

Full Stack Developer Assessment

Welcome! This assessment is designed to mirror the work you'll do with us: building new AI features and improving our core platform. It's a chance to showcase your skills on a practical, real-world challenge.

Overview

This assessment is designed to evaluate your ability to:

- Build AI features
- Use AI coding tools to work efficiently
- Diagnose issues in systems
- Refactor old systems

You may use any publicly available resources or tools. Some of the tools we recommend are Gemini, Claude code and Magic Patterns. Please submit your answers in a clear, structured format (Google Docs, PDF, or similar).

Learn more about Ottodot here: www.ottodot.com

Please submit your assessment task via this form:

<https://airtable.com/appytuR6ewldKWEFA/pag6QKmb0bH4dS0AO/form>

Part 1: Build a AI Math Problem Generator

Your task is to build a standalone prototype that uses AI to generate math word problems and saves the results. This tests your ability to work with our full tech stack (Next.js, Supabase, Tailwind CSS) to build an end-to-end feature.

How it works


- **Generate Problem:** When a user clicks "Generate New Problem," your application uses AI to generate a single math word problem suitable for a Primary 5 student.
- **Save to Database:** The generated problem and its correct numerical answer are saved as a new "session" in your Supabase database.
- **Submit Answer:** The user submits their answer. The submission (what they entered, and whether it was correct) is saved to the database, linked to the problem session.
- **Generate & Display Feedback:** After submission, the app uses AI to generate personalized feedback for the student based on their answer and displays it.

Requirements

- **Tech Stack:** Please use the provided starter kit, which includes Next.js, TypeScript, Tailwind CSS, and the Supabase client.
- **AI Integration:** Use a generative AI (e.g., Google's Gemini) for two tasks:
 - To generate a math word problem. The AI must return a JSON object with `problem_text` and the `final_answer` (the correct numerical solution).
 - To generate personalized feedback based on the user's submission.
- **Database:** Use a free Supabase project.
 - Create two tables: `math_problem_sessions` and `math_problem_submissions`. The required schema is provided in the starter kit.
 - All generated problems and user submissions must be persisted in these tables.
- **Frontend:** A clean, mobile-responsive interface built using Tailwind CSS.

Starter kit: <https://github.com/ottodotofficial/ottodot-coding-task-full-stack>

Singapore Math Syllabus:

 2021 Primary Mathematics Syllabus P1 to P6_Updated Dec 2023.pdf

Submission

- A link to a public GitHub repository.
- A link to a live deployment on Vercel.
- Update the `README.md` to include your Supabase Project URL and Anon Key so we can interact with your live demo.

Part 2: Create a Refactor Plan

Your task is to create a clear, prioritized plan to improve our current lms prototype's reliability and performance. Please review the provided codebase and answer the questions provided below. **No coding is required for this part.**

Codebase: <https://github.com/ottodotofficial/ottodot-task-full-stack-part-2>

We have received reports from students that the homework page is unreliable. Specifically, they mention that the homework page is sometimes slow to load, homework images sometimes fail to load, and their answers occasionally fail to submit without a clear error message.

Your task is to analyze this isolated 'Homework Submission' module, identify the potential causes for these issues, and create a plan to improve its performance and reliability.

Questions

- What are the top 3 areas of concern in the existing prototype that likely impact performance and reliability?
- Outline the steps you would take over your first month to improve the prototype. What would you prioritize and why?
- Identify one or two specific, small changes you could implement in your first week for an immediate improvement.

Submission

Please submit a PDF file with your written answer.