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Data Science Programming

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This project looks at United Airlines flights leaving Newark Airport (EWR) and compares delays between 2018 and 2023. The main goal was to see how on-time performance changed over time, what caused the delays, and whether some times of day were worse than others. I used Python in Jupyter Notebooks to do the analysis. Pandas helped clean and organize the data, and Matplotlib was used to make all the charts. The data came from a CSV file with flight information for both years. Some of the questions I wanted to answer were: What percentage of United flights departed on time in 2018 vs 2023? Which delay causes (weather, carrier, NAS, late aircraft) were most significant in each year? Are certain times of day more prone to delays for United flights departing EWR? How did United Airlines' average departure delays at EWR compare between 2018 and 2023? The results showed that delays and on-time performance definitely changed between the two years. Late arriving aircraft caused the most problems, and delays were generally worse later in the day, especially after noon. If I were giving these results to an airline or airport, I'd recommend focusing on reducing late arrivals and making turnarounds faster. Changing schedules or staffing during the busiest hours could also help flights leave on time more often. For future work, it would be interesting to look at seasonal

trends or more into weather impacts. Comparing United to other airlines at EWR or including arrival delays could give an even better idea of overall airport performance.