

Clients requirement:

The client currently runs an **e-commerce portal** on **LAMP (PHP + MySQL)**, hosted on **Azure Cloud**, but their search is very weak (spelling mistakes break it, no contextual understanding, irrelevant results).

They now want a **modern AI-powered search experience** with:

1. **Typo-tolerant search** → If user types “ctton fabirc”, it should still return *cotton fabric*.
2. **Context-aware queries** → Understand “Nike shoes size 9 black” even if typed out of order.
3. **Intelligent product suggestions** → Show upsell/cross-sell items (e.g., recommend matching fabric or accessories).

Technical expectations:

- Should fit into their **PHP + MySQL stack**.
- Must run at scale on **Azure** (so use services like Azure Cognitive Search, Azure ML, Functions, or OpenAI APIs).
- Final system should be **easy to deploy & maintain**.

Deliverables required:

- Design document (architecture + data flow + Azure resources).
- PHP modules or microservices (plug into current codebase).
- NLP models (for typo correction, intent parsing).
- Product recommendation logic integrated with their catalog schema.
- Deployment automation (ARM/Terraform).
- Documentation + handover session.

Acceptance criteria:

- $\geq 95\%$ precision in search accuracy tests.
- Sub-second responses for 1k concurrent users.
- Prove uplift in CTR via A/B test.

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- **Current stack:** LAMP (PHP 7.4, MySQL 8.0, Apache 2.4, UTF8mb4), hosted on **Azure Cloud**.

- Already experimenting with **OpenAI GPT-4 Turbo**.
 - They want **OpenAI-based search integration** for product/vendor/stock queries like:
 - “Surat laces supplier”
 - “100% cotton fabric in knits”
 - “Sustainable fabrics”
 - “Show me supplier from Ludhiana knitted”
 - Restriction logic:
 - **Open platform search** → Visitors can search product/stock/vendor without login.
 - **Enquiry/Profile search** → Requires user login (via registered email).
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The client basically wants:

- **An AI-powered search engine** built into their **PHP/MySQL portal on Azure**.
 - **OpenAI / Azure Cognitive Search + custom NLP** for better accuracy.
 - **Two-tiered access control**:
 - General product/vendor search is open.
 - Profile/enquiry details only after login.
 - The end goal is **higher precision, typo-tolerance, natural query handling, and smart suggestions** → all while being scalable and easy to maintain in Azure.
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👉 In short:

The client is asking you to **design and implement an AI-powered intelligent search system for their PHP/MySQL e-commerce platform on Azure**, with typo correction, NLP intent understanding, and product recommendations—integrated cleanly into their stack and leveraging Azure + OpenAI services.