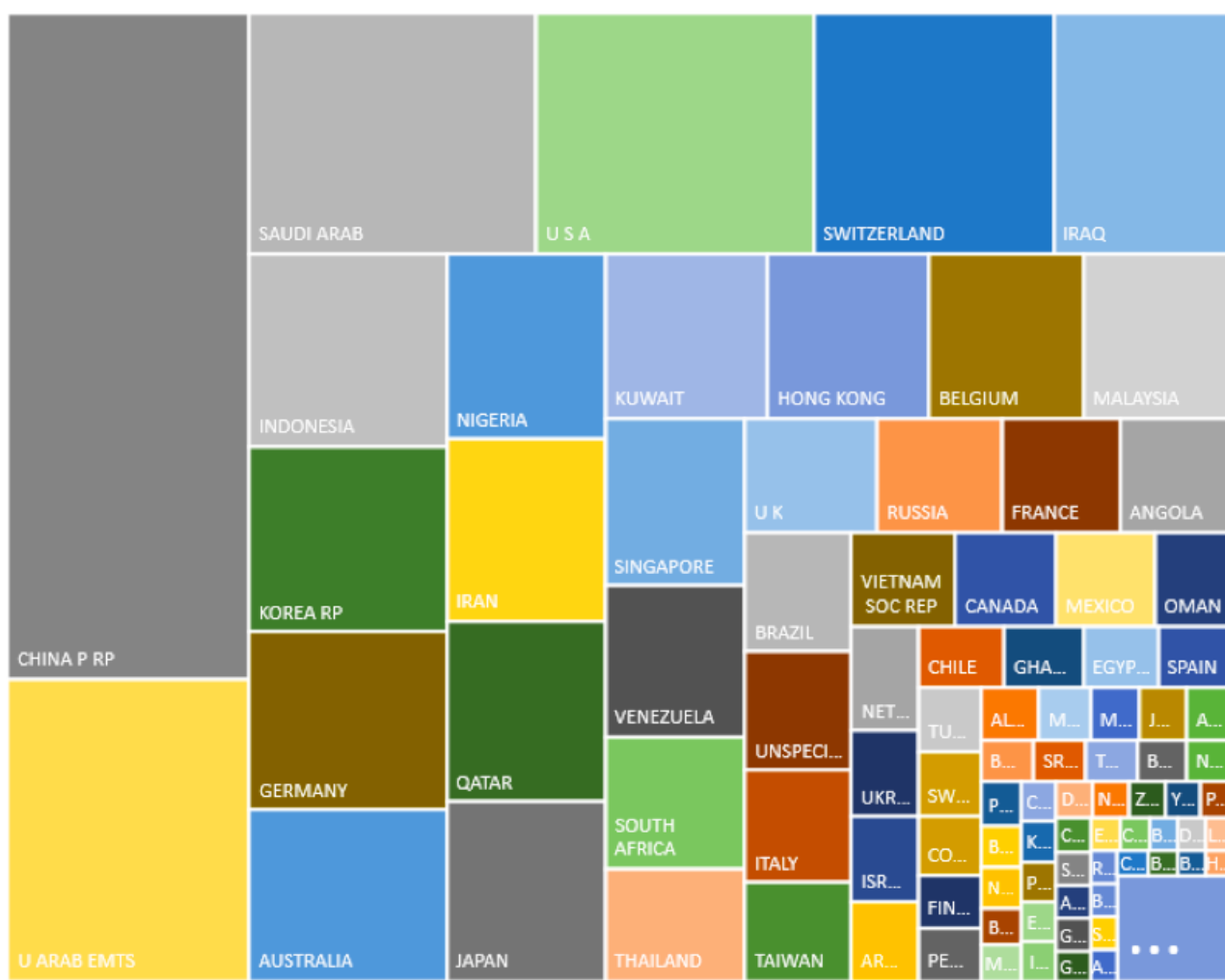
   • USA- Little Trade Surplus

9. Country Wise Import Distribution:

a) Introduction: The analysis shows the country wise data of import distribution of the India.

b)Specific Requirements/Functions and Formulas:
 i)Pivot table of the data of Import
 ii)With the help of data tree map is plotted.

c)Analysis Results:

- People's Republic of China has biggest market distribution in India followed by United Arab Emirates, Saudi Arabia and United States Of America.

Country wise Import Distribution

10. Country Wise Commodities Import Distribution:

a)Introduction: The analysis shows the country wise data of import of commodities distribution of the India.
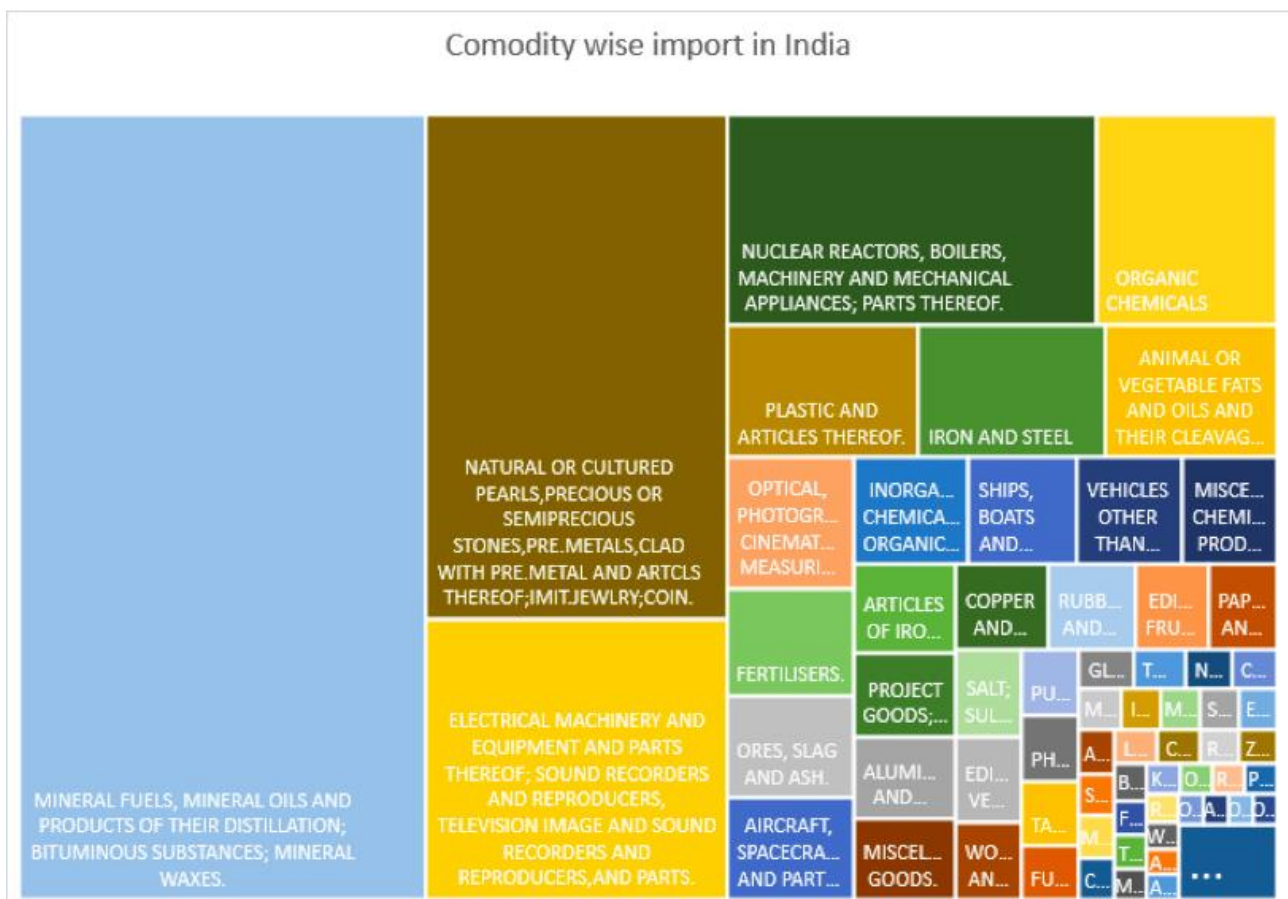
b)Specific Requirements/Functions and Formulas:

i)Pivot table of the data of Import

ii)With the help of data tree map is plotted.

c)Analysis Results:

- Mineral Fuels, Mineral Oils and Product of their distillation are most imported

Comodity wise import in India

List of Analysis with Results

- Import is always more than the export creating a trade deficit which we can see in read bar graph.

- In 2011 and 2012 showing a huge huge trade deficit and after which it gradually decreases till 2016 and then increased 2017 and 2018.

- People's Republic of China has biggest market in India followed by United Arab Emirates, Saudi Arabia and United States of America.

- United States of America is our biggest importer followed by United Arab Emirates and People's Republic of China.

- Mineral Fuels, Mineral Oils and Mineral Products are most exported.

- Cotton is least exported product among top 10.

- Mineral Fuels, Mineral Oils and Mineral Products are most imported.

- Fertilizer is least imported product among top 10.

- Natural or Artificial Pearls, Precious Stones are most exported to USA.

- Electrical Instruments are least exported product among top 10.

- Electrical Machineries and parts are most imported from China.

- Vehicles other than railway parts are least imported product among top 10.

- **China**-Very Huge Trade Deficit.

- **UAE**-Little Trade Surplus.

- **Saudi Arabia**- Huge Trade Deficit.

- **USA**- Little Trade Surplus

References

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