



Solar Power Usage vs Country's GDP



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Datasets Used

- Kaggle: Solar Power by Country
 - <https://www.kaggle.com/prasertk/solar-power-by-country>
- The World Bank: GDP by Country
 - <https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD>

Questions

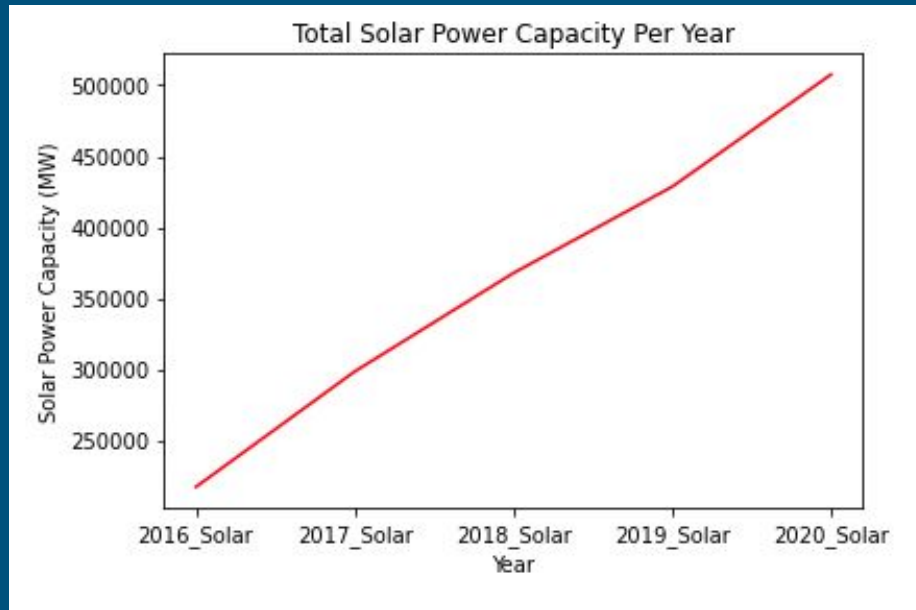
1. How does solar power capacity compare from 2016 through 2020?
2. Does a country with higher GDP have more solar power capacity than a country with lower GDP?
3. When looking at specific countries based on highest and lowest average GDP, what is the solar power capacity trend that is observed?

Cleaning Process

- Renamed columns
- Removed columns we don't need
 - Dropped Solar_New to keep more data
- Merged the two datasets according to Country
- Dropped NA values

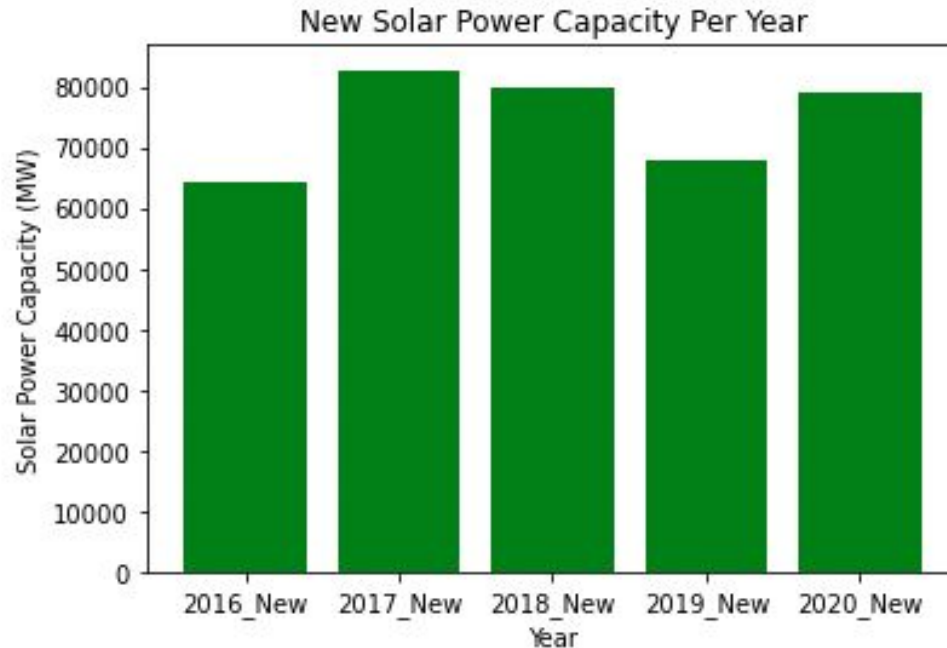
→ Navigate to Jupyter Notebook

Question 1: How does solar power capacity compare from 2016 through 2020?



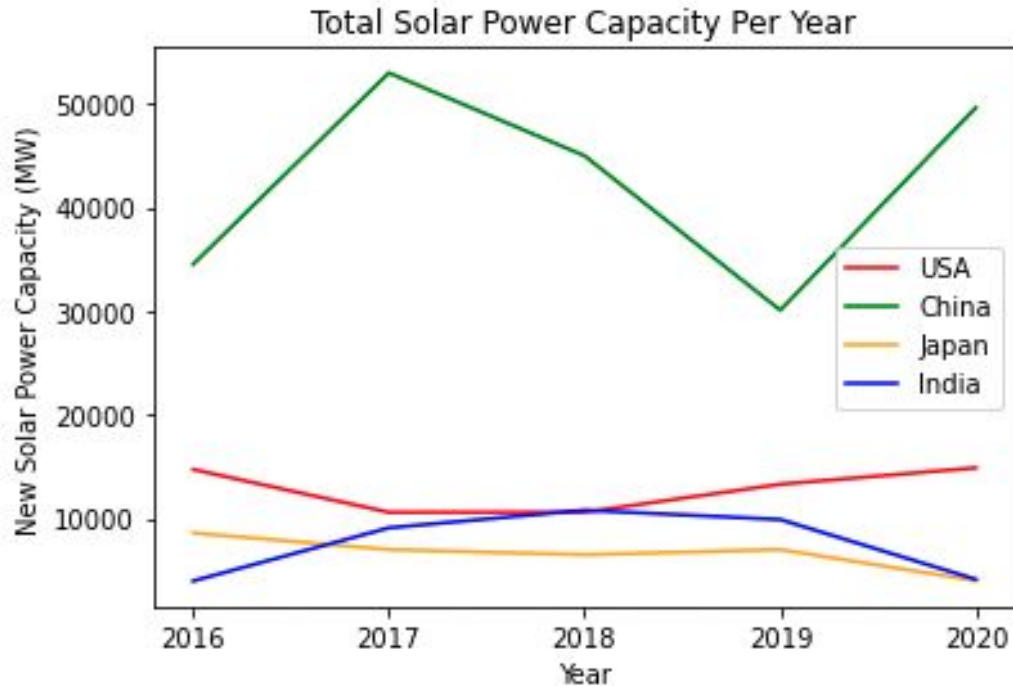
- Consistent increase in net solar power capacity (MW) per year on average across all countries

Question 1: Continuation



- When looking specifically at new solar power capacity added per year, the trend differs yearly with 2017 being the highest, 2016 the lowest

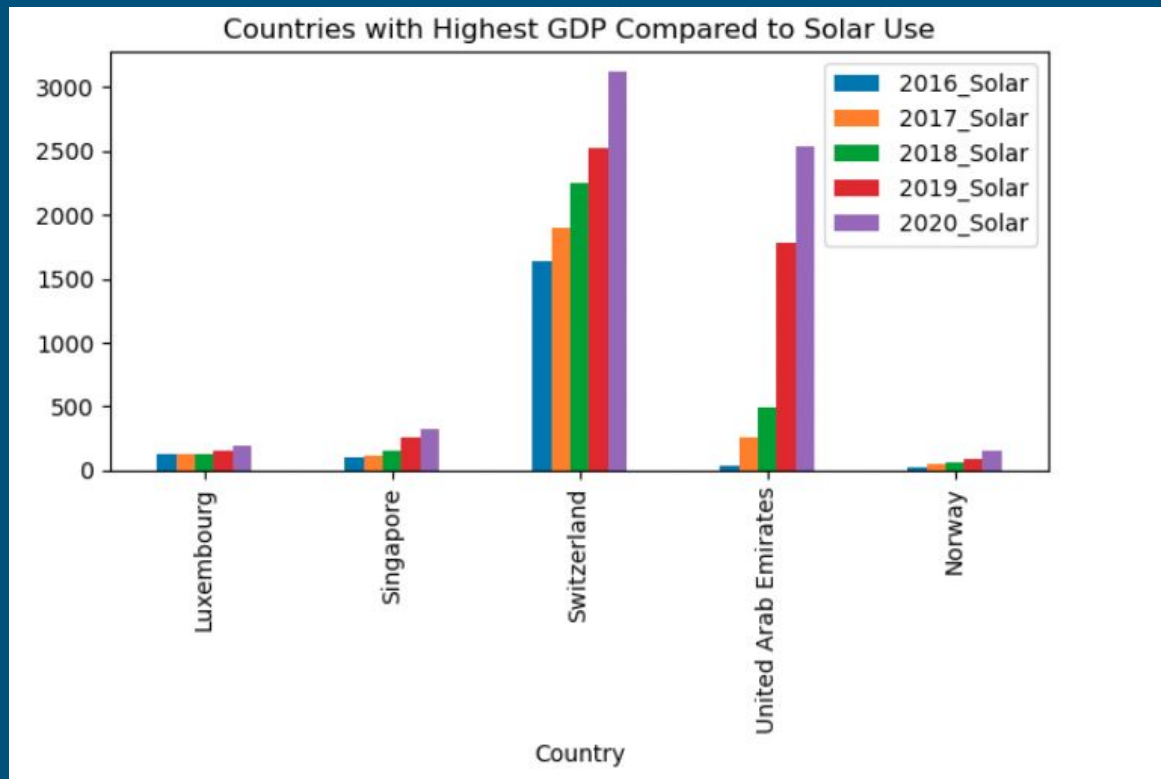
Question 1: Specific countries



- Trend varies across countries
- Focus here was on “top 4” countries with highest new solar power capacity added yearly

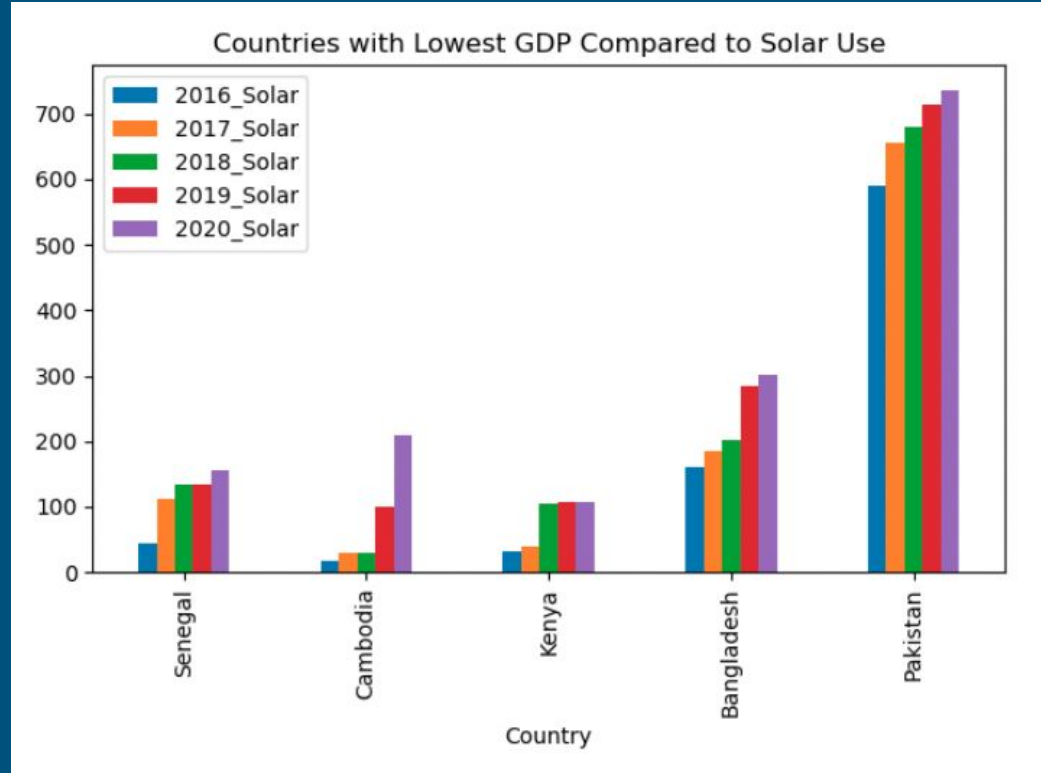
Question 2: Does a country with higher GDP have more solar power capacity than a country with lower GDP?

3 out of the 5 countries with the highest GDP average show a significantly smaller solar power capacity. One of the biggest take away was the growth from year to year for United Arab Emirates.

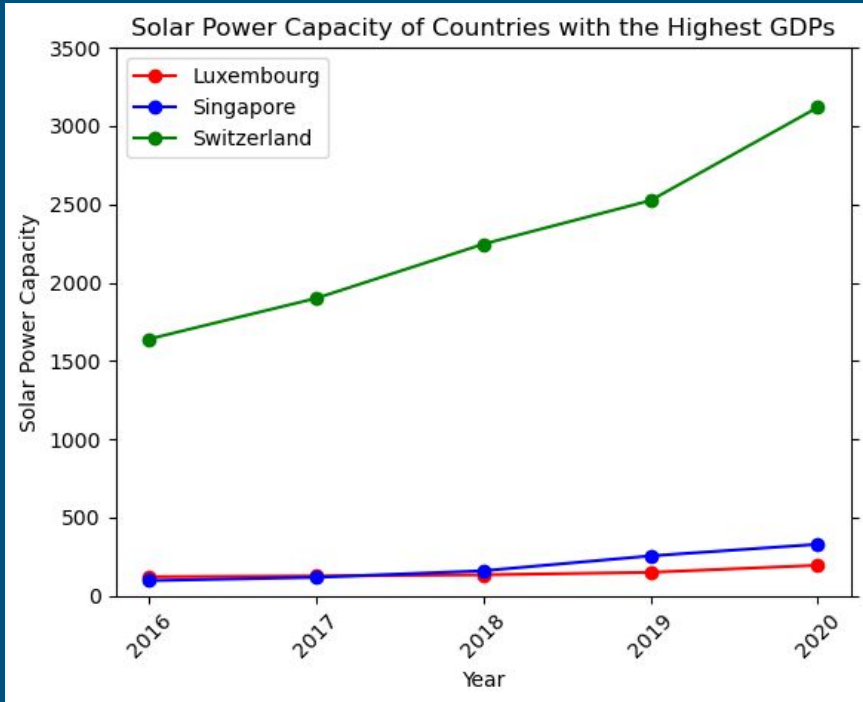


Question 2: Lowest GDP

The lowest average GDP for countries has similar results to the highest average countries. Pakistan has higher solar capacity than Luxembourg, Singapore and Norway.



Question 3: When looking at specific countries based on highest and lowest average GDP, what is the solar power capacity trend that is observed?

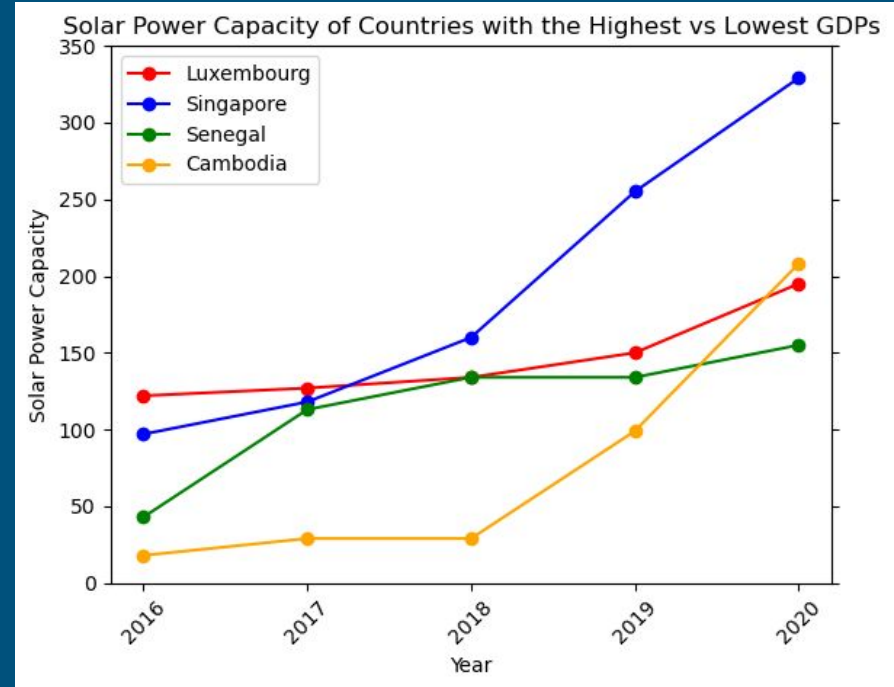


- Switzerland had the largest solar power capacity total & growth of the three countries with the highest average GDP during all five years

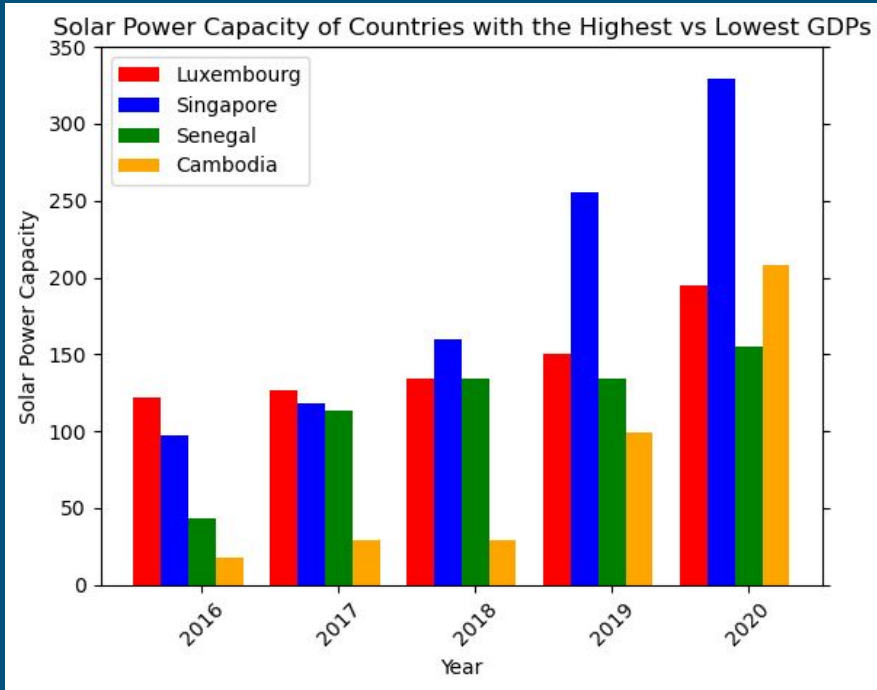
Question 3: Continuation

Comparing solar power capacity of the countries with the highest and lowest average GDPs shows that:

- Similar solar power capacities from 2016-2020 across average GDP
- Singapore and Cambodia had more growth than Luxembourg and Senegal, which remained consistent



Question 3: Final



By plotting the same data from the previous slide as a bar chart, we see that:

- Singapore eclipsed the other countries in solar power capacity
- Solar power capacity does not always correspond with GDP
- Growth in solar power capacity also doesn't correspond with GDP

Challenges & Limitations

- The dataset for solar power capacity had many NaN values in columns for “New Solar Power,” so we had to exclude those columns from our merged dataset. It would have been interesting to have used that data more
- Both datasets were limited to the years 2016-2020. Data spanning 10 or 15 years would have shown more long-term trends in solar power capacity
- If we had more time and access to more databases, we could’ve also compared other methods of power-generation

Other considerations:

- Does climate of country affect power usage/type?
- Does level of education of population affect types of power available in the country?
- How does solar power usage in countries compare to other methods of power-generation?

Begin Q&A

Thank you all for listening!