Improvements that are needed to done in future:

These are some list suggestions and actually improvements that are needed to be done in order to make these apps production ready , this ideas are some of them LLM generated and Some of them are my own ideas which I listed down below :

1. Image Search & Matching
   * Add image similarity search using CLIP or similar models
   * Enable searching for documents containing similar images
   * Display image thumbnails in search results
2. Enhanced Search Features
   * Implement faceted search (filter by date, document type, etc.)
   * Add support for boolean operators (AND, OR, NOT)
   * Include fuzzy search for handling typos
3. Document Visualization
   * Show document previews with highlighted search terms
   * Add page thumbnails for quick navigation
   * Implement a document viewer with zoom/pan capabilities
4. Batch Processing
   * Add support for processing multiple PDFs in a folder
   * Implement progress tracking for batch operations
   * Add option to schedule processing during off-hours
5. Export & Sharing
   * Export search results as PDF/Word/CSV
   * Generate shareable links for specific searches
   * Add "Save Search" functionality
6. Performance Optimization
   * Implement caching for frequent queries
   * Add pagination for large result sets
   * Optimize database queries with proper indexing
7. User Interface
   * Add dark/light theme support
   * Implement keyboard shortcuts
   * Add tooltips and help sections
8. Security & Access Control
   * Add user authentication
   * Implement document access permissions
   * Add audit logging
9. API Integration
   * Create REST API endpoints
   * Add webhook support for notifications
   * Enable integration with other tools
10. Analytics Dashboard
    * Track popular searches
    * Show document statistics
    * Monitor system performance
11. Mobile Optimization
    * Responsive design for mobile devices
    * Touch-friendly interface
    * Offline access to recent documents
12. Accessibility
    * Screen reader support
    * Keyboard navigation
    * High contrast mode
13. Document Organization
    * Add tagging system
    * Create collections/folders
    * Add notes and annotations
14. Advanced Search
    * Natural language queries
    * Search within specific document sections
    * Proximity search
15. Integration with Cloud Storage
    * Connect to Google Drive, Dropbox, etc.
    * Automatic syncing
    * Version control