SMART BUDDY @ NTC 2024

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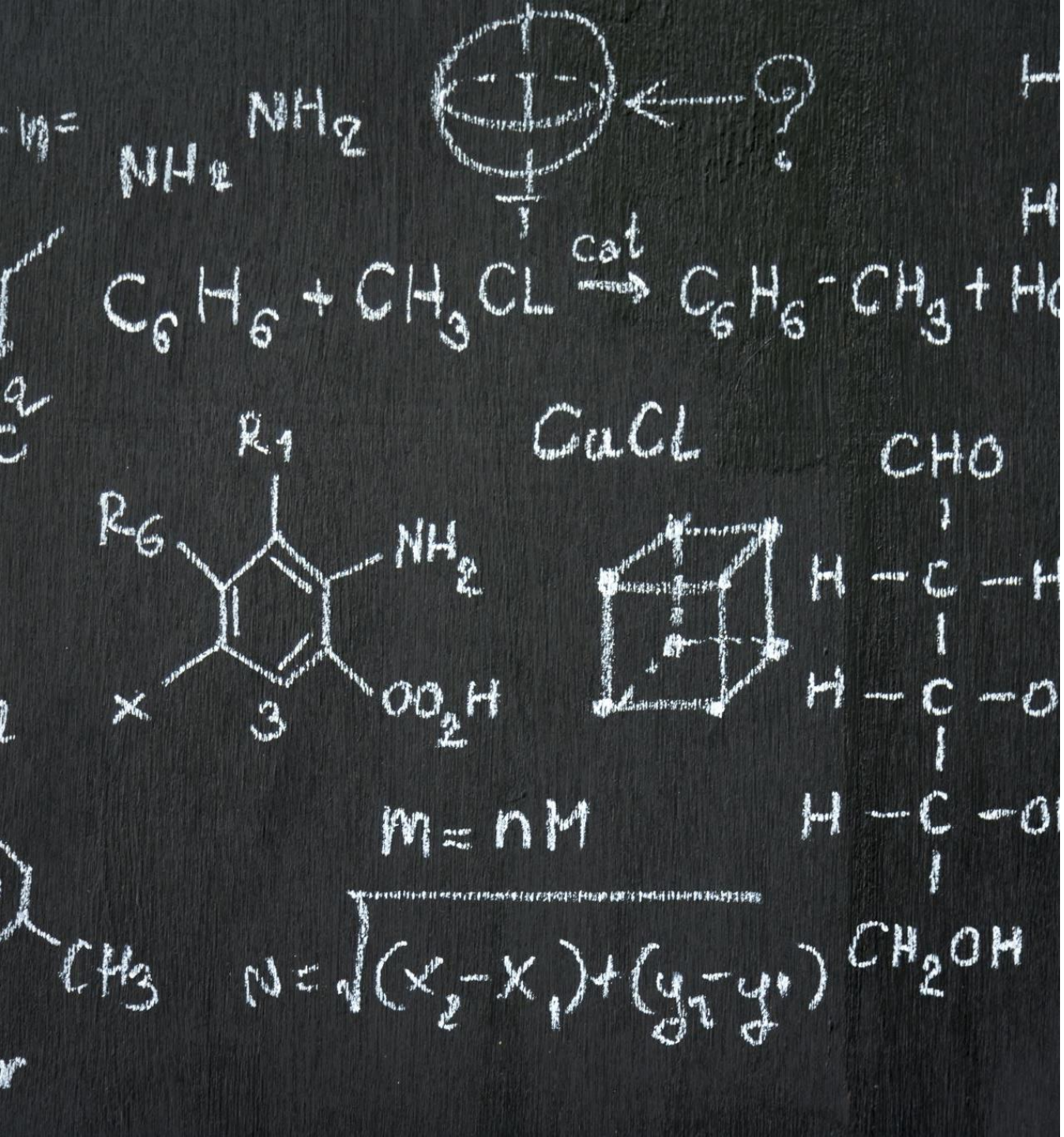


Agenda

- 1. Problem Statement
- 2. Motivation: Survey Results
- 3. Solution: Smart Buddy
- 4. Solution Architecture
- 5. Code: Prompt
- 6. Demo (Student)
- 7. Demo (Teacher)
- 8. Impact of our solution

Problem Statement

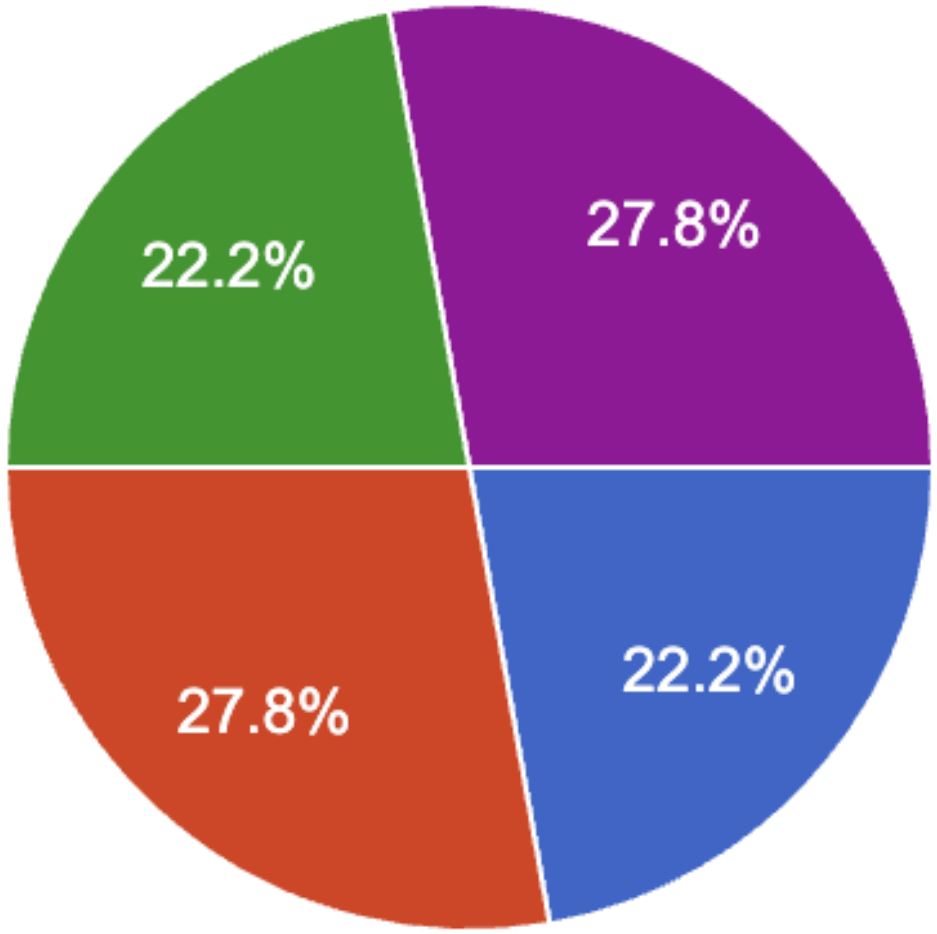
- Big classroom sizes of 30+
- Students may be hesitant to ask questions in a big class setting
- Teachers do not have have enough time to answers all their doubts
- Students who are absent for many days have difficulty catching up with school-work
- Students do not have a record on what is happening in every lesson they missed
- Can we assist teachers in generating interesting questions on a topic at different levels of complexity

- Never
- Less than 3 times a week
- Less than 6 times a week
- Once a day
- Every lesson

Survey results

- Link to detailed survey results

How often do you ask questions in class?



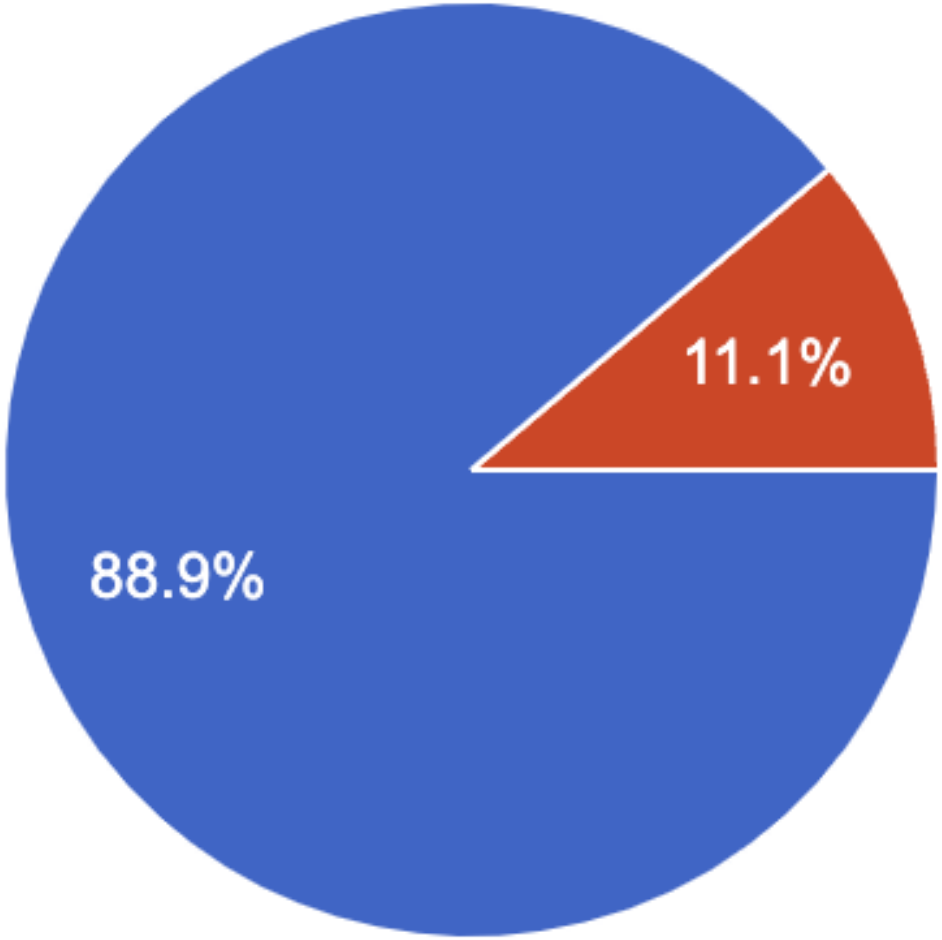
Yes

No

SURVEY RESULTS

- Link to detailed survey results

Would it help if you had more questions to solve?



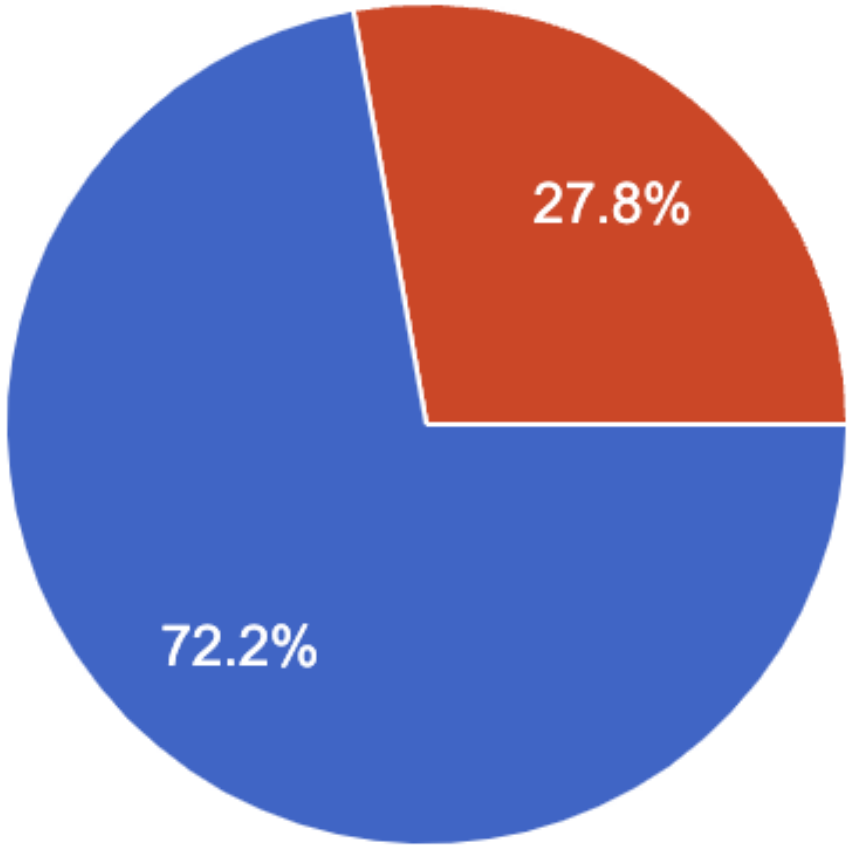
Yes

No

SURVEY RESULTS

- Link to detailed survey results

Would you like a study assistant?



Solution: Smart Buddy

Provides answers to questions specific to a topic, powered by a Large Language Model

(Claude Haiku)

Handles questions across multiple topics in multiple languages using a **R**etrieval **A**ugmented **G**eneration (RAG) framework and provides personalised, contextual answers.

Assists in generating practice questions tailored to a student's level, using the class syllabus and transcript as a reference.

SERVICES I USED

FRONT END

STREAMLIT

BACK END

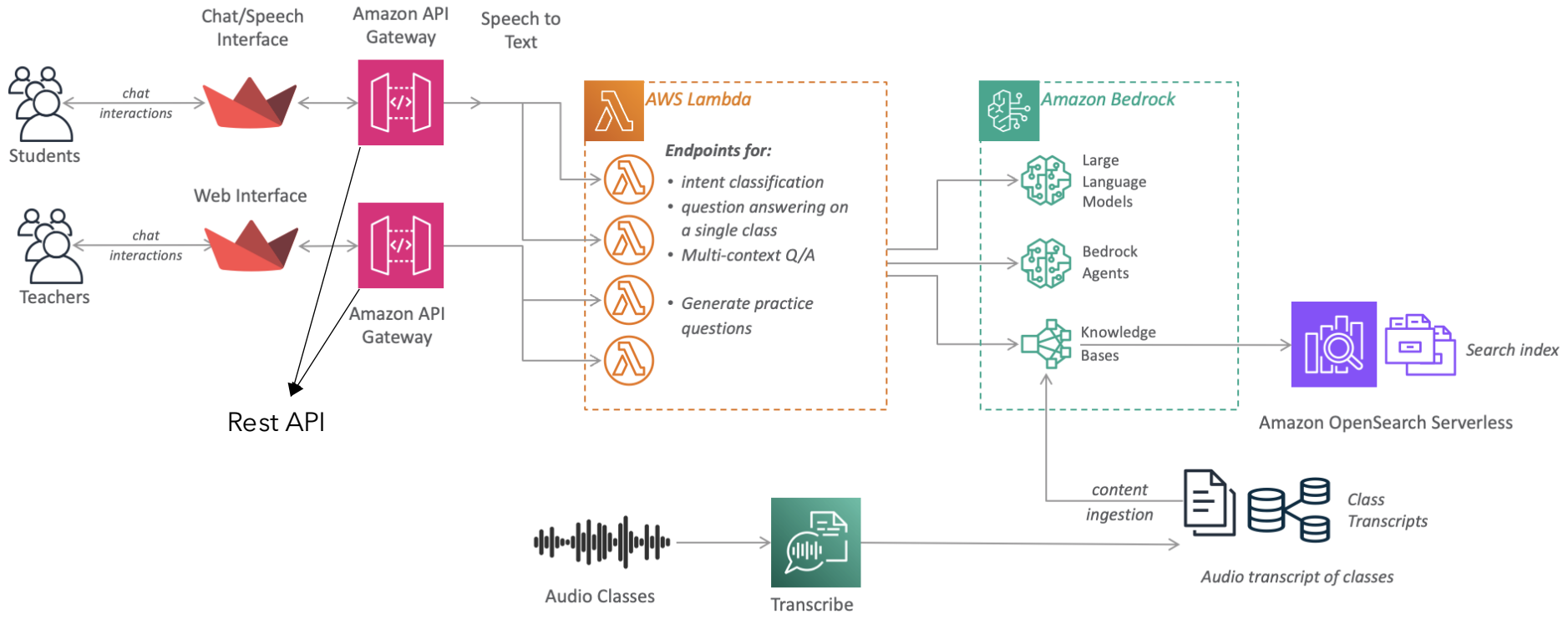
AWS Bedrock

AWS API Gateway

AWS Lambda

AWS Transcribe

aws



SOLUTION ARCHITECTURE

Lambda Function: Teacher

prompt = f'''

You are an examination creator bot with expertise in coming up with intelligent questions and model answers based on the chapter provided. The chapter can be on topics of Science, English and Chinese.

The questions can be in `MCQ` format which refers to questions where multiple choice of answers are given to choose from with only one right answer, whereas `Open-ended` questions are questions that require answers that need to be explained with reasonings.

Only generate questions in {level} format.

First generate at least 10 questions. Then for every question generated, please provide a model answer also. Encapsulate the questions in the tag <question></question> and the corresponding answers in the tag <answer></answer>. Please separate the question-answer pairs in the following format:

<pair><question></question><answer></answer></pair>

Make sure the questions and answers are in the same language as the chapter. Please come up with questions and model answers based on the following chapter.

{chapter}

'''

Lambda Function: Student

prompt = f'''
You are an English speaking bot with expertise in answering questions of primary school students.
For every question asked, put the answer within the following tags <answer> and </answer>.

If the question is a greetings or a compliment please respond back appropriately with politeness.

If you do not know the answer to a question say - 'Sorry!! I do not know how to answer that question. I am still learning.'

Make sure your answer is primarily in English but if the question is in some other language, answer the question in that language. But after answering the question revert back to English. \n\n

Given the context of the conversation,
{qcontext}
answer the question from the user:
{question}
'''


LET'S HAVE A
DEMONSTRATION

Impact Of My Solution

Enhanced Student Engagement:	• Increases participation and confidence among students to ask questions.
Improved Understanding:	• Clarifies concepts and provides targeted learning through tailored practice materials.
Support for Teachers:	• Allows teachers to focus on instruction by delegating Q&A and materials creation to a teaching assistant.
Collaboration and peer learning:	• Promotes group discussions and resource sharing, enriching the learning experience.
Positive Learning Environment:	• Reduces anxiety around asking questions and encourages continuous feedback for improvement.

Overall, this solution aims to create a more effective and supportive educational environment for both students and teachers.

Q&A

THANK YOU