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Gantt Chart’s Solution

For this project, my approach centered on transforming maintenance and docking period data for each ship into a visually intuitive Gantt chart using Plotly’s px.timeline. First, I used pandas to load the dataset from an Excel file with pd.read\_excel, converting date columns into datetime format to facilitate precise duration calculations and date handling. Each ship’s maintenance and docking periods were structured as individual records, with the start and end dates used to create two timeline bars per ship in the Gantt chart. This method allowed for seamless stacking of tasks within a single visual line per ship, differentiating maintenance and docking periods by color for easy reference. Additionally, I calculated each period's duration in days to add context, which was set to display as hover text for each task bar.

One challenge encountered was balancing the visual clarity of overlapping timelines and ensuring the layout didn’t look overcrowded. Plotly’s interactivity helped address this, as hover text allowed the display of detailed information without overloading the chart with labels. Another design decision involved differentiating docking and maintenance periods with distinct colors, making it quick to visually distinguish the two. I adjusted the chart's spacing (bargap) to ensure that each task bar was visually separated, contributing to a cleaner look.