

The background image shows two Gaelic footballers sitting cross-legged on a grassy field at night. They are wearing blue jerseys with orange trim and white helmets. The player on the left is wearing a white helmet, while the player on the right is wearing a dark helmet. The text "AI Agents Hackathon" is overlaid in white, sans-serif font in the upper center of the image.

AI Agents Hackathon

The Synapses

13-15 Sept 2024

Team Members



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Overview

Aim

- Build an agentic workflow for software development (SDLC)

Approach

- Break the workflow into four separate tasks, and use one agent per task
- Use crew.ai for the agents and llama 3.1 for the LLMs
- Use colab notebooks for the coding
- Use other tools as necessary, e.g., agentops, autogen, mindsdb, upstage, composio, etc.

Approach

Tasks

- Build a PoC in a sandbox (dev) environment

Agents

- Requirements Agent: Understand requirements from requirements doc
- Design Agent: Create high level design doc
- Software Development Agent: Generate codebase to build PoC (small project)
- Code Test Agent: Generate code tests

Workflow Steps I

a. Requirements Gathering

- Task: Extract key requirements from a document
- Goal: Create a concise summary of a CRM system's required features
- Outcome: Defines the project scope (authentication, CRUD operations, task management, reporting)

b. High-Level System Design

- Task: Design the architecture of the CRM system
- Diagrams Generated:
 - Use Case Diagram
 - Class Diagram
 - Entity-Relationship Diagram (ERD)
 - UI Design for Dashboard
- Outcome: A document detailing the architecture, components, and visual diagrams of the system

Workflow Steps II

c. Code Generation

- Task: Develop the code for the system
- Goal: Create functional code that implements core features
- Outcome: Working code implementing authentication, database operations, and reporting

d. Code Testing

- Task: Run test cases to verify code functionality
- Goal: Ensure the system meets the requirements and works as expected
- Outcome: A detailed test report highlighting results and potential issues

Future Work

- **Improvements in Design Diagrams:** Explore more AI-driven tools for automated generation of detailed design diagrams.
- **Customization:** Enable more advanced configurations for tasks such as adding new agents or expanding CRM functionality.
- **Deployment:** Plan for deployment of the final CRM system in a production environment.

Code & References

Colab Notebook

- <https://colab.research.google.com/drive/1j9OTh4ridFnq6XQReiYcltzG9yi3Ydwh?usp=sharing>

References

- Developing a Multi-Agent System with CrewAI, <https://lablab.ai/t/crewai-multi-agent-system>
- Mastering AI Agent Management with AgentOps: An In-Depth Guide, <https://lablab.ai/t/agentops-tutorial>