



# InsightLens – Technical Specification

**Document Type:** Developer-Facing Technical Spec

**Version:** v1.0 (Initial Prototype for Replit Core / Bolt.new)

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## 1. Application Overview

**InsightLens** is a document analysis tool that leverages LLMs to extract structured insights for investors. Users upload PDFs or URLs, and the system generates value-investor-aligned insight cards using pre-defined GPT prompts. The tool is frontend-accessible and backend-driven with a modular AI pipeline.

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## 2. Architecture Overview

### Frontend (Replit / Bolt.new)

- Framework: React (or Svelte) – SPA or tabbed layout
- Components:
  - Document upload module
  - Insight card display (modular)
  - Tagging & filters
  - Phase toggles (Biotech Mode, Value Investor Lens)
  - Scorecard sliders (Phase 3)
  - Summary recommendation (Phase 5)

### Backend (Python)

- Framework: FastAPI or Flask
- Core logic:
  - Document parsing (PDF, text, HTML)
  - Insight card generation (GPT API requests)
  - Caching layer for repeated requests
- Integrations:
  - OpenAI API (GPT-4)
  - LangChain or LlamaIndex for PDF chunking & retrieval
  - Optional: browser agent (playwright/scrapper for later phases)

## Storage

- Supabase (or Firebase) for:
    - Uploaded documents metadata
    - User evaluations & scoring (Phase 3+)
    - Logs of insights generated (Phase 5 recommendations)
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## 3. AI Processing Flow

1. **Input Handling**
    - User uploads file or pastes URL
    - Backend parses content into clean text using PDF parsers / web scrapers
  2. **Card Generation (Per Section)**
    - Send cleaned content + prompt template to GPT
    - Receive insight-specific output (e.g., Moat, Red Flags)
    - Store and display outputs as individual cards
  3. **Recommendation Engine (Phase 5)**
    - Combine all insight cards
    - Generate weighted decision using GPT prompt
    - Display: Recommendation + Explanation + Disclaimer
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## 4. AI Prompt Framework

Insight cards will be driven by specific GPT prompts. Each prompt includes:

- Role-based prompt engineering
- Context: Insert parsed content
- Structured output format

[See PRD for full prompt library.]

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## 5. Example Insight Flow

**User Uploads:** Moderna 10-K PDF

**System Flow:**

- Parses PDF using LlamaIndex

- Sends sections to:
    - Business Summary Prompt
    - Moat Detection Prompt
    - Financial Health Prompt
    - Red Flags Prompt
    - Management Quality Prompt
    - Scientific Rigor Prompt (Biotech Mode)
  - Aggregates outputs into display cards
  - Phase 5 generates overall Recommendation
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## 6. Suggested File Structure

```

insightlens/
├── frontend/
│   ├── App.jsx
│   ├── components/
│   │   ├── UploadArea.jsx
│   │   ├── InsightCard.jsx
│   │   ├── Scorecard.jsx
│   │   └── RecommendationBox.jsx
│   └── backend/
│       ├── main.py
│       ├── pdf_parser.py
│       ├── prompts.py
│       └── routes/
│           └── generate_insights.py
├── assets/
├── data/
├── README.md
└── requirements.txt
  
```

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## 7. MVP Milestones

Phase	Milestone
1	Upload + display summary insight cards
2	Value Investing analysis cards (Moat, Margin, Red Flags)
3	Interactive scorecard system

- 4 AI-based company comparison + browser agent
  - 5 Final Recommendation Generator with toggle + disclaimer
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## 8. Legal & Disclaimer Module

- All recommendation output must include:

Disclaimer: This is an AI-generated opinion for research purposes only. It does not constitute investment advice.

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Ready to build 