

LAB M1.05 REPORT

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How the API Integration Works

Step 1: Authentication - We sent an API key (like a password) to prove we're allowed to use ChatGPT.

Step 2: Prompt - We wrote instructions: "Look at this product image and write a title, description, and features."

Step 3: Image - We converted the image to base64 (text format) and sent it with the instructions.

Step 4: Processing - ChatGPT analyzed the image and followed the instructions.

Step 5: Response - ChatGPT sent back a title, description, features, and keywords in JSON format.

Step 6: Save - We saved all results to generated_listings.json.

Why it matters: Instead of writing 100 product descriptions manually which will take hours of work, the script did it automatically in seconds/minutes.

Challenges Faced

API Key Issue - The script said "API key not found" because I hadn't set the environment variable. Fixed by typing `export OPENAI_API_KEY='sk-...'` in Terminal. Learned that environment variables are temporary unless saved in a .env file.

Special Characters - Using double quotes around the API key caused errors because special characters were interpreted as commands. Fixed by using single quotes: `export OPENAI_API_KEY='sk-...'`. Learned that single quotes protect special characters.

Quality of Generated Listings

Opened generated_listings.json and reviewed the results. **Quality: Really GOOD!**

Titles - Professional and catchy. "Stylish Navy Blue Checkered Men's Shirt" and "Stylish Peter England Party Blue Jeans for Men" clearly describe products. Both under 60 characters.

Descriptions - Detailed (140-160 words), persuasive language, practical tips. Product 1 includes "Pair it with jeans for a laid-back look or slacks for formal wear." Both explain benefits, not just features.

Features - 6-7 specific items each: "Premium quality fabric," "Navy blue check pattern," "Comfortable fit," "Easy to care for," etc. Match what's visible in images.

Keywords - Mix of specific ("men's shirt," "checkered," "denim") and broad ("casual," "office wear"). Product 2 wisely includes brand name "Peter England."

Accuracy - ChatGPT correctly identified colors, materials, and design elements from images. Listings are ready for real e-commerce use.

Potential Improvements

1. **Process More Products** - Expand from 3 to 100+ products to handle real catalog sizes.
2. **Cost Tracking** - Add code to calculate API costs per product so companies can budget spending.
3. **Avoid Duplicates** - Cache results so repeated products don't get re-processed (saves money).

