Dynamic Pricing for Urban Parking Lots

Capstone Project – Summer Analytics 2025
Hosted by : Consulting & Analytics Club and Pathway

Overview

Urban parking is a scarce and often mismanaged resource. Fixed pricing models frequently cause overcrowding in high-demand zones and underuse in others.
Our solution introduces a real-time, data-driven **dynamic pricing engine** across 14 city parking lots. By leveraging **machine learning** and **economic principles**, the system intelligently adjusts prices based on fluctuating demand, environmental context, and competitor behavior
All implementations are built from scratch using **NumPy**, **Pandas**, and **Pathway .**

Technology Stack

Feature	Tool Used
Programming Language	Python
Data Manipulation	Pandas, NumPy
Stream Processing	Pathway
Visualization	Bokeh
Development Platform	Google Colab

Architecture Diagram