

- **LangChain** – Provides a framework for connecting LLMs with tools, memory, and structured workflows.
- **Ollama (Future Plan)** – A lightweight LLM hosting framework to reduce GPU dependency and enable open-source accessibility.

### 3. Frameworks and Libraries

- **FastAPI / Flask** – Backend frameworks used for building RESTful APIs and model endpoints.
- **PyTorch / TensorFlow** – For fine-tuning or adapting specialized models where required.
- **Pydantic** – For schema validation and structured input/output handling.

### 4. Testing and Validation Tools

- **PyTest / Unittest** – For unit and integration testing across modules.
- **Selenium / Playwright** – For automated frontend and CLI testing.

### 5. Logging and Monitoring Tools

- **Loguru / Python Logging** – For structured application logging.

### 7. Documentation Tools

- **Sphinx / MkDocs** – Automated project documentation generation.
- **Markdown / LaTeX** – For project reports and research documentation.