

ProgLLM: Building a Tutoring Platform with LLM-powered programming

Lisa Rebecca Schmidt
12. Apr. 2023

*How well can large language models
create a study-assistant platform?*

Experiment

We want to create a study advisor platform which helps students in three specific areas:

1. AI Tutor
 - Studying for the exam with comprehensive questions
 - Done by Lisa
2. AI Counsellor
 - Talking about your stress and feelings
 - Done by David
3. AI Semester Planner
 - Planning which courses you want to take
 - Done by Jeta

Evaluation of each Experiment

- Number of prompts needed
- Number of syntax errors occurred
- Number of semantic errors occurred

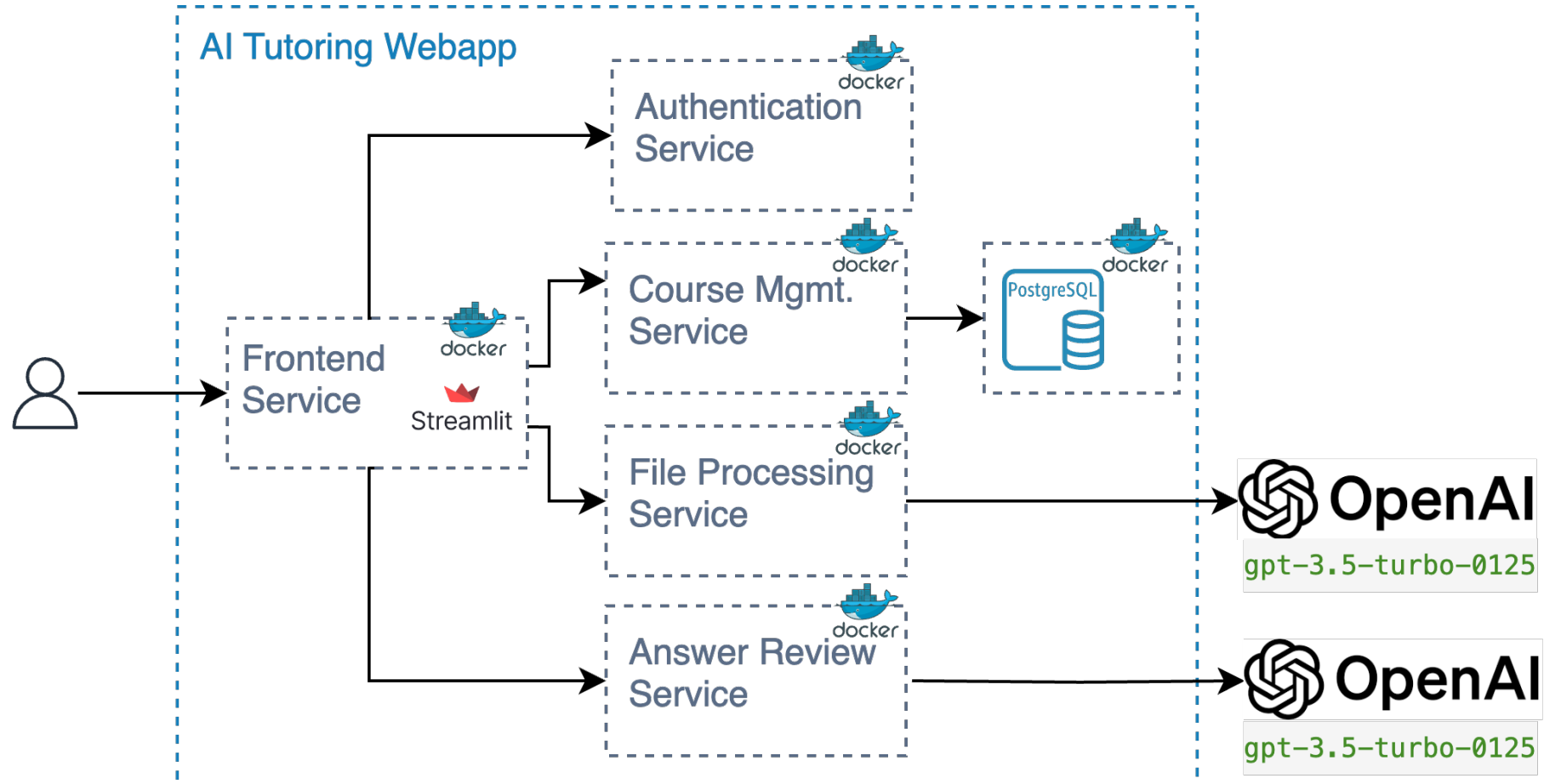
Only evaluate
for Design Time

Demo Time 😊

../Create Course.webm
../Study Session.webm

Architecture Overview

A complex architecture allows to evaluate LLMs for enterprise use-cases.



Prompts Needed

92

Authentication and frontend needed most, file storage in single prompt

Syntax Errors/Compatibility

8

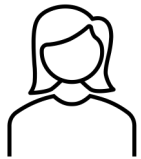
Mainly obsolete libraries or incompatible configurations

Code did not fit Requirements

11

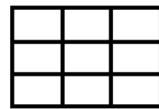
Code not production-ready, only method stubs

Overall, app development was significantly sped up (ca. 40hrs).



User Personas

Understand user needs and preferences.



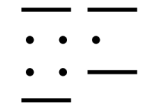
Dummy Data

Generate placeholder data for your database.



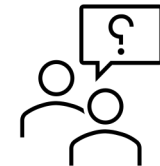
Tests

Quickly cover many different test cases.



Translation of Instructions

Ex. transform CURL to python.



Troubleshooting

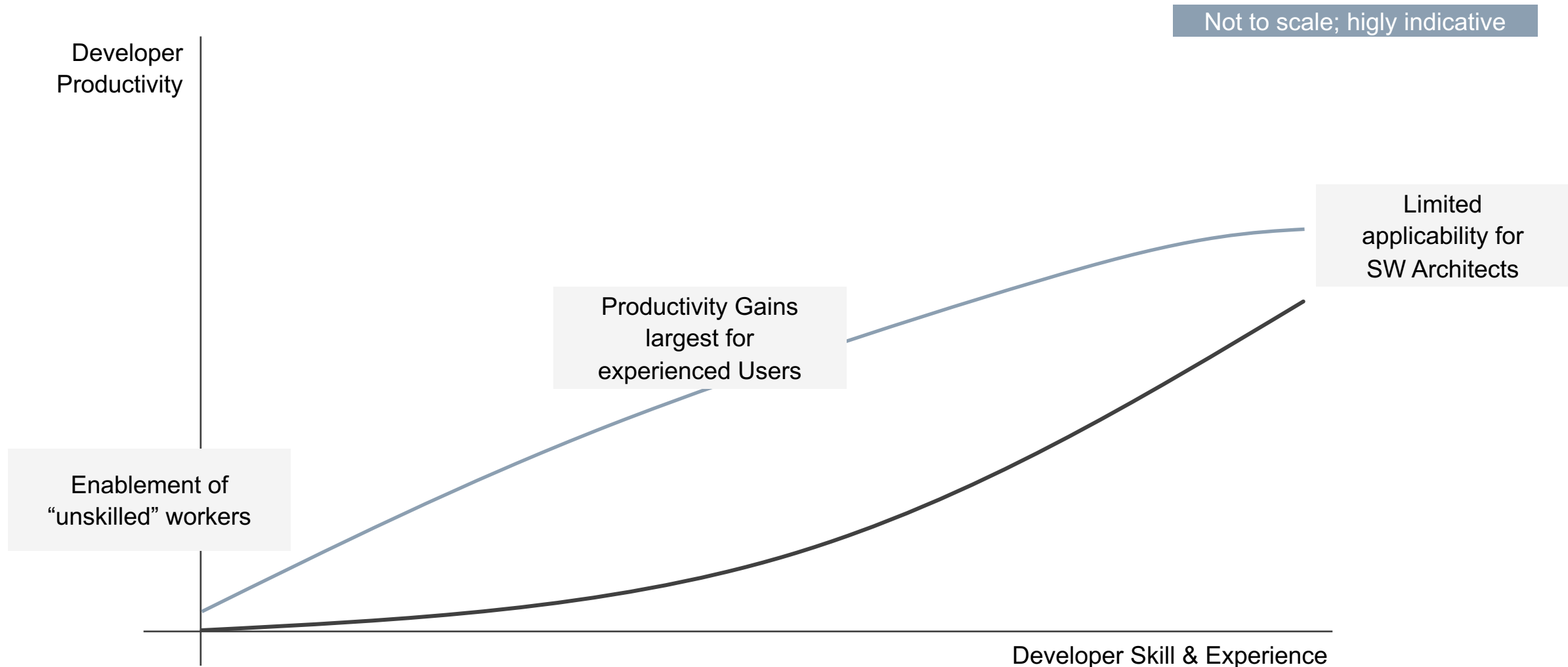
Get friendly help without describing the problem in technical terms.

Common Problems and Remedies

How can I get the LLM to do its job?

Obstacle		Remedy
"This task would require a team of developers ..." / "I can provide a basic implementation ..."	→	Prompt: "You are a team of experienced [XYZ-] engineers"
"This is not for production setup, you should use XX"	→	Prompt: "Design it to be production-ready"
Incompatible or obsolete interfaces in libraries/dependencies	→	Ask for the version pip install XXX==V.V
Identical configuration across services (ex. Everything on port 5000)	→	Prompt: "Provide a configuration file with environment variables for all ports"
Terms like "OpenAI Function Calling" refer to a specific concept, but are not recognized as such	→	Provide example/ few shot

Impact of LLM depending on developer skill



*How well can large language models
create a study-assistant platform?*

With applicable prior experience, a shippable assistant platform
can be developed in 40hrs and 90 prompts.

Thank you for listening! 😊