Pune AI Community

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Wish to announce that the Pune AI Community (PAIC) is launching a new open-source initiative to build a PoC (Proof-of-Concept) for an AI-Powered Floor Plan Management System with RAG (Retrieval-Augmented Generation) and Architectural Copilot capabilities! 📐 🤖

We will research and build a system that combines semantic storage, natural language retrieval, and AI-powered generation/modification of architectural floor plans. Think ChatGPT meets AutoCAD!

Core Features:

✅ Semantic floor plan storage with rich metadata (IFC standards)

✅ RAG-based retrieval: "Find 2 bedroom apartments under 1000 sq ft"

✅ AI Copilot: "Make bedroom bigger to 12x15 ft"

✅ Natural language modifications: "Add a balcony to the living room"

✅ Multi-format support (JSON, DXF, SVG)

Tech Stack (TBD):

Python | Open-Source LLM | Vector Databases (FAISS) | Sentence Transformers | RAG | Graph Neural Networks | Pydantic | FastAPI

What we'll Work On:

◆ DXF/SVG import-export converters

◆ Building code compliance validation

◆ Graph database integration (Neo4j)

◆ Web UI development

◆ Advanced generation models (House-GAN++, HouseDiffusion)

◆ Multi-floor building support

◆ 3D visualization

Prerequisites:

✅ Experience or willingness to learn: Python, LangChain/LlamaIndex, RAG, Vector DBs, LLM APIs

✅ Bonus: Knowledge of architectural standards (IFC), CAD formats, or graph databases

✅ This is voluntary contribution via GitHub PRs. Non monetary: we don't pay you, you don't pay us.

✅ PAIC team involvement at high level, primarily on Saturdays

✅ No hand-holding, this is a learning opportunity, not formal training

✅ Not an internship or job offer, think unpaid side project for skill building

Starting stub code base at **GitHub**: yogeshhk/Sarvadnya/src/ask_floorplans

Beyond code contributions, we welcome research collaborations on topics like:

📝 Graph-based floor plan generation

📝 Building code automation with LLMs

📝 Multi-modal architectural understanding

📝 Spatial reasoning with AI

If you have similar architecture/construction AI projects seeking community contributions, mention them below! 👇

Interested? Comment below or reach out to **Yogesh Haribhau Kulkarni** at yogeshkulkarni [at] yahoo [dot] com cc puneaicommunity at gmail dot com with subject line "Floor Plan AI: Open Source Contribution" 🎨🏢

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