AI Paper Analyzer — Step-by-Step Process

1) Prepare your environment

1 Install Python 3.10+ (recommended 3.10–3.11).

2 Create a virtual environment and activate it: Windows: python -m venv venv → venv\Scripts\activate macOS/Linux: python -m venv venv → source venv/bin/activate

2) Install required packages

1 Run: pip install openai spacy PyPDF2 python-dotenv tkscrolledframe

2 Then: python -m spacy download en_core_web_sm

3 Optional extras: pdfplumber pytesseract pillow pyinstaller

3) Save the script

1 Save the canvas file content as ai_paper_analyzer.py (avoid spaces for easy CLI).

2 Verify top comments and requirements.

4) Add your OpenAI API key

1 Create a .env file with OPENAI_API_KEY=sk-...

2 Or set the environment variable in your OS.

5) Run the app

1 From the project directory: python ai_paper_analyzer.py

2 Tkinter window opens with Load PDF/TXT, Analyze, Save Report, Settings.

6) Basic usage (UI workflow)

1 Load PDF/TXT, or paste text into left pane.

2 Optionally add a prompt hint.

3 Click Analyze to generate summary, questions, improvements, checklist.

4 View results in right pane. Click Save Report to export Markdown file.

7) Settings

1   Open Settings to change model and temperature.

2   Reduce text length for API cost control.

8) Improve extraction & OCR (optional)

1   For scanned PDFs: install Tesseract and pytesseract.

2   Use pdfplumber for better layout extraction.

9) Prompt tuning

1   Edit PROMPTS in the script to change output style or format.

10) Packaging into executable (optional)

1   Use pyinstaller --onefile ai_paper_analyzer.py

2   Distribute with instructions to install spaCy model.

11) Security & cost tips

1   Do not hardcode API key.

2   Use .env or environment variable.

3   Adjust temperature and max_tokens to save cost.

12) Troubleshooting checklist

1   Blank output → check OPENAI_API_KEY and imports.

2   spaCy error → run python -m spacy download en_core_web_sm.

3   PDF empty → try pdfplumber or OCR.

4   Rate-limit error → lower concurrency or token size.