README - Dynamic Pricing for Urban Parking Lots

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Capstone Project | Summer Analytics 2025 | CnA Club x Pathway

Overview:

This project builds a real-time, intelligent dynamic pricing engine for 14 urban parking spaces using historical and streaming data.

The goal is to reduce overcrowding and underutilization by adjusting prices based on demand features.

Tech Stack:

- Python
- Pandas
- NumPy
- Matplotlib
- FPDF
- Google Colab

Model 1: Baseline Linear Pricing

Formula: Price = Base + alpha * (Occupancy / Capacity)

- Base Price: $10
- Alpha: 5
- Prices clipped between $5 and $20

Architecture (Text Description):

Input CSV -> Linear Model -> Price Output -> Visualization -> Report

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