# **Development Plan for Linka E-Commerce Platform**

## **Project Overview**

Linka connects customers, shops, and delivery systems via a proxy architecture. This plan outlines the setup of Google Cloud environments, Docker-based shop-application, client-application, and their integration.

## **Timeline**

Total: **4 weeks**.

### **Phase 1: Set Up Google Cloud Environments (2 Days, Week 1)**

* **Create Project**: linka-ecommerce-prod, enable Compute Engine API, Cloud SQL API.
* **Provision GCE**: e2-micro, 10 GB SSD, Ubuntu 22.04 LTS, allow HTTP/HTTPS.
* **Set Up Cloud SQL**: PostgreSQL 16, db-f1-micro, 10 GB SSD, PostGIS enabled.
* **Install Dependencies**: Python 3.12, FastAPI, psycopg2.
* **Deploy Proxy**: Basic FastAPI app with /health endpoint.

### **Phase 2: Create Shop-Application in Docker (3 Days, Week 1)**

* **Setup**: Install Docker, Node.js (v20.x).
* **Develop App**: Express.js, MongoDB, /catalog endpoint.
* **Containerize**: Dockerfile, build and test locally.

### **Phase 3: Connect Shop-Application to Proxy (2 Days, Week 2)**

* **Deploy Shop-App**: Push to GCR, deploy on Cloud Run.
* **Update Proxy**: Add /shops/discover, /shops/{shop\_id}/catalog endpoints.
* **Test**: Verify connectivity.

### **Phase 4: Develop Client-Application (5 Days, Week 2-3)**

* **Setup**: React.js with Vite, Tailwind CSS.
* **Develop**: Shop discovery, catalog browsing components.
* **Build**: Optimize and build for production.

### **Phase 5: Connect Client-Application to Proxy (3 Days, Week 3-4)**

* **Deploy Client**: Deploy to Netlify.
* **Enhance Proxy**: Add /order endpoint.
* **Update Client**: Add order placement functionality.
* **Test**: End-to-end flow.

### **Phase 6: Final Testing and Documentation (2 Days, Week 4)**

* **Test**: Load test with JMeter, verify scalability.
* **Document**: Setup steps, API docs with Swagger.

## **Resources**

* **Team**: 1 DevOps, 2 backend, 1 frontend developer.
* **Tools**: Google Cloud Console, Docker, Node.js, React.js, Netlify CLI, JMeter, Swagger.