Advanced Data Visualization Lab Sem 7 B.Tech. Program Elective Advait Ravi Sapkal 2021700055

Expt 2: Socio-Economic Data

Problem Statement: Create advanced charts using Tableau / Power BI / R / Python / Plotly or Chart or D3.js to be performed on the dataset - Socio economic data

- Advanced Word chart, Box and whisker plot, Violin plot, Regression plot (linear and nonlinear), 3D chart, Jitter, Line, Area, Waterfall, Donut, Treemap, Funnel
- Write observations from each chart

Software Used: Python

Dataset Used: World Socio Economic Dataset

Word Chart
 No suitable data, hence dummy.

```
# Example data: word frequency (replace this with your own data)
data = {"child_mort": 90, "exports": 10, "health": 58, "income": 45000}

# Generate word cloud
wordcloud = Wordcloud(width=800, height=400, background_color="white").generate_from_frequencies(data)

# Display word cloud
plt.figure(figsize=(10, 5))
plt.inshow(wordcloud, interpolation="bilinear")
plt.axis("off")
plt.show()

**Child_mort

health

health

income

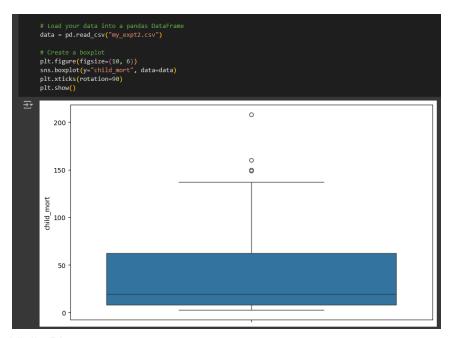
**Tom_frequencies(data)**

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```

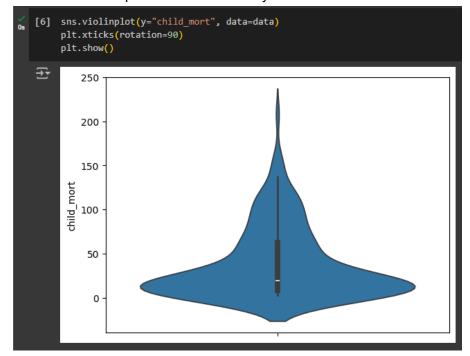
As there was no suitable data, the graph was made on a dummy dataset.

2. Box and Whisker Plot

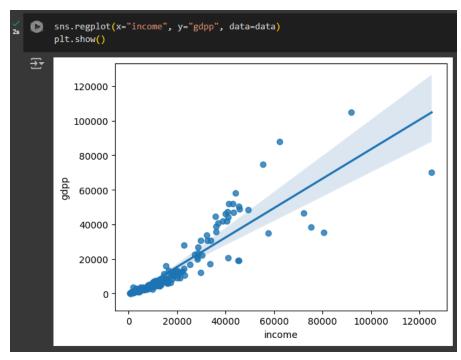
The child mortality rate mean is around 15-20, min around 5-6 and max near 150.



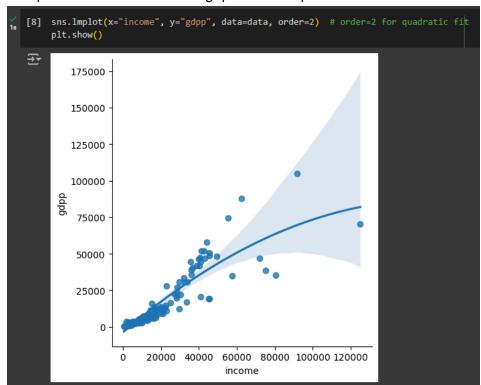
 Violin Plot Same as the box plot but shows density distribution also.



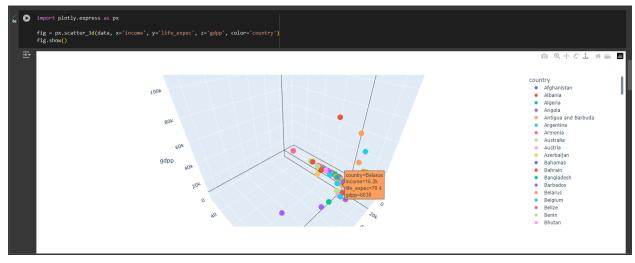
4. Regression Plot (Linear)
There is a somewhat linear relationship in income and gdp.



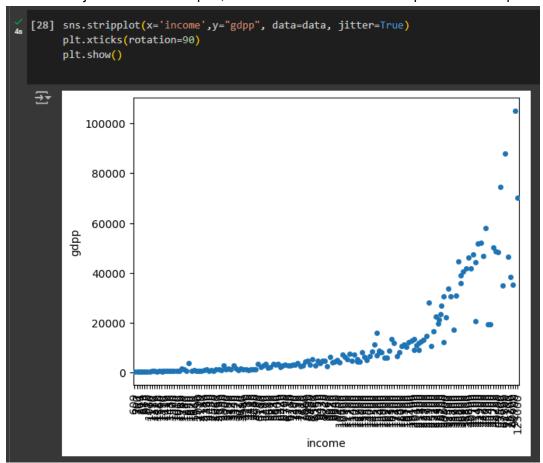
5. Regression Plot (Non-Linear)
This plot better fits the income-gdp relationship due to its non linear nature.



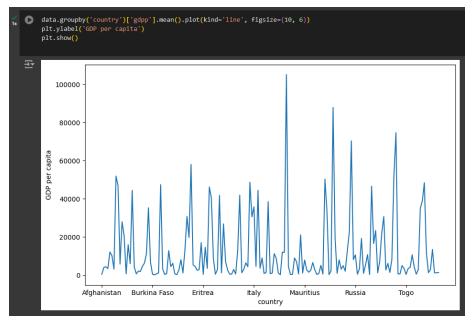
6. 3D-Chart In general, high income and high gdp in the country leads to higher life expectancy in the country.



7. Jitter Chart Jitter Plot is just like a scatter plot, but randomness is added to prevent overlap.

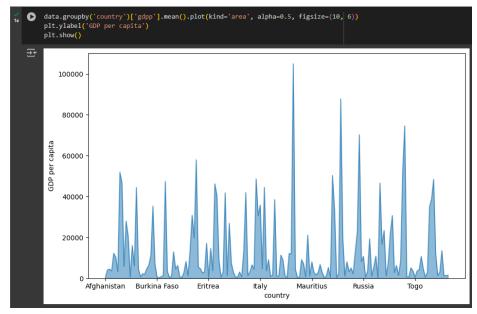


Line Chart Mostly countries tend to come close to 50000 in gdp per capita.



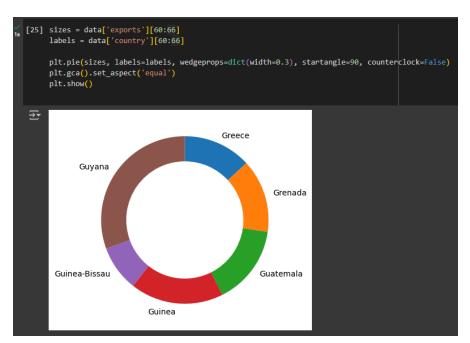
9. Area Chart

It is just like the line chart, but with the area highlighted so that cumulative analysis can also be done.



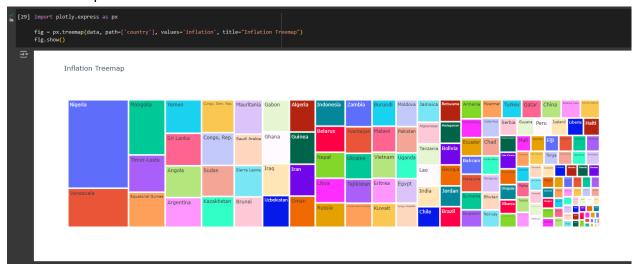
10. Donut Chart

It's like a pie chart hollowed out for better understanding. In the 6 countries selected we can see that Guyana accounts for most of the exports.



11. Treemap

A treemap shows comparison using area occupied. Nigeria has the highest inflation whereas european countries have the lowest.



12. Funnel Chart

No suitable data, hence dummy.

