Enhancing ShopAssist AI Chatbot with Function Calling

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Existing Flow - Before Enhancement

1. User Input: Chatbot collects laptop requirements via natural conversation
2. Requirement Buckets:
   - Budget
   - GPU Intensity
   - Display
   - Multitasking
   - Processing Speed
   - Portability
3. Scoring Algorithm: Recommend laptops only if score > 2
4. Limitations:
   - Rigid conversation flow
   - Static requirement parsing
   - No real-time decision API

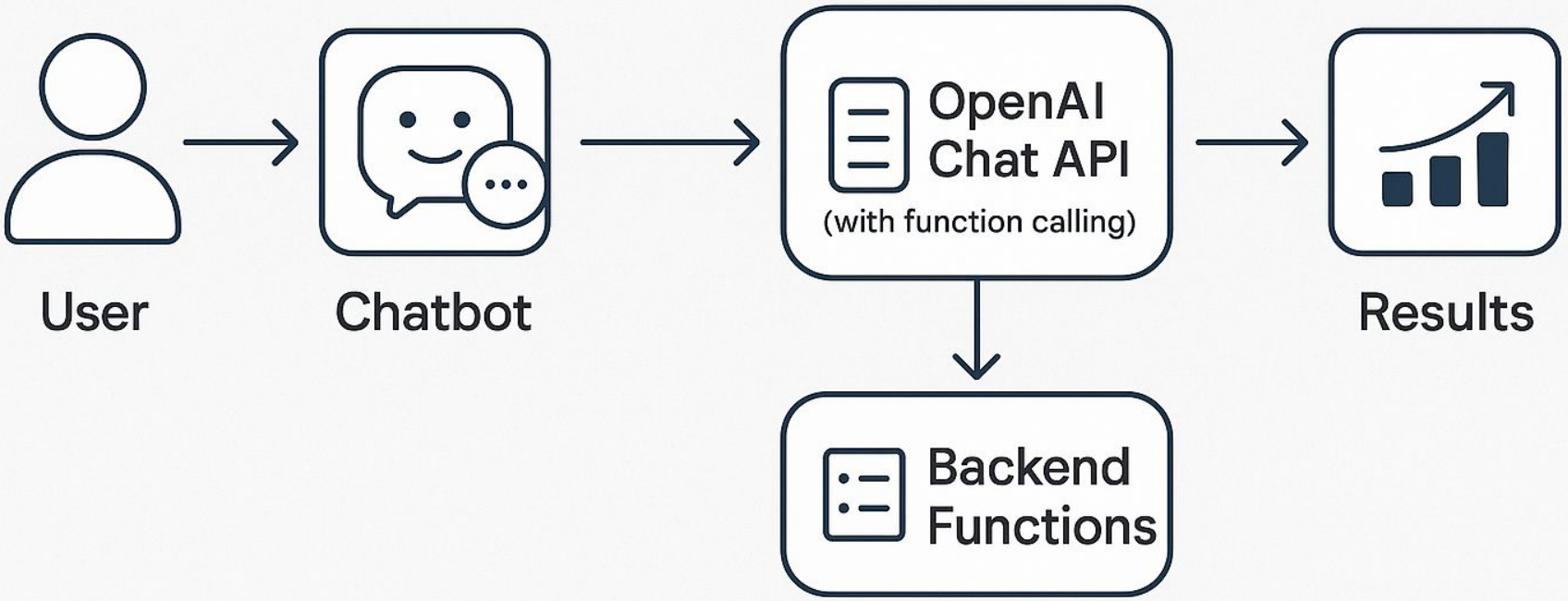
Identified Improvement Areas

- Need for better context retention
- Reduce dependency on fixed conversation structure
- Increase chatbot's intelligence for varied input
- Enable dynamic and modular backend operations

Upgraded flow – Using Function Calling

- Chat Completions API with Function Calling
- Modified Architecture:
  - User -> Chatbot -> Function triggers → Processing → Response
- New Flow Highlights:
  - Dynamic parsing of user input
  - Contextual function invocation
  - Real-time decision-making

Upgraded Flow with Function Calling



Function Calling API Integration

- Defined Functions:
  a. intent_confirmation()
  b. recommend_laptops()
  c. search_latest_prices()
- OpenAI Role:
  a. Chooses function and timing
  b. Sends structured JSON to backend
- Advantages:
  a. Cleaner architecture
  b. Separation of concerns
  c. Better observability