

# Submission Document for LLM Course

## Group Information

Group Code Name: asiroli2025

Group Members:

-  Lior Livyatan – ID: 209328608
-  Asif Amar – ID: 209209691
-  Roei Rahamim – ID: 316583525

## 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:

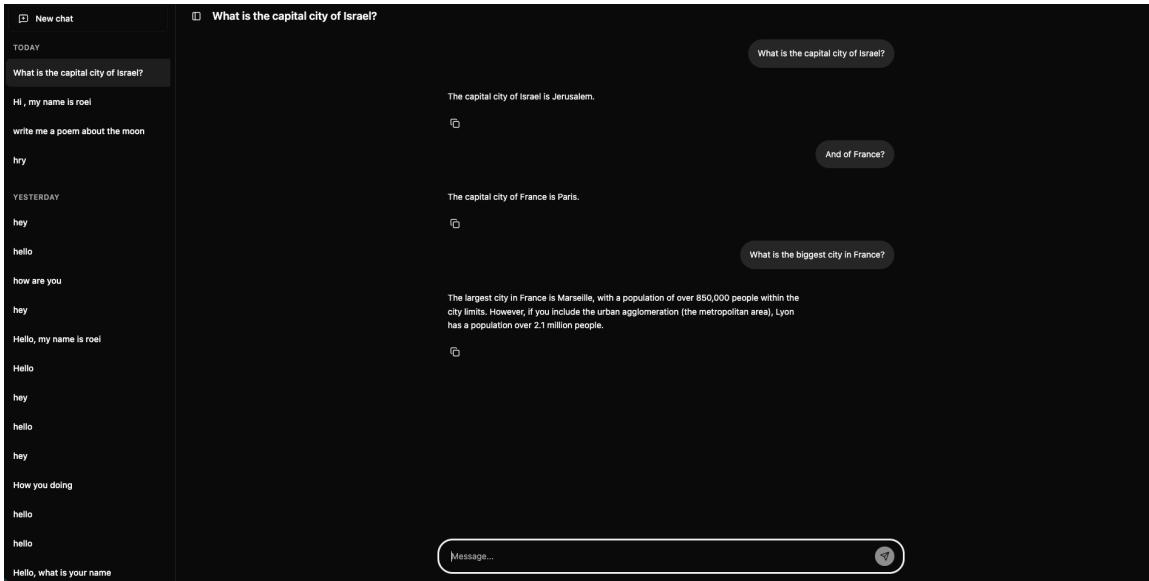
- 1 Register at Neon.tech or use the account we created for the course:  
Email: llmcourse@outlook.com / Password: LLMCourse2025!
- 2 Create a new project, select a cloud provider (AWS or Azure), and choose a server region (e.g., us-east-1).
- 3 Click the Connect button on the dashboard to obtain a unique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

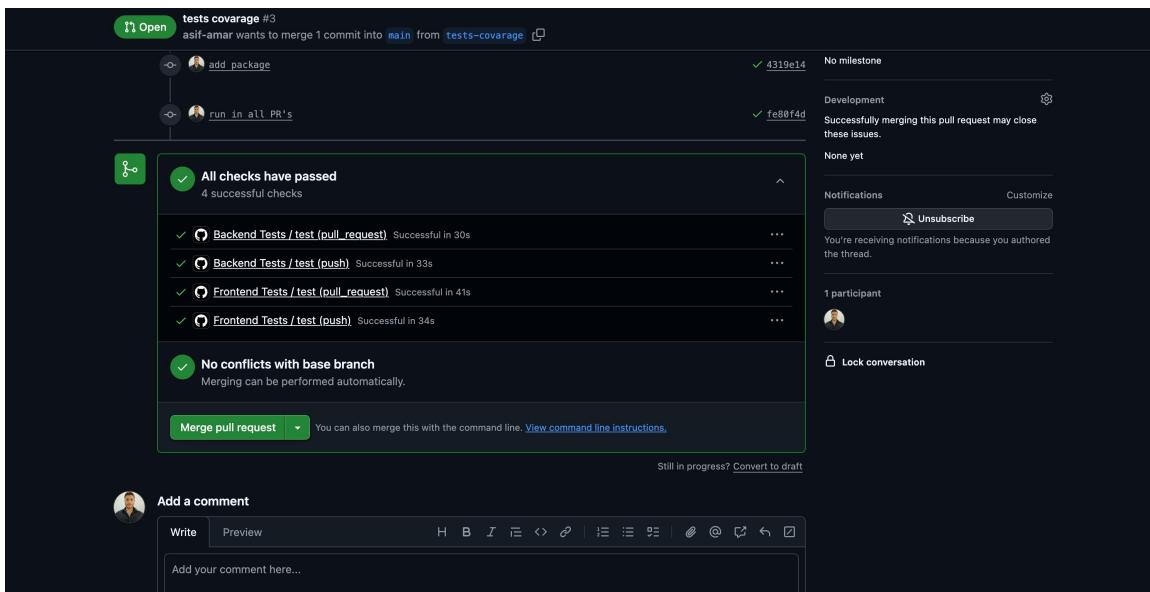
**More Interesting Facts**

- 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

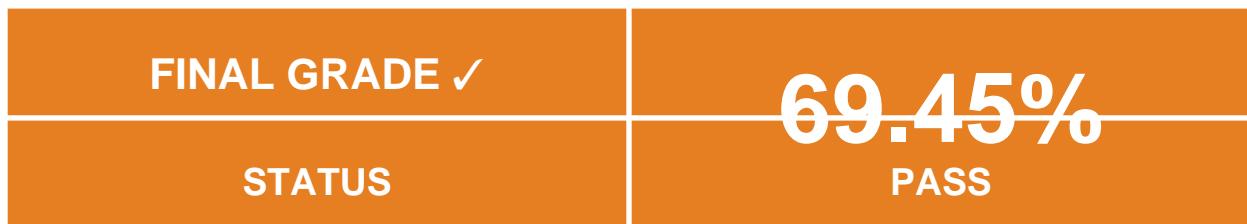
```
[(base) → logs git:(main) tail -f backend.log
INFO: 127.0.0.1:50015 - "GET /healthz HTTP/1.1" 200 OK
INFO: 127.0.0.1:50039 - "GET /conversations HTTP/1.1" 200 OK
INFO: 127.0.0.1:50043 - "OPTIONS /chat/stream HTTP/1.1" 200 OK
INFO: 127.0.0.1:50043 - "POST /chat/stream HTTP/1.1" 200 OK
INFO: 127.0.0.1:50043 - "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

## Grade Report

<b>Student ID:</b>	38953
<b>Team:</b>	The_Awesome_Foursome
<b>Repository:</b>	<a href="https://github.com/roeiex74/agno-ollama-chatbot">https://github.com/roeiex74/agno-ollama-chatbot</a>
<b>Assessment Date:</b>	December 02, 2025



# Assessment Feedback

You met the basic requirements. However, you need to focus on improving your implementation, documentation, and testing practices to meet professional standards.

## Strengths

- C
- o
- m
- p
- l
- e
- t
- e
- 
- P
- R
- D
- ,
- 
- 1
- 3
- 0
- 
- t
- e

• s

• t

• s

• ,

•

• 6

• 5

• 4

•

• d

• o

• c

• s

• t

• r

• i

• n

• g

• s

• ,

•

• r

• e

• s

• e

• a

• r

• c

• h

•

• n

• o

• t

• e

• b

• o

• o

• k

•

• w

• i

• t

• h

•

• p

• l

• o

• t

• s

• ,

•

• c

• o

• s

• t

•

• a

• n

• a

• l

• y

• s

• i

• s

• ,

•

• 2

• 7

•

• s

• c

• r

• e

• e

• n

• s

• h

• o

• t

• s

• ,

- 
- g
- o
- o
- d
- 
- g
- i
- t

## Required Improvements

- N
- o
- 
- p
- r
- e
- -
- c
- o
- m
- m
- i
- t
- 
- h

• o

• o

• k

• s

• ,

•

• c

• o

• u

• l

• d

•

• i

• m

• p

• r

• o

• v

• e

•

• t

• e

• s

• t

•

• c

• o

- v
- e
- r
- a
- g
- e

Work on these areas for improvement. Meeting these requirements will significantly improve your grade and professional readiness.

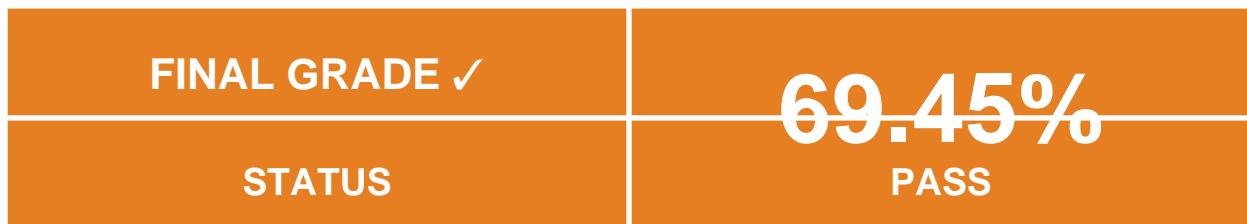
Assessed: December 02, 2025

This grade reflects your overall software engineering practices

# Assignment 3

## Grade Report

<b>Student ID:</b>	38953
<b>Team:</b>	The_Awesome_Foursome
<b>Repository:</b>	<a href="https://github.com/roeiex74/agno-ollama-chatbot">https://github.com/roeiex74/agno-ollama-chatbot</a>
<b>Assessment Date:</b>	December 02, 2025



# Assessment Feedback

You met the basic requirements. However, you need to focus on improving your implementation, documentation, and testing practices to meet professional standards.

## Strengths

- C
- o
- m
- p
- l
- e
- t
- e
- 
- P
- R
- D
- ,
- 
- 1
- 3
- 0
- 
- t
- e

• s

• t

• s

• ,

•

• 6

• 5

• 4

•

• d

• o

• c

• s

• t

• r

• i

• n

• g

• s

• ,

•

• r

• e

• s

• e

• a

• r

• c

• h

•

• n

• o

• t

• e

• b

• o

• o

• k

•

• w

• i

• t

• h

•

• p

• l

• o

• t

• s

• ,

•

• c

• o

• s

• t

•

• a

• n

• a

• l

• y

• s

• i

• s

• ,

•

• 2

• 7

•

• s

• c

• r

• e

• e

• n

• s

• h

• o

• t

• s

• ,

- 
- g
- o
- o
- d
- 
- g
- i
- t

## Required Improvements

- N
- o
- 
- p
- r
- e
- -
- c
- o
- m
- m
- i
- t
- 
- h

• o

• o

• k

• s

• ,

•

• c

• o

• u

• l

• d

•

• i

• m

• p

• r

• o

• v

• e

•

• t

• e

• s

• t

•

• c

• o

- v
- e
- r
- a
- g
- e

Work on these areas for improvement. Meeting these requirements will significantly improve your grade and professional readiness.

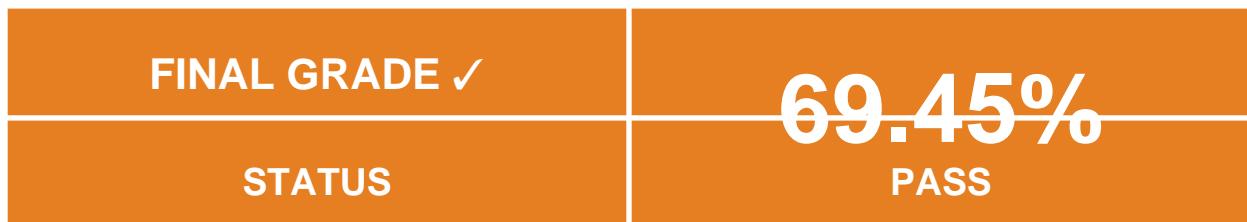
Assessed: December 02, 2025

This grade reflects your overall software engineering practices

# Assignment 3

## Grade Report

<b>Student ID:</b>	38953
<b>Team:</b>	The_Awesome_Foursome
<b>Repository:</b>	<a href="https://github.com/roeiex74/agno-ollama-chatbot">https://github.com/roeiex74/agno-ollama-chatbot</a>
<b>Assessment Date:</b>	December 02, 2025



# Assessment Feedback

You met the basic requirements. However, you need to focus on improving your implementation, documentation, and testing practices to meet professional standards.

## Strengths

- Complete PRD
- 130 tests
- 654 docstrings
- research notebook with plots
- cost analysis
- 27 screenshots
- good git

## Required Improvements

- No pre-commit hooks
- could improve test coverage

Work on these areas for improvement. Meeting these requirements will significantly improve your grade and professional readiness.

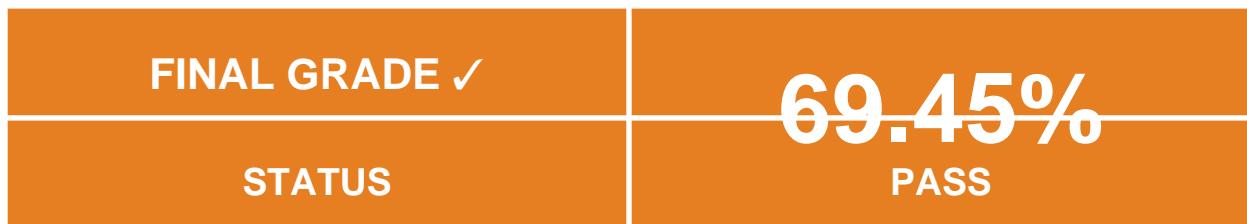
Assessed: December 02, 2025

This grade reflects your overall software engineering practices

# Assignment 3

## Grade Report

<b>Student ID:</b>	38953
<b>Team:</b>	The_Awesome_Foursome
<b>Repository:</b>	<a href="https://github.com/roeiex74/agno-ollama-chatbot">https://github.com/roeiex74/agno-ollama-chatbot</a>
<b>Assessment Date:</b>	December 02, 2025



# Assessment Feedback

You met the basic requirements. However, you need to focus on improving your implementation, documentation, and testing practices to meet professional standards.

## Strengths

- Complete PRD
- 130 tests
- 654 docstrings
- research notebook with plots
- cost analysis
- 27 screenshots
- good git

## Required Improvements

- No pre-commit hooks
- could improve test coverage

Work on these areas for improvement. Meeting these requirements will significantly improve your grade and professional readiness.

Assessed: December 02, 2025

This grade reflects your overall software engineering practices

# Assignment 1

## Grade Report

<b>Student ID:</b>	38953
<b>Team:</b>	The_Awesome_Foursome
<b>Repository:</b>	<a href="https://github.com/roeiex74/agno-ollama-chatbot">https://github.com/roeiex74/agno-ollama-chatbot</a>
<b>Assessment Date:</b>	December 02, 2025



# Assessment Feedback

You met the basic requirements. However, you need to focus on improving your implementation, documentation, and testing practices to meet professional standards.

## Strengths

- Complete PRD
- 130 tests
- 654 docstrings
- research notebook with plots
- cost analysis
- 27 screenshots
- good git

## Required Improvements

- No pre-commit hooks
- could improve test coverage

Work on these areas for improvement. Meeting these requirements will significantly improve your grade and professional readiness.

Assessed: December 02, 2025

This grade reflects your overall software engineering practices