

## FULL & FINAL DEVELOPER PROMPT

Desktop PDF Writer & Editor (Non-AI, Non-OCR) (Project Name - NexPro PDF)

Subscription-based | Offline-First | Professional Use (CA / Legal / Corporate)

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### 1 PROJECT OVERVIEW

You are required to build a **Windows desktop application** similar in capability to **Adobe Acrobat Pro (excluding AI & OCR features)**.

**Key Principles:**

-  NO AI FEATURES
-  NO OCR (now or future)
-  Offline-first
-  Distributed as .exe
-  Subscription-based licensing
-  Strong document security & redaction
-  Professional, clean, user-friendly UI

Target users:

**Chartered Accountants, CS, Lawyers, Corporates, SMEs, Compliance Professionals**

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### 2 CORE OBJECTIVES

1. Provide **professional PDF creation, editing, redaction, security, and signing**
  2. Ensure **data privacy (no cloud processing)**
  3. Follow **ISO PDF standards & Indian legal compliance**
  4. Make UI **simple enough for non-technical professionals**
  5. Prevent casual piracy using **license validation**
  6. Keep architecture **extensible for future modules**
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### 3 TECHNOLOGY STACK (MANDATORY)

Layer	Stack
Language	Python 3.11+
UI Framework	PyQt6 or PySide6
PDF Engine	PyMuPDF (fitz) + pikepdf
Encryption	AES-256
Digital Signature	PKCS#12 / Windows CAPI

Layer	Stack
Local Storage	SQLite
Packaging	PyInstaller
Updates	Optional auto-update
Licensing	Hardware-bound + server validation
<b>✗ No Electron</b>	
<b>✗ No browser-based UI</b>	
<b>✗ No cloud dependency for document processing</b>	

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## 4 FEATURE SCOPE (STRICT – DO NOT ADD AI / OCR)

### 4.1 PDF Creation & Conversion

- Create PDF from:
    - Word
    - Excel
    - PowerPoint
    - Images (JPG, PNG)
  - Virtual “Print to PDF” capability
  - Batch conversion
  - PDF/A conversion for archival
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### 4.2 PDF Editing

- Edit existing text (font-preserving)
  - Edit / replace images
  - Add text boxes
  - Insert / delete / reorder pages
  - Rotate / crop pages
  - Merge multiple PDFs
  - Split PDFs by:
    - Page range
    - File size
    - Bookmark
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### 4.3 Redaction (CRITICAL MODULE)

Redaction must be **irreversible**.

Required:

- Manual redaction (draw box)
- Text-based redaction
- Pattern-based redaction:
  - PAN
  - Aadhaar
  - GSTIN
  - Bank account numbers
- Metadata removal
- Flattened output (cannot be undone)

 Redacted data must **not exist** in underlying PDF objects.

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#### 4.4 Security & Protection

- Password protection (open / edit / print)
  - Permission controls
  - AES-256 encryption
  - Watermarking:
    - Text
    - Image
  - Permanent flattening
  - PDF permissions viewer
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#### 4.5 Digital Signature

- Support Indian DSC (Class 2 / 3)
  - USB token support
  - Visual signature placement
  - Timestamp support
  - Signature validation panel
  - Signature audit trail
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#### 4.6 Forms & Utilities

- Create fillable PDF forms
- Flatten forms
- Export form data to Excel
- Page numbering
- Bates numbering

- Header / footer
  - Background & stamps
  - Hyperlinks
  - Bookmarks
  - PDF compression & optimization
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## **5 UI / UX DESIGN GUIDELINES (VERY IMPORTANT)**

### **5.1 Visual Style**

- Professional
- Clean
- Minimal
- Corporate-friendly

#### **Color Scheme:**

- Primary: Blue / Slate / Grey
  - Accent: Green
  - Avoid flashy colors
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### **5.2 Layout Structure**

#### **Top Ribbon (like MS Office):**

- File
- Edit
- Pages
- Security
- Redaction
- Forms
- Signature
- Tools
- Help

#### **Left Panel:**

- Thumbnails
- Bookmarks
- Layers
- Attachments

#### **Main Canvas:**

- PDF preview

- Zoom tools
- Page navigation

#### Right Context Panel:

- Properties
  - Formatting
  - Security options
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### 5.3 UX Principles

- Max 2 clicks for common actions
  - Clear icons + text
  - Undo / Redo support
  - Tooltips everywhere
  - Keyboard shortcuts
  - Progress indicators for long tasks
  - Confirmation dialogs for destructive actions
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## 6 LICENSING & SUBSCRIPTION LOGIC

### 6.1 License Model

- Annual subscription
  - Machine-bound (Hardware ID)
  - Online activation
  - Offline grace period (7 days)
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### 6.2 License Flow

1. App installed
  2. User enters license key
  3. App validates with server
  4. License stored locally (encrypted)
  5. Periodic silent re-validation
  6. On expiry:
    - App opens in read-only mode
    - Prompt for renewal
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### 6.3 Anti-Tamper

- Obfuscate license logic

- Check system clock tampering
  - Prevent simple DLL patching
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## **7** **LEGAL & REGULATORY COMPLIANCE (MANDATORY)**

### **7.1 PDF Standards**

- ISO 32000 (PDF specification)
  - Proper object removal for redaction
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### **7.2 Indian Legal Compliance**

- Information Technology Act, 2000
  - DPDP Act, 2023 (privacy-first)
  - Digital Signature rules (IT Act)
  - No user data sent outside device
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### **7.3 EULA & Disclaimers**

- Clear license terms
  - No liability for misuse
  - Redaction disclaimer
  - Signature legal disclaimer
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## **8** **DATA HANDLING RULES**

- All files processed locally
  - No telemetry without consent
  - No hidden uploads
  - Logs stored locally
  - Clear cache option
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## **9** **PERFORMANCE REQUIREMENTS**

- Handle 500+ page PDFs
  - Memory efficient
  - Non-blocking UI
  - Background workers for heavy tasks
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## **10** **ARCHITECTURE GUIDELINES**

- Modular design

- Feature-wise services
  - Easy future extension
  - Clear separation:
    - UI
    - PDF Engine
    - Security
    - Licensing
    - Utilities
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## **1 | 1** PACKAGING & DELIVERY

- Single .exe
  - Installer with:
    - Desktop shortcut
    - Start menu entry
  - Auto-update ready (optional)
  - Log file for support
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## **1 | 2** PHASE-WISE DELIVERY PLAN

### Phase 1 (MVP)

- Core editing
- Merge/split
- Security
- Redaction
- Licensing

### Phase 2

- Forms
- Signatures
- Bates numbering
- Watermarks

### Phase 3

- Optimization
  - Auto-update
  - UI polish
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## **1 | 3** STRICT INSTRUCTIONS TO DEVELOPER

- Do NOT add AI or OCR
  - Do NOT add cloud dependency
  - Do NOT change licensing logic
  - Do NOT simplify redaction logic
  - Follow UI/UX instructions strictly
  - Write clean, documented code
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## END GOAL

Deliver a **stable, professional, offline PDF suite** that:

- Professionals trust
  - Is legally safe
  - Is affordable
  - Competes with Adobe on **practicality, not hype**
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