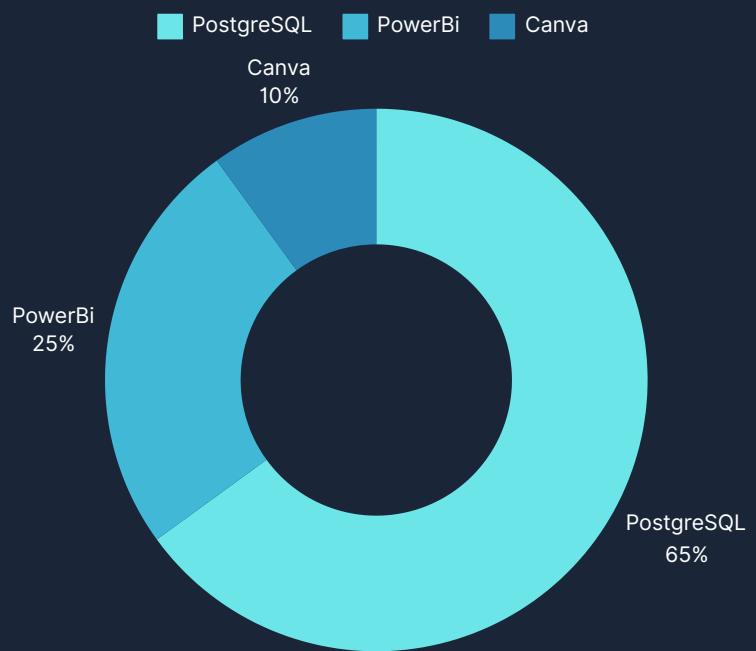


Port Data Project

Tools Used



Project Summary: Analyzing Global Port Dynamics

Objective: The project aimed to analyze and compare key metrics of global ports to provide insights for potential investors and stakeholders in the maritime trade industry.

Key Focus Areas:

1. Efficiency Analysis: Evaluated port efficiency based on the percentage difference between expected and actual arrivals of vessels.
2. Geospatial Insights: Utilized maps and geographical data to visualize the distribution of ports across countries and regions. This included identifying top countries by port count and analyzing ports by local and global geographical areas.
3. Vessel Handling Capacity: Analyzed the average vessels in port per country and port, providing insights into the capacity and throughput of different ports.
4. Investment Recommendations: Based on the analysis, recommendations were made for potential investments

Data Source: The dataset used for this analysis was sourced from Kaggle.

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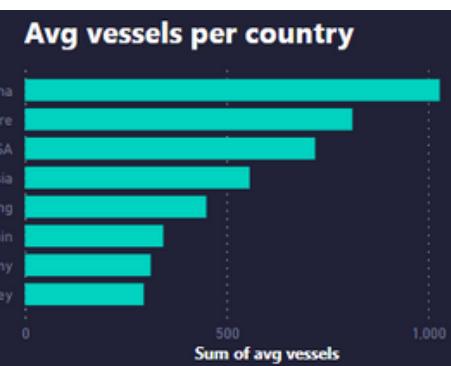


- Using the DBeaver editor, I downloaded the CSV file from Kaggle. I created a new database on the local PostgreSQL server and named it "Port_Data". I then imported the CSV file and generated the table "port_data".
- I took some time to understand the data structure and identify key metrics for analysis. I cleaned the data by handling null values, removing duplicates, and renaming columns for consistency. Specifically, I renamed columns like "Port Name" to "Port_Name" for easier querying.
- To ensure the accuracy of my analysis, I checked for duplicates and blank values. I created metrics for analysis, including calculating the percentage difference between expected and actual arrivals, and analyzing the average number of vessels in port per country and port type.
- I created views to simplify data retrieval and calculated efficiency metrics for ports. I joined tables to enrich the dataset with additional context, such as linking port data with geographic information.
- Using these metrics, I was able to identify the most efficient ports and analyze geospatial trends, which helped in making informed recommendations for potential investment opportunities.

[**Click here for the script**](#)



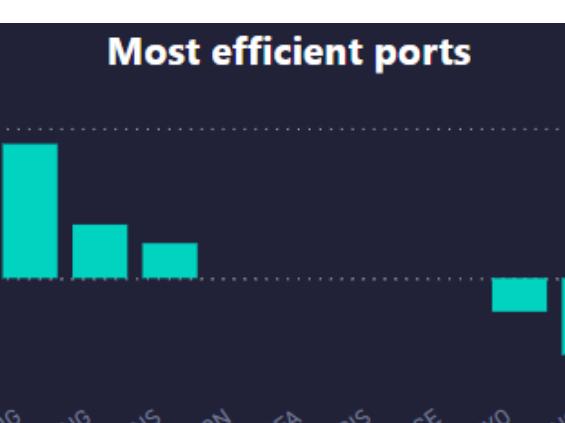
Key analysis steps included:



Average Vessels per Country: Calculating the average number of vessels present in ports across different countries provided insights into maritime activity levels and operational intensity. For instance, countries like Singapore and China showed high average vessel counts, indicating robust maritime operations and significant trade volumes.



Countries with the Most Ports: Identifying countries with the highest number of ports highlighted strategic hubs in global shipping networks. China emerged as the country with the most ports, underscoring its pivotal role in global trade and logistics networks. This analysis pinpointed regions where infrastructure investments and trade facilitation efforts could be most impactful. In the United States, New Orleans stood out for its strategic importance in handling trade flows through the Gulf of Mexico and along the Mississippi River.



Most Efficient Ports: Analyzing port efficiency metrics, specifically the percentage difference between expected and actual arrivals, revealed operational strengths and areas for improvement. Ports like Kaohsiung and Weifang demonstrated high efficiency in handling vessel traffic, minimizing deviations from expected arrivals and optimizing operational throughput.

Vessels_in_Port	percentage_diff
372	-0.03
351	0.01
148	0.04
137	0.00
113	-0.03
85	-0.01
77	0.02
77	0.00
62	0.00
60	0.00

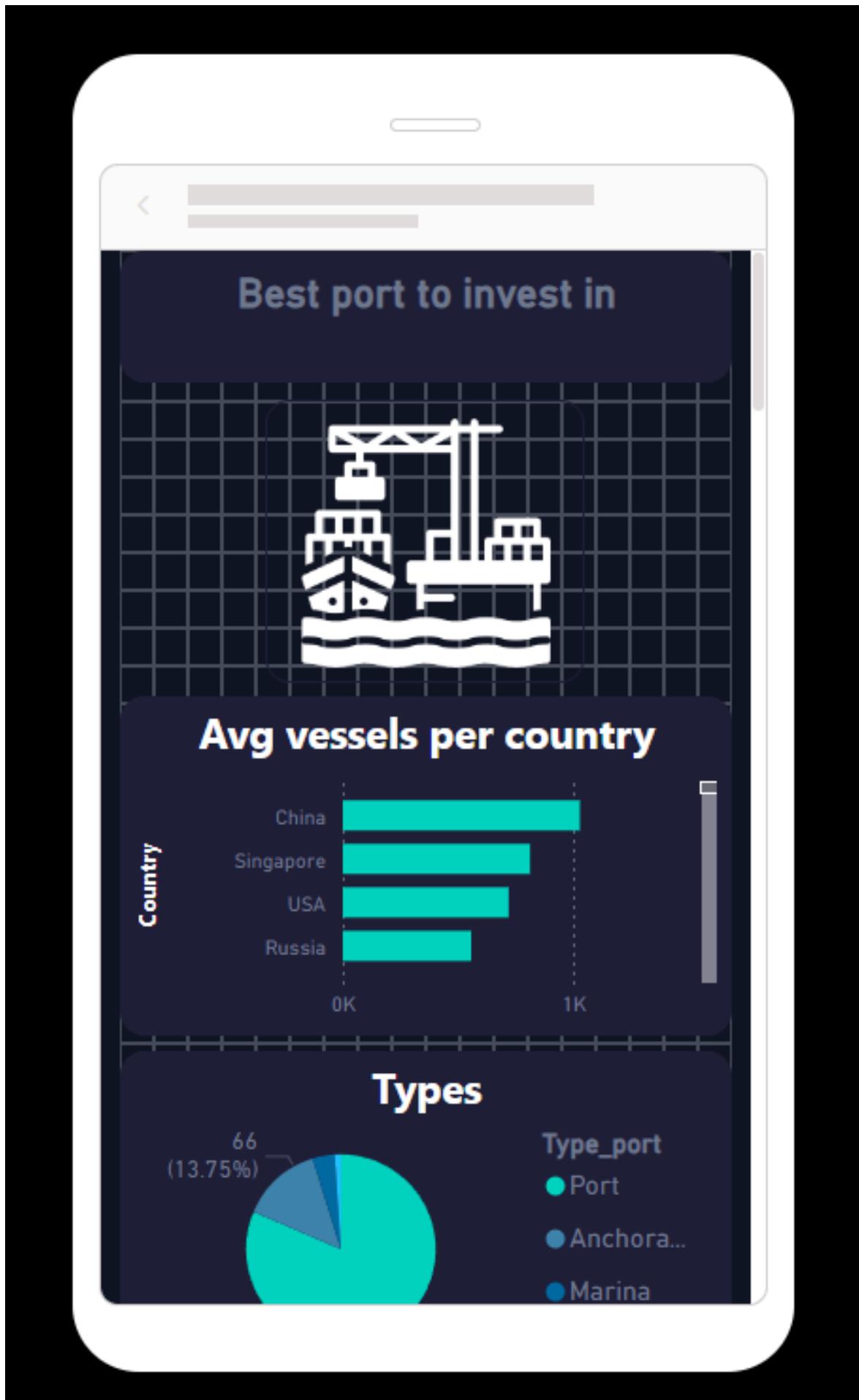
Combined Metric - Efficiency and Vessel Count: Combining efficiency metrics with vessel counts provided a nuanced understanding of port performance across different scenarios. Ports such as Kaohsiung, with a high number of vessels and efficient operations, emerged as ideal for high-volume trade sectors. Weifang, while slightly less efficient, offered competitive advantages for specific trade routes or cargo types.

In Power BI, I have created the following visuals to analyze and present the port data effectively:

- Card Visual: Displaying the total number of ports.
- Filter: Used to explore different types of ports (e.g., Port, Marina, Canal, Anchorage).
- Map Visual: Highlighting the top 10 countries by the number of ports, providing a geographic perspective.
- Bar Chart: Showing the average vessels in port per country, offering insights into port capacity and activity.
- Column Chart: Illustrating the top 10 most efficient ports based on percentage difference between expected and actual arrivals, aiding in decision-making for investment or operational decisions.
- Table visual: Combined the most efficient ports with its vessels handling, in order to find the most appropriate port to invest in, according to specific needs



Additionally, a mobile-friendly version was developed in the Power BI service, equipped with a subscription plan for automated email notifications.



Conclusion:

The analysis of global port data underscores the pivotal role of data-driven insights in shaping strategic decisions within the maritime sector. Ports like Kaohsiung and Weifang stand out for their operational efficiency and strategic advantages in global trade routes, making them prime candidates for investment. Meanwhile, New Orleans emerges as a critical hub for USA trade, leveraging its strategic location to handle significant trade flows through the Gulf of Mexico and along the Mississippi River. These findings highlight the importance of targeted investments in port infrastructure and logistics to enhance operational efficiency, support economic growth, and strengthen global supply chain resilience in an increasingly interconnected world.



"Thank you for taking the time to explore this project."