

Github

Data Source : <https://databank.worldbank.org/source/world-development-indicators#>

Visualisation 1 : Usage of secure internet server in top 5 countries from 2010 to 2020.

```
import matplotlib.pyplot as plt
```

```
import pandas as pd
```

```
"""
```

Creates a line plot from a CSV file.

Args:

csv_file_path (str): The path to the CSV file.

x_column_name (str): The name of the column to use for the x-axis.

y_column_name (str): The name of the column to use for the y-axis.

```
"""
```

```
def line(df, a, b, c, d, e):
```

```
    """
```

Parameters

```
    -----
```

df : dataframe which read data from selected file.

[a , b , c , d , e] is represents each country and help for labeling

Returns

```
    -----
```

None.

```
"""
```

```
# Create a line chart
```

```
plt.plot(df['Years'], df[a], label=a)
```

```
plt.plot(df['Years'], df[b], label=b)
```

```
plt.plot(df['Years'], df[c], label=c)
```

```
plt.plot(df['Years'], df[d], label=d)
```

```
plt.plot(df['Years'], df[e], label=e)
```

```
# Add a legend
```

```
plt.legend(loc='upper left')
```

```
# Add labels and title with fontsize
```

```
plt.xlabel('Time',fontweight ='bold')
```

```
plt.ylabel('Total Numbers of People',fontweight ='bold',)
```

```
plt.title('Secure internet server in 5 Countries', fontweight ='bold')
```

```
plt.legend(facecolor='green', framealpha=0.4,  
fontSize='small')
```

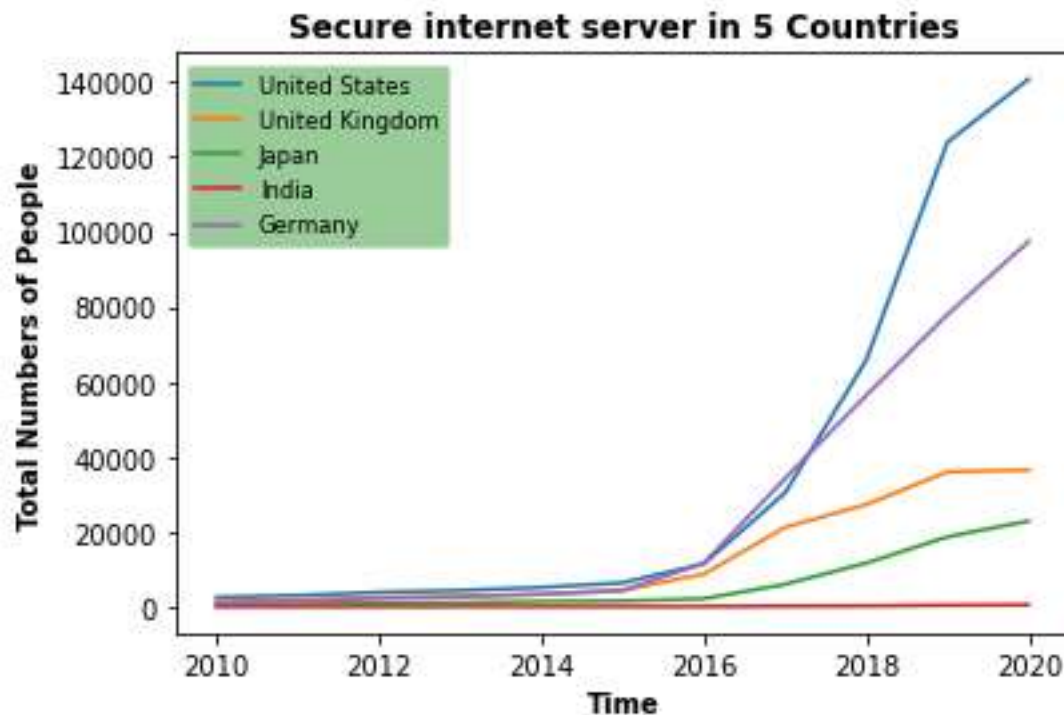
```
# Show the plot
```

```
plt.show()
```

```
# Load the data from a CSV file
```

```
df = pd.read_csv("D:\Dhairyakumar\Ssl usage.csv")
```

```
line(df, "United States", "United Kingdom", "Japan", "India", "Germany")
```



In this Era, the usage of internet is highly growing factor and that is also one of the reasons that cyber frauds are increasing day by day. Tackle the cyber frauds and to use internet without any losses people are using Secure Internet Server.

The Above Line plot describes the usage of Secure Internet Server in 5 countries. In this line plot X axis illustrates the timeline of the years 2010 to 2020, whereas Y axis shows the total number of people who use the Secure Internet Server in different 6 countries.

From above graph, we can observe that from 2010 to 2015, above mentioned 5 countries have similar usage of Secure Internet Server. After 2015 we can observe variation in line graph. Among all five countries only India getting decline in the use Secure internet, might be this is the reason we can say that nowadays India getting more cyber frauds in compare of other 4 countries. On the other hand, we can illustrate the rise of using Secure Internet server in the United States and Germany.

Overall, it is crystal clear that as the usage of internet is getting peak, the cyber security is also necessary with Secure Internet Server to avoid huge losses of data and filtering network traffic.

Visualisation 2 : Average of Renewable Energy Consumption in different 7 countries, 1994 to 2019.

```
"""
```

Create a pie chart of renewable energy consumption for different countries from 1994 to 2019.

Parameters:

data_path (str): The file path of the CSV file containing the data.

```
"""
```

```
import pandas as pd
```

```
import matplotlib.pyplot as plt
```

```
# Load data from CSV file
```

```
data = pd.read_csv("D:\Dhairyakumar\Renewable energy Pie.csv")
```

```
# Group data by category and sum values from 1994 to 2019
```

```
grouped_data = data.groupby('Country Name')['2019'].sum()
```

```
# Set labels for pie chart
```

```
labels = grouped_data.index
```

```
# Set values for pie chart
```

```
values = grouped_data.values
```

```
# Set explode values for each slice
```

```
explode = [0.022] * len(labels) # explode each slice by 0.
```

```
# Set colors for each slice
```

```
colors = ['silver','yellowgreen','gold','green',"red","grey","orange"]
```

```
# Plot the pie chart
```

```
plt.pie(values, labels=labels, explode=explode, colors=colors,  
        autopct='%1.1f%%', startangle=90)
```

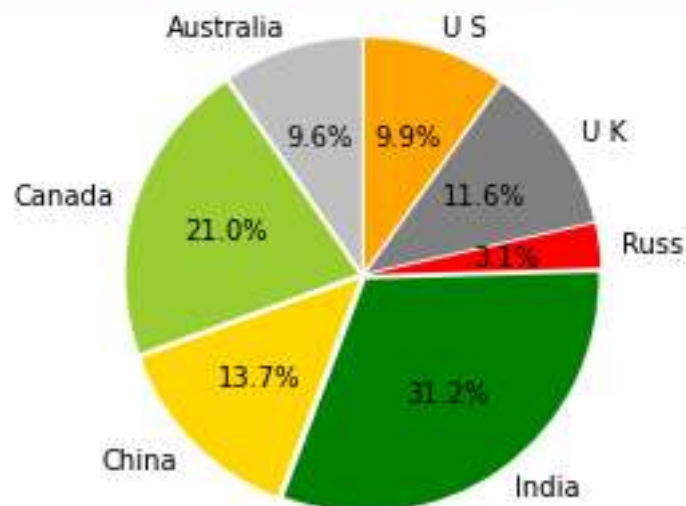
```
# Add title to the chart
```

```
plt.title('Renewable energy consumption 1994 to 2019',fontweight='bold', color="purple")
```

```
# Show the chart
```

```
plt.show()
```

Renewable energy consumption 1994 to 2019



Focus to using this pie graph is to compare and visualize different ratio of renewable energy consumption from 1994 to 2019 in 7 countries. We can observe from above chart that among 7 countries, Indians have used 31.2% average renewable energy consumption from 1994 to 2019.

The pie chart illustrates that among 7 countries Russia using very less amount of renewable energy. United States and Australia both countries are using similar amount of renewable energy, which is around 9%. Canadian people using 21% of average renewable energy from 1994 to 2019. China and UK have just 2% different from each other to using renewable energy like solar power or hydroelectricity.

We can visualize from this graph that Russian Federation need to use more renewable energy. Whereas, India is the source of Renewable energy, as they using more than 30% of clean energy among 7 countries.

Visualization 3: Ratio of armed forces personnel in India, United Kingdom, and United States.

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

```
def read_data(file_path):
```

```
    """
```

```
    To read data from a CSV file and return to a pandas DataFrame.
```

```
    Args:
```

```
        file_path (str): The path to the CSV file.
```

```
    Returns:
```

```
        pd.DataFrame: The data from the CSV file.
```

```
"""
```

```
data = pd.read_csv(file_path)
```

```
return data
```

```
def create_bar_chart(data, x_label, y_label, title, legend_labels):
```

```
    """
```

This function creates a bar chart using the given data and displays it.

Args:

data (pd.DataFrame): The data to use for the chart.

x_label (str): The label for the x-axis.

y_label (str): The label for the y-axis.

title (str): The title of the chart.

legend_labels (list[str]): The labels for the legend.

Returns:

None

```
"""
```

```
#plot parameters
```

```
plt.figure(figsize=(15, 8))
```

```
num_years = data.shape[0]
```

```
ind = np.arange(num_years)
```

```
width = 0.25
```

```
# Extract data for every country
```

```

india_data = data["India"]
uk_data = data["United Kingdom"]
us_data = data["United States"]

# to Create bar chart for contries
india_bars = plt.bar(ind, india_data, width, color='y')
uk_bars = plt.bar(ind+width, uk_data, width, color='g')
us_bars = plt.bar(ind+width*2, us_data, width, color='b')

#labels and title
plt.xlabel(x_label)
plt.ylabel(y_label)
plt.title(title)

# Set x-axis tick labels
plt.xticks(ind, data["Time"])

# Add legend to the chart
plt.legend((india_bars, uk_bars, us_bars), legend_labels)

# Display the chart
plt.show()

# Example usage
if __name__ == "__main__":

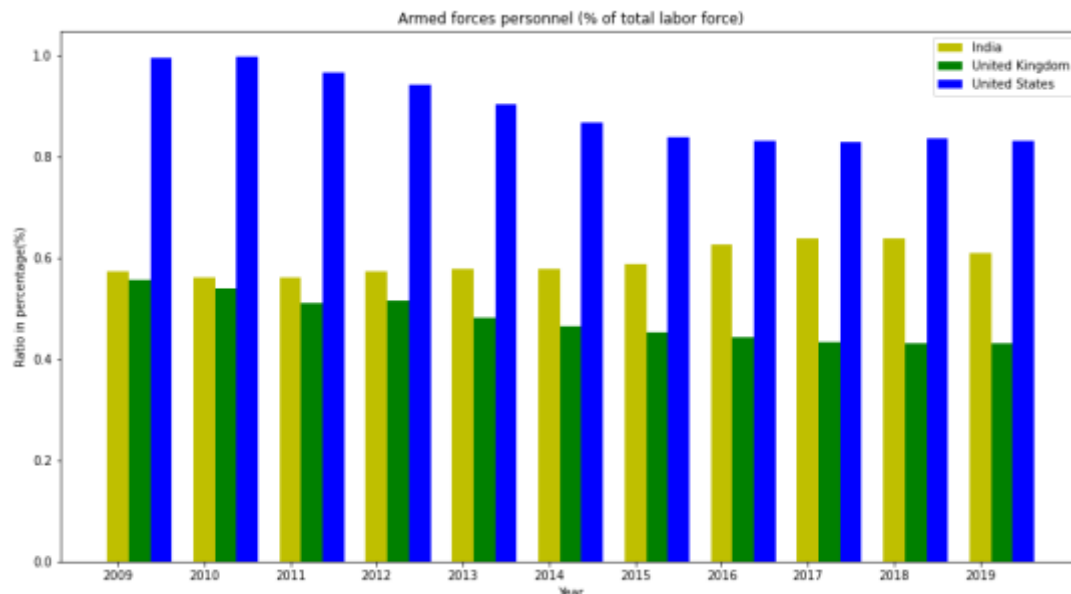
```



```
data = read_data("D:\Dhairyakumar\Data for bar.csv")

create_bar_chart(data, "Year", "Ratio in percentage%", "Armed forces
personnel (% of total labor force)",

['India', 'United Kingdom', 'United States'])
```



The bar graph compares the ratio of Armed forces personnel among 3 countries from 2009 to 2019. This 3 countries are India, United kingdom and United states.

Overall, it can be seen that the participation in defence of India is getting high throughout the decade. Whereas people of United Kingdom are less interested to participate in armed forces. The graph of United States seen fluctuating in armed forces ratio.

In 2009, very less Indians (around 0.6) were interested in defence as compare The United States. 2009 to 2017 the ratio of people who join defence in India getting peak and reached at nearly 0.7, while the ratio of people of united kingdom declined and reached 0.6 to 0.5 .

In the year of 2019, the ratio of people in United States were nearly 0.9 whereas Indians stood at around 0.7 and the ratio of people in United kingdom observed less then 0.6 .