

# Cross-Marketplace Laptop & Review Intelligence

## Problem

Build an insights engine for **business laptops** sold on two first-party stores (Lenovo & HP). Treat brand product pages as the mutable source for **price, availability, promos, and reviews/Q&A**. Treat the **PDFs below** as **canonical ground truth for technical specifications**. Deliver a coherent dataset, an interactive analytics experience, **a documented API connected to a front end**, and an **LLM layer** that answers questions and provides **purchase recommendations** with citations.

**Canonical Spec Inputs (use these exactly)**

- Lenovo **ThinkPad E14 Gen 5 (Intel)** — PSREF:  
[https://psref.lenovo.com/syspool/Sys/PDF/ThinkPad/ThinkPad\\_E14\\_Gen\\_5\\_Intel/ThinkPad\\_E14\\_Gen\\_5\\_Intel\\_Spec.PDF](https://psref.lenovo.com/syspool/Sys/PDF/ThinkPad/ThinkPad_E14_Gen_5_Intel/ThinkPad_E14_Gen_5_Intel_Spec.PDF)
- Lenovo **ThinkPad E14 Gen 5 (AMD)** — PSREF:  
[https://psref.lenovo.com/syspool/Sys/PDF/ThinkPad/ThinkPad\\_E14\\_Gen\\_5\\_AMD/ThinkPad\\_E14\\_Gen\\_5\\_AMD\\_Spec.pdf](https://psref.lenovo.com/syspool/Sys/PDF/ThinkPad/ThinkPad_E14_Gen_5_AMD/ThinkPad_E14_Gen_5_AMD_Spec.pdf)
- HP **ProBook 450 G10** — Datasheet:  
<https://h20195.www2.hp.com/v2/GetPDF.aspx/c08504822.pdf>
- HP **ProBook 440 G11** — Datasheet:  
<https://h20195.www2.hp.com/v2/getpdf.aspx/c08947328.pdf>

## What your solution must include

### Data + Modeling

- Data that captures **price, currency, availability, shipping ETA, promo badges, seller (if marketplace), review counts/ratings, review text, and Q&A excerpts** from relevant product pages.

### LLM

Use **either a hosted LLM endpoint or a local LLM** to power:

- a **chatbot** for natural-language questions over your dataset, and
- a **recommender** that proposes SKUs/configs given user constraints (budget/specs/preferences), with short rationales.

## API (must expose and document)

- Provide a **versioned, production-ready API** (REST).
- Include endpoints covering, at minimum: **catalog & specs, offers/price history, reviews, search/filtering, recommendations, and chat/query**.

## Front End (must connect to your API)

- A usable **UI** that consumes your API and demonstrates end-to-end flows:
  - **Explore/Compare**: filter by brand/specs/price/rating; view price trends & availability; drill into row-level details with links back to source artifacts.
  - **Reviews Intelligence**: volume/rating trends; top themes/aspects.
  - **Chat & Recommend**: a pane to ask questions and receive recommendations with visible **citations**.

## Deliverables

- **Public Git repository URL** with all code and artifacts.
- **Production-grade code**
- **Documentation**
- **README**
- **Artifacts**: generated dataset, schema diagram.
- **Screen recording**: a concise end-to-end run (sample → dataset → analytics UI) plus **3 – 4 live chat + recommendation** interactions.

**Submit your public Git repo URL with the final deliverables.**