Document 1: Foundation Setup 🔧

"Complete Guide: Flashing Raspberry Pi OS"

Achievements:

- Raspberry Pi 4B hardware preparation
- Operating system installation (Raspberry Pi OS Lite 64-bit)
- SSH access configuration
- Basic network connectivity
- Initial security hardening

Key Outputs:

- Functional Pi with static IP
- SSH key authentication
- Basic firewall setup

Document 2: AI Infrastructure

"SmartParent Phase 2: AI-Stack Setup (Steps 1-3)"

Achievements:

- **Step 1**: Ollama AI runtime with Phi-3-mini model (3.8B parameters)
- **Step 2**: Domain classification system (5 categories: educational, entertainment, social_media, gaming, inappropriate)
- **Step 3**: AI database schema with classification storage

Key Components:

- Local AI processing (privacy-preserving)
- Domain classifier with 75%+ accuracy
- SQLite database with AI tables
- Caching system for performance

Document 3: Network Monitoring Core 📡

"Raspberry Pi DNS Monitoring Configuration"

Achievements:

- DNSmasq DNS server configuration
- Python-based DNS request monitoring
- Real-time database logging
- Web dashboard for visualization
- Router integration (Pi becomes network DNS server)

Key Features:

- Captures all network DNS requests
- Device identification and tracking
- Traffic statistics and analytics

- Basic web interface

Document 4: Intelligence & Production
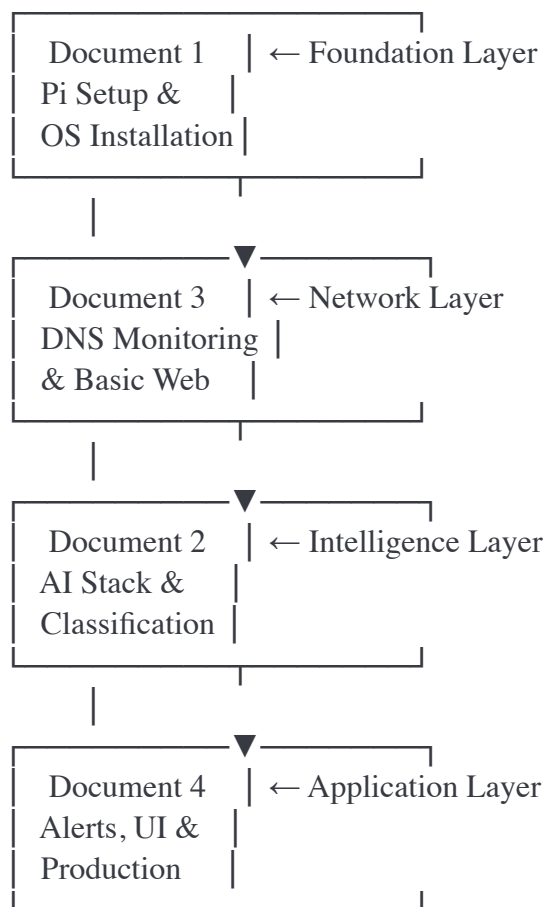
"SmartParent Phase 2: Steps 4-8 Implementation"

Achievements:

- **Step 4**: Intelligent alert system with email/webhook notifications
- **Step 5**: Enhanced DNS monitor with AI integration
- **Step 6**: Advanced web dashboard with real-time analytics
- **Step 7**: Comprehensive testing suite
- **Step 8**: Performance optimization and production deployment

Advanced Features:

- Real-time AI classification of DNS requests
- Behavioral pattern detection
- Automated parental controls
- Performance monitoring and optimization

Overall System Dependencies 🔗

```
┌─────────────────┐
│  Document 1     │ ← Foundation Layer
│ Pi Setup &      │
│ OS Installation │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│  Document 3     │ ← Network Layer
│ DNS Monitoring  │
│ & Basic Web     │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│  Document 2     │ ← Intelligence Layer
│ AI Stack &      │
│ Classification  │
└─────────────────┘
         │
         ▼
┌─────────────────┐
│  Document 4     │ ← Application Layer
│ Alerts, UI &    │
│ Production      │
└─────────────────┘
```

Critical Dependencies:

1. **Hardware → OS** (Doc 1 → 3): Pi must be functional before DNS setup
2. **DNS → AI** (Doc 3 → 2): Basic monitoring needed before AI classification
3. **AI → Intelligence** (Doc 2 → 4): AI stack required for smart alerts
4. **All → Production** (Docs 1-3 → 4): Complete system needed for production deployment

Final System Capabilities:

🛡 **Complete parental monitoring solution** that:

- Intercepts all network DNS requests
- Classifies websites using local AI (privacy-preserving)
- Generates intelligent alerts based on behavior patterns
- Provides real-time dashboard with analytics
- Automatically manages network access controls
- Operates independently without cloud dependencies

This is essentially a **enterprise-grade network monitoring system** built on consumer hardware, providing parents with professional-level insights into their family's internet usage while maintaining complete privacy through local processing.