7PAM2000-0105-2022 - Applied Data Science 1

Assignment 1: VISUALISATION

Name : *Hrushikesh Raju Pratikantam*

Student ID : 22035088

GITHUB Repository : https://github.com/Hrushikesh-7/AppliedDS_Assignment1.git

This report provides information about three various visualisations in Matplotlib namely Line Plot, Grouped bar chart & Pie chart. Demonstration of this assignment is as follows.
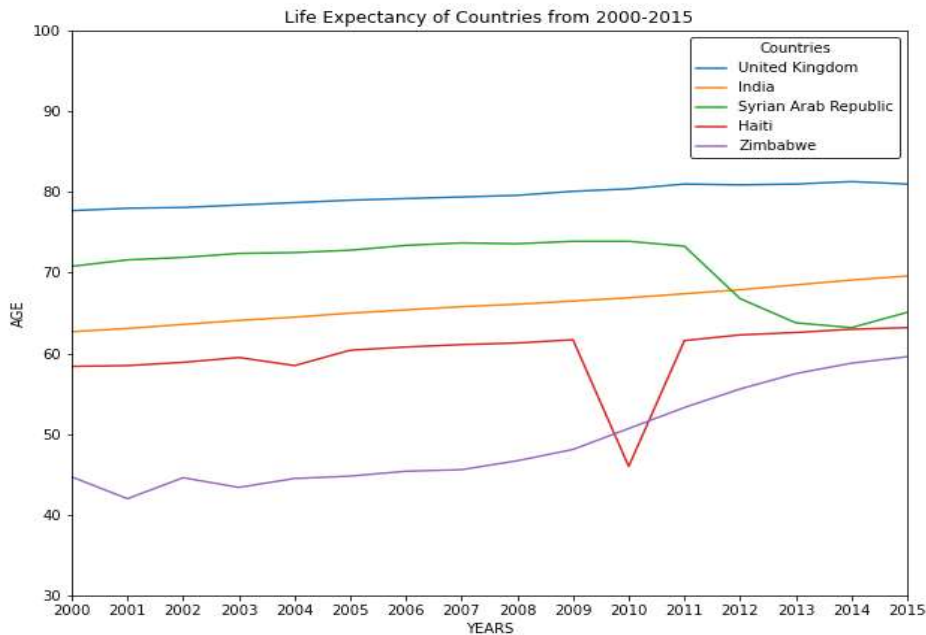
Visualisation 1 :

LINE PLOT - Life Expectancy of Countries from 2000 - 2015.

Line plot helps in analysing correlation between variables, the graph can be interpreted using the data set's frequency patterns which are revealed. The below dataset link is acquired from worldbank.org, which consists of statistical data of Life Expectancy of countries all over the world from time series 1960 to 2020.

Dataset Link :
https://databank.worldbank.org/indicator/SP.DYN.LE00.IN/1ff4a498/Popular-Indicators#

From the available data, Line plot was plotted within the years of 2000 - 2015 by selecting a few countries from Europe, North America & Asia regions.

Life Expectancy of Countries from 2000-2015

Above representation clearly depicts how life expectancy has grown over the years due to medical enhancements and improved lifestyle of human species all over the globe. As per the above Line Plot, we can observe in countries like India and the United Kingdom the Life Expectancy has been phenomenal and standard growth can be observed throughout the years. Whereas Nations such as the Syrian Arab Republic faced an increase in mortality rate during 2010 & Haiti country life expectancy has declined over the years from 2011 to 2015. Thus both the countries graph resulting uncertainty when compared to the India & United Kingdom countries. Lastly, Zimbabwe has seen exceptional Life expectancy growth from the data considered.
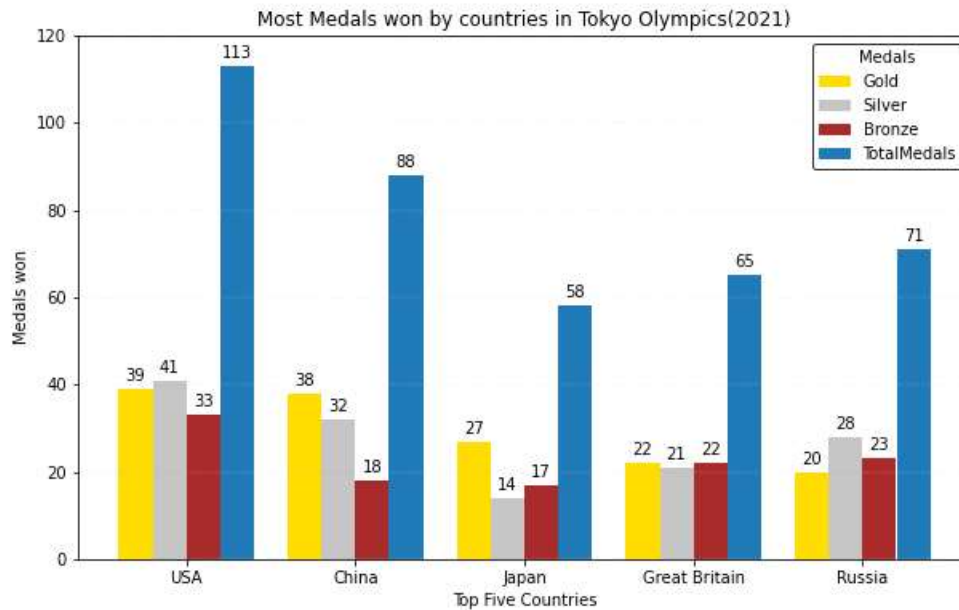
Visualisation 2 :

GROUPED BAR PLOT - Most Medals won by Countries in Tokyo Olympics(2021).

Grouped bar plot or grouped bar chart is widely used to visualise the correlation between a numeric and a categorical variable. Every entity of categorical variables is showcased as a bar. The size of the bar interprets its numerical value. The dataset used for plotting the below Grouped bar chart is obtained from kaggle website. Dataset contains the data of the number of Medals won by all the Nations participated in Tokyo Olympics 2021.

Dataset link :

https://www.kaggle.com/datasets/arjunprasadsarkhel/2021-olympics-in-tokyo

Below is the graphical representation of the top five most medals won by countries in the Tokyo Olympics 2021 with respect to Gold, Silver, Bronze and Total medals. The X-axis & Y-axis depicts the Country names and number of medals won respectively.

As per the above Grouped barchart, USA(America) has won most medals of total 113 with inclusion of 39 Gold, 41 Silver & 33 Bronze medals. Russia won 71 medals consisting of 20, 28 & 23 Gold, Silver & Bronze medals respectively securing the fifth place overall.

Team	Gold	Silver	Bronze	Total	Rank by Total
America	39	41	33	113	1
China	38	32	18	88	2
Japan	27	14	17	58	5
Great Britain	22	21	22	65	4
Russia	20	28	23	71	3

The Rank by Total in the above snippet shows that Russia is third, but index wise the country is placed fifth. It is due to the fact that the Nations are ranked based on the Gold medals won rather than the total number of medals.

Visualisation 3 :

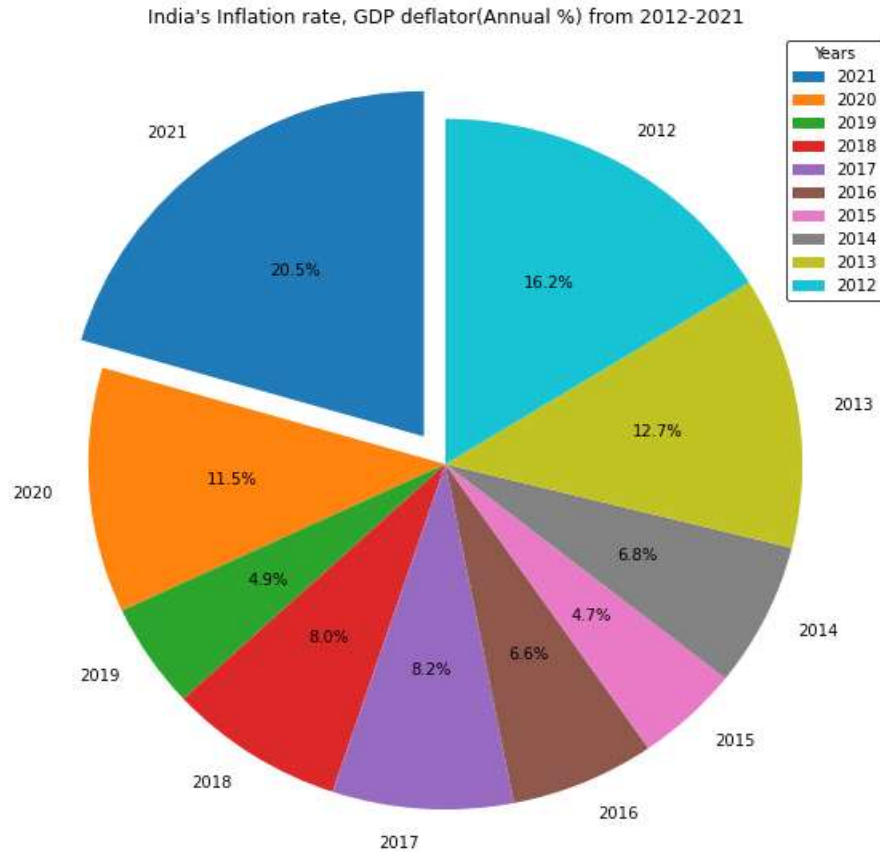**PIE CHART - India's Inflation rate, GDP deflator(Annual %) from 2012-2021.**

Pie plots are often used to display the change using circular statistical plots. Each pie (slice) of a pie chart displays data as a percentage with larger values occupying the biggest slices. Below data is gathered from worldbank.org within the time frame of 2012-2021 containing information about India's multiple entities such as Inflation percentage, Population growth (annual %), Forest area (sq. km) etc.

```
Years  InflationPercentage  ...  Net migration  Population
 2021                 10.0  ...        -301970  1407563842
 2020                  5.6  ...         -34772  1396387127
 2019                  2.4  ...        -593495  1383112050
 2018                  3.9  ...        -561563  1369003306
 2017                  4.0  ...        -219656  1354195680
 2016                  3.2  ...          68119  1338636340
 2015                  2.3  ...        -475094  1322866505
 2014                  3.3  ...        -310694  1307246509
 2013                  6.2  ...        -236387  1291132063
 2012                  7.9  ...        -180991  1274487215
```

Dataset Link :
https://databank.worldbank.org/indicator/NE.EXP.GNFS.ZS/1ff4a498/Popular-Indicators#

From the data link, India's Inflation rate, GDP deflator(Annual %) from 2012-2021 is attained and Pie chart has been plotted for the same.

India's Inflation rate, GDP deflator(Annual %) from 2012-2021

From the above Pie plot we can observe India's inflation percentage has hit highest in the year 2021 from 2012. The closest inflation rate with respect to 2021 is observed in 2012 holding the second largest slice in the Pie plot. During the considered time frame the least GDP deflator (annual %) is noticed in the year 2015 followed by 2019. Apart from those years, in general inflation percentage in India varied between 3 to 4 which directly helps in the country's economic stability and development.