This project forecasts daily hotel room demand for seventeen U.S. properties using statistical, machine learning, neural, and foundation model approaches, all evaluated through five-fold non-overlapping time-series cross-validation. The models implemented include Naive, Seasonal Naive, autoETS, autoARIMA, LightGBM, AutoNBEATS, AutoNHITS, and the Chronos foundation model.

Each model is assessed using standard accuracy metrics such as ME, MAE, RMSE, and MAPE, and Chronos consistently delivers the strongest overall performance across the hotel series. After evaluation, all models are retrained on the full dataset to produce final twenty-eight-day forecasts, which are saved along with complete cross-validation results and visualizations for all properties.

This project generates actionable insights for hotel revenue management by identifying which forecasting methods perform best across multiple properties and by producing reliable twenty-eight-day demand projections. The final repository includes the full code, evaluation outputs, visualizations, and consolidated forecast files, all organized for clarity and reproducibility. A link to the Google Colab notebook is also provided so the entire workflow can be easily reviewed or extended.