Product Requirements Document

Version: 3.0 (Market Intelligence Update)
Status: Active Development
Environment: Flask + FastAI (E: Drive)
Target Market: India (Sneakerheads, Resellers)

1. Executive Summary & Vision

Sneaker Hunter AI is a comprehensive ecosystem designed to bridge the gap between visual identification and market decision-making.

The Problem:
1. Visual Confusion: Users cannot distinguish between models like Nike AF1 vs. Court Vision, or Adidas Samba vs. Gazelle.
2. Information Fragmentation: Identifying a shoe is useless if you don't know the price or where to buy it.

The Solution:
A unified platform where a user uploads an image, and the system delivers:
- Precision ID (Zero Hallucination)
- History & Release Date
- Retail Price Graphs
- Curated List of Indian Resellers

2. Product Features & Flow

1. The Core Input:
- Drag & Drop Interface.
- Strict Input Validation (JPG/PNG only).

2. The Smart Output Dashboard:
- Identity: "Adidas Samba OG" (AI Output).
- Bio: History and description (Database).
- Price Graph: Market trends over the last 6 months.
- Where to Buy: Links to VegNonVeg, Superkicks, CDC, etc.

3. Data Strategy (The Expansion)

Phase 1: The MVP (Current Focus)
Goal: Perfect accuracy on "Hard-to-Distinguish" pairs.
- Nike Air Force 1 vs. Nike Court Vision.
- Adidas Superstar vs. Puma Suede.

Phase 2: The Expansion (Future Roadmap)
Goal: Broaden library to "Terrace Culture" and "Vintage Runners".
- Nike: Blazers, Cortez, Waffle Trainer, Killshot.
- Adidas: Samba, Gazelle, Spezial, SL72, Campus.

4. Technical Architecture

1. AI Engine: ResNet50 (Fine-tuned).
   Constraint: If confidence < 75%, return "Unsure" instead of hallucinating.

2. Application Layer: Flask (Python).
   Logic: Maps AI Class -> JSON Database -> Price/Reseller Data.

3. Security Mandates (Non-Negotiable):
   - Input Sanitization: secure_filename() on all uploads.
   - API Security: No hardcoded keys.
   - Privacy: Images wiped after processing.

5. Success Metrics

- Accuracy: >95% correctly identified silhouettes.
- Latency: Full report loaded in < 3 seconds.
- Hallucination Rate: < 1% (Zero tolerance for Brand confusion).