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Reflection

Working on this project gave me a much clearer and more practical sense of what it really means to separate “tools” from “models” in an AI system. Building both the DummyMapServer and the OpenStreetMapServer pushed me to think not just about getting features to work, but about designing clean interfaces, handling errors gracefully, and keeping behaviors consistent across very different backends. Even though one server was simple and the other interacted with real APIs, they still shared the same core actions like `geocode`, `route`, and `matrix`. Seeing two very different systems behave similarly because of a well-defined interface helped me understand why modularity matters so much. Creating two agents—one using OpenAI’s function calling and the other running locally on Ollama—made that idea even more concrete. Despite their differences, both agents were able to work smoothly as long as the tools were clearly defined. This hands-on experience made the Model Context Protocol’s idea of a standard “action layer” feel much more intuitive and real.

As I look forward, there are several directions I would like to explore. One is to turn these map servers into fully MCP-compliant tools so that any MCP-aware model could discover and use them automatically, without the need for extra glue code. I am also interested in experimenting with more map providers or adding specialized services like traffic-aware routing or public transit APIs, and then comparing how agents make decisions when multiple tools are available. Finally, I want to strengthen the project’s reliability by improving logging, configuration handling, and test coverage. These steps would help bring the system closer to production quality while still maintaining the clean separation between agents and tools that made the project so satisfying to build.