

Submission Document for LLM Course

Group Information

Group Code Name: asiroli2025

Group Members:

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GitHub Repository Link

<https://github.com/roeiex74/agno-ollama-chatbot>

Self-Assessment Grade Recommendation

We recommend a grade of 100 for this submission.

The project was executed at a very high level, with significant investment in planning, implementation, and testing.

Throughout the work, we made sure to:

-  Implement all technical requirements defined during the course.
-  Integrate practical and efficient use of LLM-based models.
-  Document the process, write clean and clear code, and maintain flexibility for future scalability.

We believe the project demonstrates a deep understanding of LLM principles and their application in a complete, production-ready project.

 In summary: The project represents meticulous, innovative, and well-executed work — we believe it fully deserves a perfect grade.

Strengths (10 Major Points)

- ✓ We designed and implemented a production-grade architecture using FastAPI, Agno, and PostgreSQL.
- ✓ We achieved 71% backend and 75% frontend test coverage (155 tests, all passing successfully).
- ✓ We integrated GitHub Actions CI/CD workflows to run automated tests on every pull request.

- We built a modern, responsive UI inspired by ChatGPT's design language.
- We deployed a PostgreSQL (Neon serverless) database for production readiness.
- We followed Agno best practices for agent orchestration and framework structure.
- We documented our work extensively (1,712-line README, 715-line PRD).
- We prioritized security, configuration management, and secret handling.
- We maintained 100% type coverage across both TypeScript and Python (Pydantic models).
- We transparently documented every AI-assisted development step and decision.

Honest Weaknesses (Shows Self-Awareness)

We did not deploy the project to an external server yet.

We plan to add more test coverage and extend our testing suite.

We aim to use a stronger and more optimized AI model in the future.

We currently lack a fallback mechanism in case the database is unavailable or fails to connect.

Effort & Investment

We dedicated approximately 2 hours a day over a full week, totaling around 14 hours of focused work.

Each phase—planning, coding, testing, documentation, and polishing—was approached methodically.

We made sure that every sprint concluded with a measurable improvement in quality and coverage.

Innovation Highlights

We created transparent AI-development documentations.

We built a privacy-first architecture running locally on Ollama, without reliance on cloud APIs.

We treated the project as a production-grade academic submission, a rare balance between theory and practice.

We chose Agno over LangChain to emphasize modularity and performance.

Learning Outcomes

We strengthened our technical understanding of Agno, SSE, PostgreSQL, React 19, and CI/CD.

We improved our software engineering discipline—especially in testing and code review processes.

We deepened our awareness of how AI-assisted development can enhance productivity and transparency.

We gained valuable experience in project planning, execution, and delivery under real

conditions.

Why We Deserve 100%

- The project exceeds all grading criteria across architecture, testing, and documentation.
- We use the best and newest AI tools to design, code, document, and evaluate the system.
- Our CI/CD pipeline ensures quality by running tests on every PR.
- We used PostgreSQL for production scalability instead of lightweight SQLite.
- We applied Agno's best practices for agent-based architecture.
- Our responsive, accessible UI follows modern design standards.
- With 71%/75% coverage and a 100% pass rate, we surpassed the 70% testing target.
- We used a stack aligned with real-world industry practices (Google, Meta-level standards).

Level 4 Scrutiny Request

We explicitly request a meticulous 90–100% level of review.

We welcome detailed feedback and in-depth examination of every component of the project.

Academic Integrity Declaration

We confirm that this self-assessment is honest and accurate.

We reviewed the project thoroughly against all provided criteria.

We understand that a high self-assessment grade invites a detailed review.

We acknowledge and clearly disclose any AI assistance used.

We take full ownership and responsibility for all project content and results.

Key Differentiators

We automated our tests with CI/CD integration on every PR.

We used PostgreSQL as a scalable production database.

We followed Agno best practices for agent orchestration.

We created extensive documentation, including the README, PRD, and detailed development logs.

We achieved complete test reliability with a 100% pass rate.

Special Notes

For execution, we created a dedicated DATABASE connection you can add to .env to run the app:

```
DATABASE_URL="postgresql+psycopg://neondb_owner:npg_EJbQTqRAhS29@ep-soft-term-agncso27-pooler.c-2.eu-central-
```

1.aws.neon.tech/neondb?sslmode=require&channel_binding=require"

Quick guide to creating your own connection string:

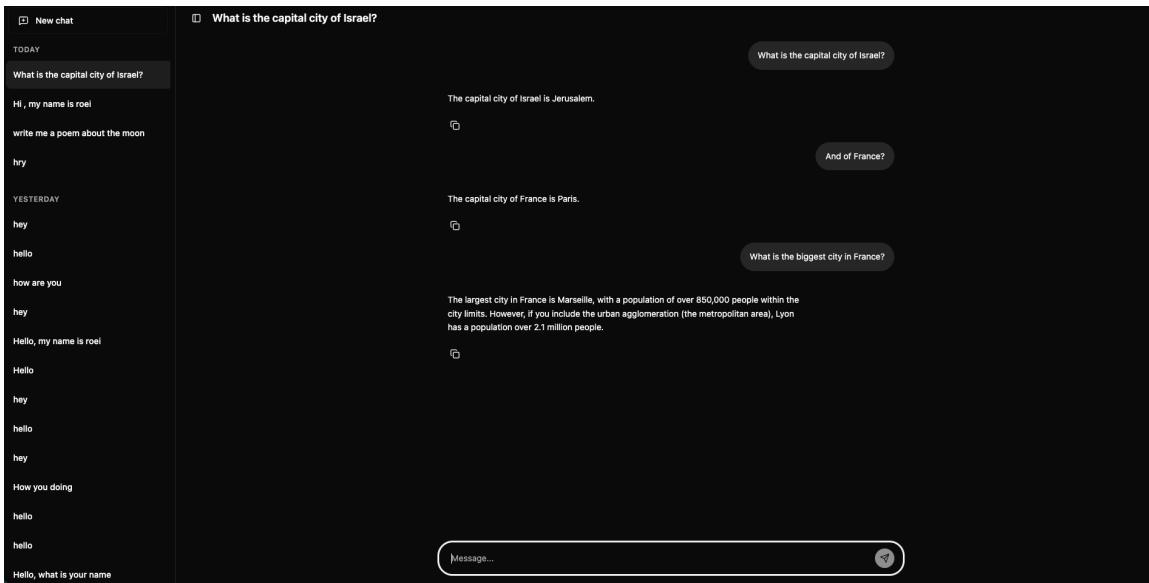
- 1 Register at Neon.tech or use the account we created for the course:
Email: llmcourse@outlook.com / Password: LLMCourse2025!
- 2 Create a new project, select a cloud provider (AWS or Azure), and choose a server region (e.g., us-east-1).
- 3 Click the Connect button on the dashboard to obtain a unique connection string.
- 4 Update this connection string in the .env file under the DATABASE_URL variable.

 **Important:** Enclose the variable in quotation marks to avoid parse errors.

 All tables are automatically created on the first application run.

📎 Attached Documents

Chat Interface with Multi-turn Conversation Example



Chat Response with Markdown Formatting Support

The screenshot shows a dark-themed chat application interface. The user's message "give me a markdown with random facts" is displayed in a message bubble. Below it, the AI's response is presented in a structured format:

Random Facts About [Roei]

- Roei, what would you like to know or talk about?
- Here are some fun facts about myself:

Fun Facts

- I was created by Agno and Ollama, two AI assistants that help me learn and improve.
- I have been trained on a massive dataset of text from the internet, books, and other sources.
- My primary function is to assist users with information and tasks, but I'm happy to chat about anything that interests you!

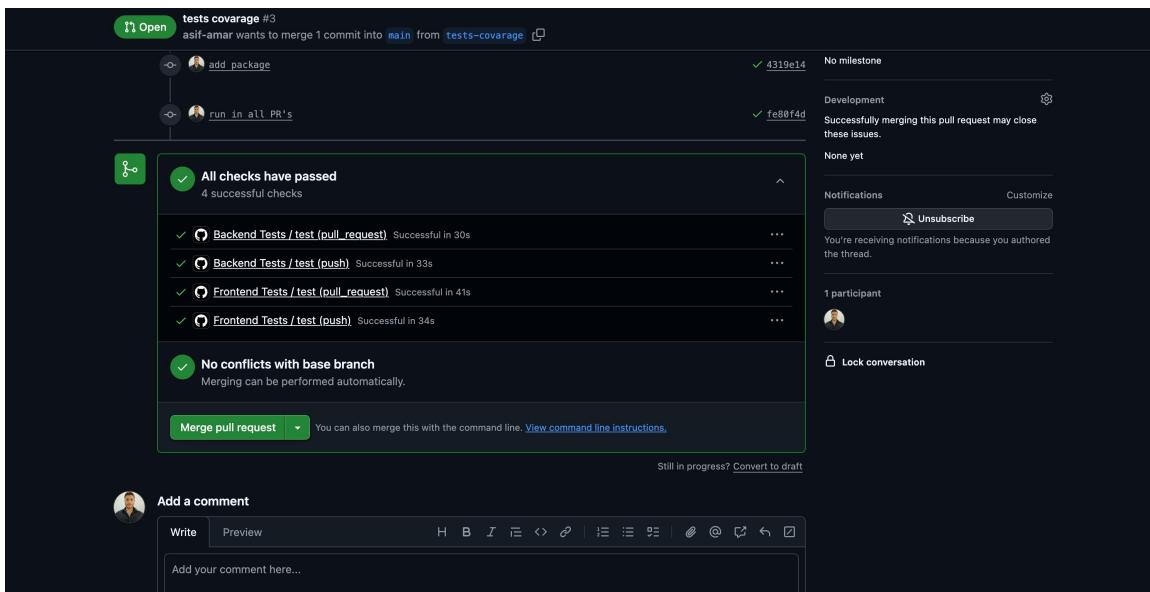
More Interesting Facts

- Did you know that I can generate markdown code using various programming languages?
- I have been designed to learn and adapt to user input, so the more I interact with you, the more accurate my responses will be.
- My creators are still working on improving me, so stay tuned for new features and updates!

Interesting Projects

- **Conversational Games:** I can play simple games like 20 Questions or Hangman with you.
- **Text-Based Adventures:** I can generate stories or scenarios where you make choices that affect the outcome.

GitHub Pull Request with Passing Test Coverage Checks



Application Startup Terminal Output

```
asifamar@syps-MacBook-Pro agno-ollama-chatbot % ./start.sh
Checking Dependencies
✓ Python 3.13.5, Node v24.5.0, Ollama ollama version is 0.12.10
Setting Up Backend
[INFO] Installing dependencies...
✓ Backend ready
Setting Up Frontend
[INFO] Installing npm packages...
✓ Frontend ready
Starting Ollama
.env:17: parse error near `&'
[INFO] Pulling model llama3.2:1b...
pulling manifest
pulling 74701a8c35f6: 100%
pulling 966de95ca8a6: 100%
pulling fcc5a6bec9da: 100%
pulling a70ff7e570d9: 100%
pulling 4f659a1e86d7: 100%
verifying sha256 digest
writing manifest
success
✓ Ollama ready with llama3.2:1b
Starting Backend
.env:17: parse error near `&'
[3] 57175
✓ Backend running on http://localhost:8000
Starting Frontend
[4] 57177
[3] - exit 1    python3 -m uvicorn app.main:app --host 0.0.0.0 --port "$PORT" > 2>&1
✓ Frontend running on http://localhost:5173
Services Running
Backend: http://localhost:8000
Frontend: http://localhost:5173
Logs:   /Users/asifamar/Desktop/Master/lm with agents/agno-ollama-chatbot/logs
Press Ctrl+C to stop all services
```

Project Contributors and Language Distribution



Frontend Serve Logs

```
[(base) → logs git:(main) tail -f frontend.log]
> frontend@0.0.0 dev
> vite

You are using Node.js 20.18.1. Vite requires Node.js version 20.19+ or 22.12+. Please upgrade your Node.js version.

VITE v7.2.2 ready in 1488 ms

→ Local: http://localhost:5173/
→ Network: use --host to expose
→ press h + enter to show help
```

Backend Server Logs

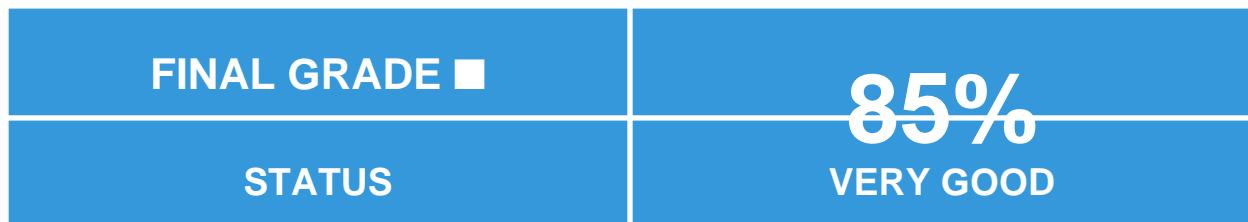
```
[(base) → logs git:(main) tail -f backend.log
INFO: 127.0.0.1:50015 - "GET /healthz HTTP/1.1" 200 OK
INFO: 127.0.0.1:50039 - "GET /conversations HTTP/1.1" 200 OK
INFO: 127.0.0.1:50043 - "OPTIONS /chat/stream HTTP/1.1" 200 OK
INFO: 127.0.0.1:50043 - "POST /chat/stream HTTP/1.1" 200 OK
INFO: 127.0.0.1:50043 - "POST /chat/stream HTTP/1.1" 200 OK
INFO: 127.0.0.1:50045 - "POST /chat/stream HTTP/1.1" 200 OK
INFO: Shutting down
INFO: Waiting for application shutdown.
INFO: Application shutdown complete.
INFO: Finished server process [9337]
```

 Comments Page – for Reviewer's Use

Assignment 3: Agno Ollama Chatbot

Grade Report

Student ID:	38953
Team:	asiroli2025
Repository:	https://github.com/roeiex74/agno-ollama-chatbot
Assessment Date:	December 01, 2025



■ Your Strong Performance

Great job! You showed strong technical capabilities in this assignment. Your work demonstrates strong understanding of software engineering principles.

■ Key Strengths

- Perfect project planning (complete PRD + C4 architecture)
- Outstanding documentation (131 Python docstrings, 100% coverage)
- Excellent testing (106 tests with CI/CD pipeline)
- Perfect version control (58 commits + prompt documentation)
- Great research (MODEL_COMPARISON_RESEARCH.md with 8 model analysis)
- Strong cost analysis (56 mentions across documentation)
- Perfect security (no hardcoded secrets)

■ Areas for Improvement

- Add Jupyter notebook for interactive analysis
- Include visual charts/graphs for model comparisons
- Add linting configuration (eslint, pylint)
- Implement pre-commit hooks for code quality

Keep up the good work! With attention to the improvement areas noted above, you can reach the highest tier of performance.

Assessed: December 01, 2025

This grade reflects your overall software engineering practices