# Final Project Proposal

## Microservices and Cloud Computing - CSC 5201 001

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**Project Overview**

Create a microservices-based application that fetches product prices from Costco and Metro Market in real-time, compares them, and shows users the cheapest store for a given product.

Hoping to answer the question, “What store should I buy \_\_\_ item at?”

**1. Microservices Architecture**

* Each microservice handles a specific function:
  + **Scraper Service:** For Costco and Metro Market.
  + **Comparison Service:** Normalize and compare prices.

**2. Containerization and Orchestration**

* **Dockerize** each service and deploy

**3. APIs**

* Create REST APIs for product search AND price comparison.

Expose endpoints like:

* /fetch-prices/costco
* /fetch-prices/metro-market
* /compare?product\_id=<id>

A screen shot of a computer

Description automatically generated

**Backend Services:**

* Python using Flask.
* Database: SQLite for storing mock price data and usage statistics.

**Frontend**:

* A lightweight React or Vanilla JavaScript interface to view comparisons.

**Requirements**

* **Microservices:** Two backend services (price fetching and comparison) and one frontend app.
* **REST APIs:** All endpoints are RESTful.
* **Cloud Deployment:** Deployed on a cloud platform using Docker containers.
* **Access Controls:** Use API keys for access control.
* **Statistics:** Log API usage and display it on an admin endpoint.

Extra Credit:

* Machine Learning**:** Use a pretrained ML model (e.g., from TensorFlow) to predict price trends or discounts based on historical data.

^ I may not reach this step, but will try to integrate if I have time.