OPD Token Allocation Engine – Design Notes

Architecture Overview
Client → REST API (Flask) → Token Allocation Logic → In-memory Data Store

Core Components
• Doctor Schedule Manager
• Slot Capacity Controller
• Priority-based Token Allocator
• Reallocation Handler

Prioritization Logic
Emergency > Paid > Follow-up > Walk-in

Dynamic Handling
• Emergency tokens override capacity temporarily
• Cancellations free slots instantly
• No-shows are handled as implicit cancellations

Scalability
• Replace in-memory storage with DB
• Use Redis for queue management
• Extend to multi-hospital setup