

Design Panda

**Agentic AI Based Software Architecture
Design Enhancer**



Problem Statement

Software architecture design
currently faces critical challenges:

- EXPERTISE GAP
- TIME DRAIN
- TECHNOLOGY SELECTION RISK
- BUSINESS-TECHNICAL MISALIGNMENT
- LATE DISCOVERY

WORKING

1. REQUIREMENTS FROM REQUIREMENTS
ENGINEER → ARCHITECT GENERATES DESIGN
→ CRITIC ANALYZES

2. CRITIC EITHER: SENDS TO OPTIMIZER, OR
FORWARDS TO ARBITER

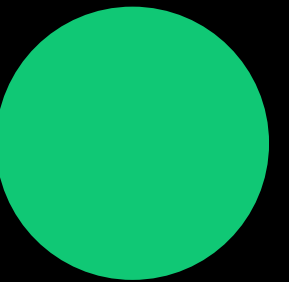
3. OPTIMIZER REFINES → CRITIC REVIEWS →
ARBITER VALIDATES → USER RECEIVES FINAL
DESIGN

Solution

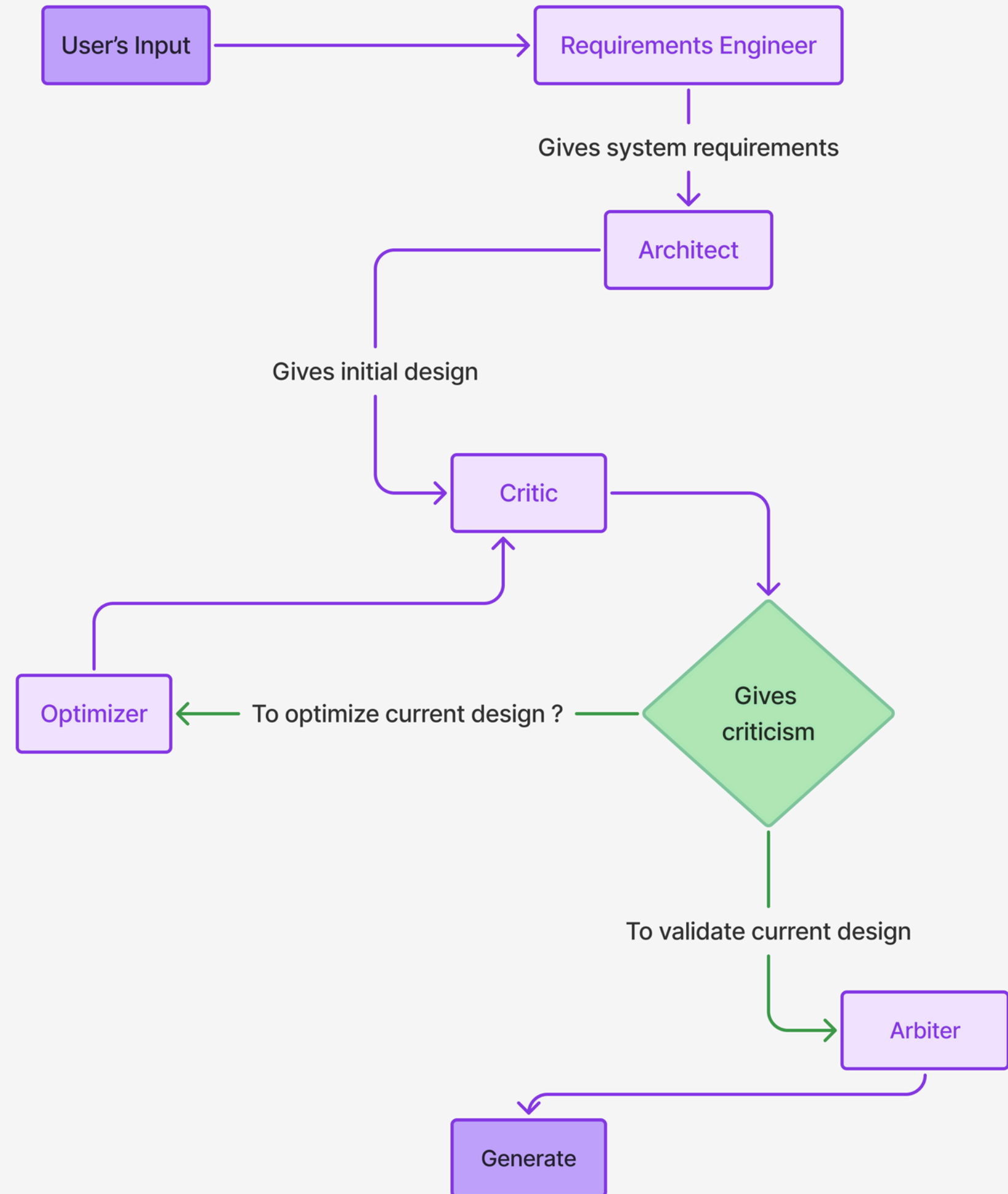
A Multi-Agent System :

Core Agents:

- Requirements Engineer
- Architect
- Critic
- Optimizer
- Arbiter



FLOW DIAGRAM



TECHNICAL REQUIREMENTS

Agent Orchestration: LangGraph

LLM Orchestration: LangChain

API Development: FastAPI

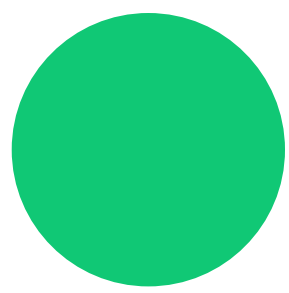
Frontend Development: React

LLM Inference: Groq

LLMs : CodeLlama 34b, Deepseek-r1-distill-llama 70b,
StarCoder2 15b, Qwen-2.5-Coder-32b, Mixtral-8x22b

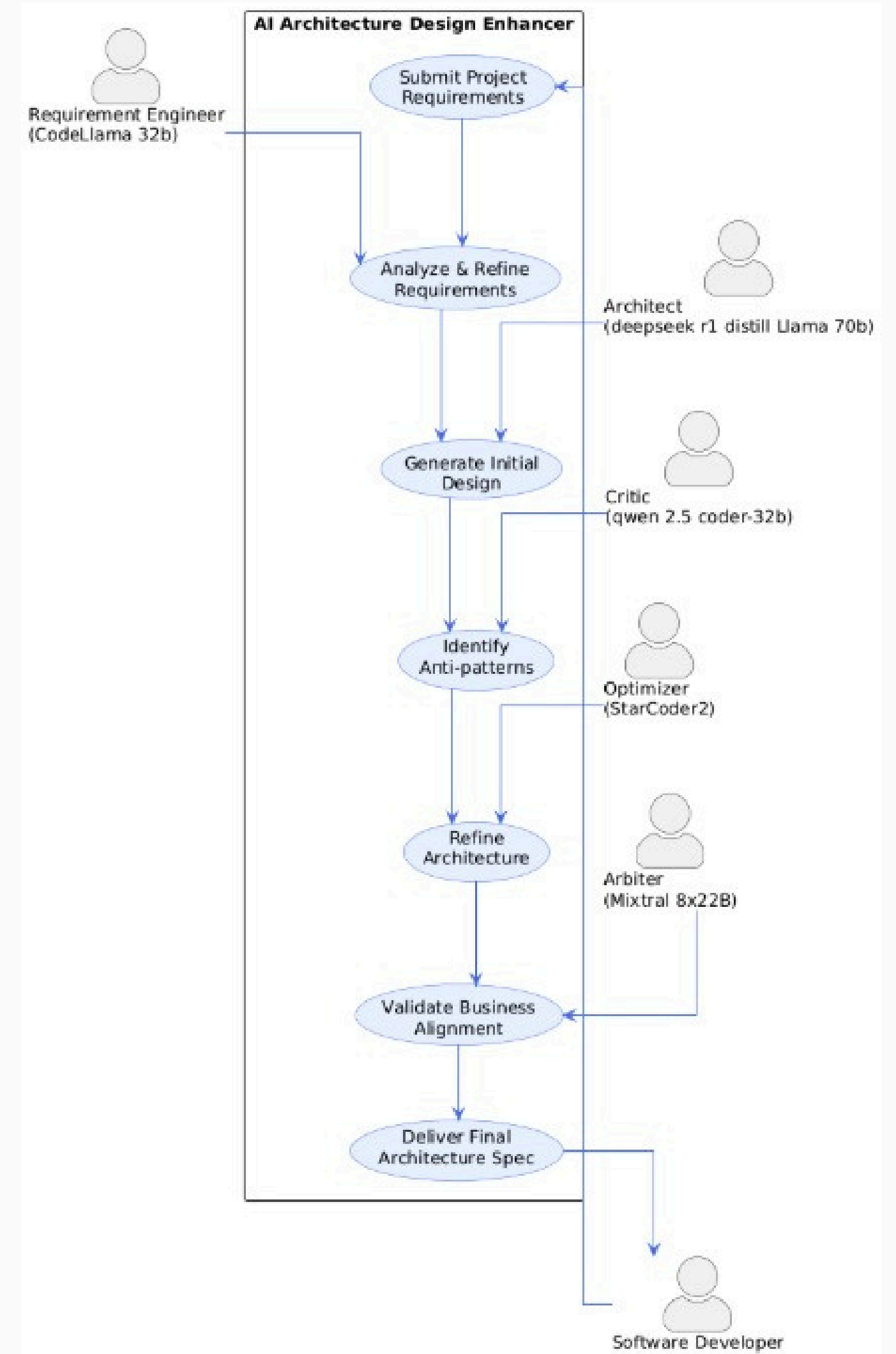
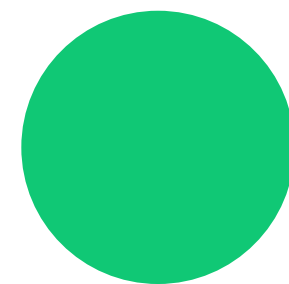
NOVELTY / USE CASE

OUR SYSTEM TRANSFORMS SOFTWARE ARCHITECTURE DESIGN THROUGH A SPECIALIZED MULTI-AGENT APPROACH WHERE AUTONOMOUS AGENTS COLLABORATE WITH DEFINED ROLES:

- CREATOR → CRITIC → OPTIMIZER → ARBITER WORKFLOW WITH INTELLIGENT ROUTING
 - RAG-ENHANCED AGENTS WITH SPECIALIZED KNOWLEDGE RETRIEVAL FOR PATTERN RECOGNITION
 - LIGHTWEIGHT SUPERVISOR ENSURING PROCESS RELIABILITY AND PREVENTING DEADLOCKS
 - SELF-CRITIQUE CAPABILITIES THROUGH STRUCTURED FEEDBACK LOOPS
- 



NOVELTY / USE CASE



BUSINESS MODEL / TARGET MARKET

TARGET CUSTOMERS

- IT SERVICE COMPANIES: 75% OF INDIA'S \$227B TECH SECTOR
FOCUSED ON OUTSOURCED DEVELOPMENT
- GROWING STARTUP ECOSYSTEM: 40,000+ STARTUPS WITH 13%
FOCUSING ON ENTERPRISE SOLUTIONS
- GOVERNMENT DIGITAL INITIATIVES: INDEA FRAMEWORK
IMPLEMENTATION ACROSS DEPARTMENTS