EduTutor AI: Personalized Learning with Generative AI and LMS Integration
Project Documentation

1. INTRODUCTION

Project title: EduTutor AI – Personalized Learning Assistant

TEAM MEMBERS:

- MANISHA PARVEEN J
- SHRUTIKA R
- KANIMOZHI BHARATHY M
- ATHIYA ZAINAB K
- DEEPIKA A

2.PROJECT OVERVIEW :

•Purpose:

EduTutor AI is designed to provide personalized learning experiences using IBM Granite models from Hugging Face. It helps students by explaining complex concepts in simple language and generating quizzes for self-assessment.

•Features:

•Concept Explanation: Provides detailed explanations of topics with examples.

•Quiz Generator: Creates quizzes (MCQs, true/false, short answer) with answers for practice.

•Interactive UI: Simple and user-friendly interface built with Gradio.

•AI-powered Responses: Uses granite-3.2-2b-instruct for high-quality text generation.

3. Architecture:

•Frontend:

Built with Gradio, providing a clean tabbed interface with two modules – Concept Explanation and Quiz Generator.

•Backend:

Implemented in Python with Hugging Face's transformers and torch.

•Model Integration:

Uses IBM Granite 3.2 2B Instruct model from Hugging Face for generating explanations and quizzes.

4. Setup Instructions:

•Prerequisites:

•Python 3.8 or later

•Hugging Face account

•Google Colab with GPU access (T4 preferred)

•Required libraries: transformers, torch, gradio

•Installation Steps:

1. Open Google Colab and create a new notebook.

2. Install dependencies:

!pip install transformers torch gradio

3.Load the model and tokenizer from Hugging Face:

```
from transformers import AutoTokenizer,
AutoModelForCausalLM
model_name = "ibm-granite/granite-3.2-2b-instruct"
tokenizer =
AutoTokenizer.from_pretrained(model_name)
model =
AutoModelForCausalLM.from_pretrained(model_name)
```

4.Run the provided Python code

• (edu_tutor_ai.py).

5.Launch the Gradio app.

5.Folder Structure

```
EduTutorAI/
 ├── edu_tutor_ai.py     # Main application code
 ├── requirements.txt    # Dependencies
 ├── screenshots/        # Output screenshots
 ├── README.md           # Documentation
```

6.Running the Application

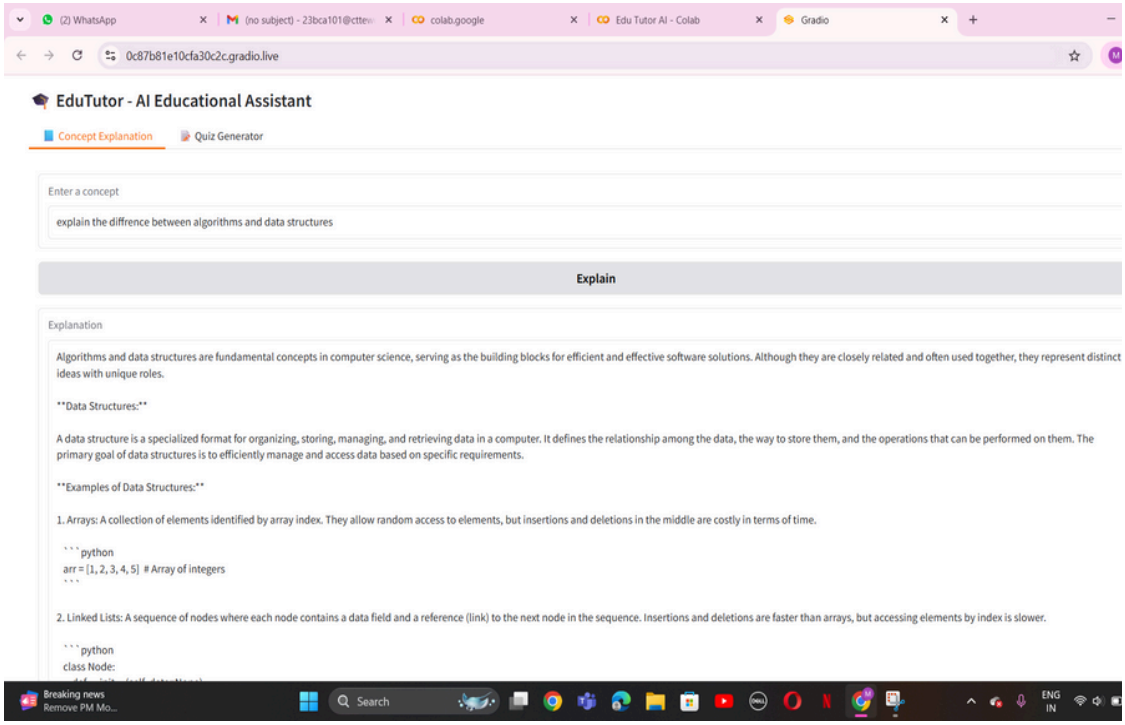
•Run the Python script in Colab.

•Gradio will generate a shareable live link.

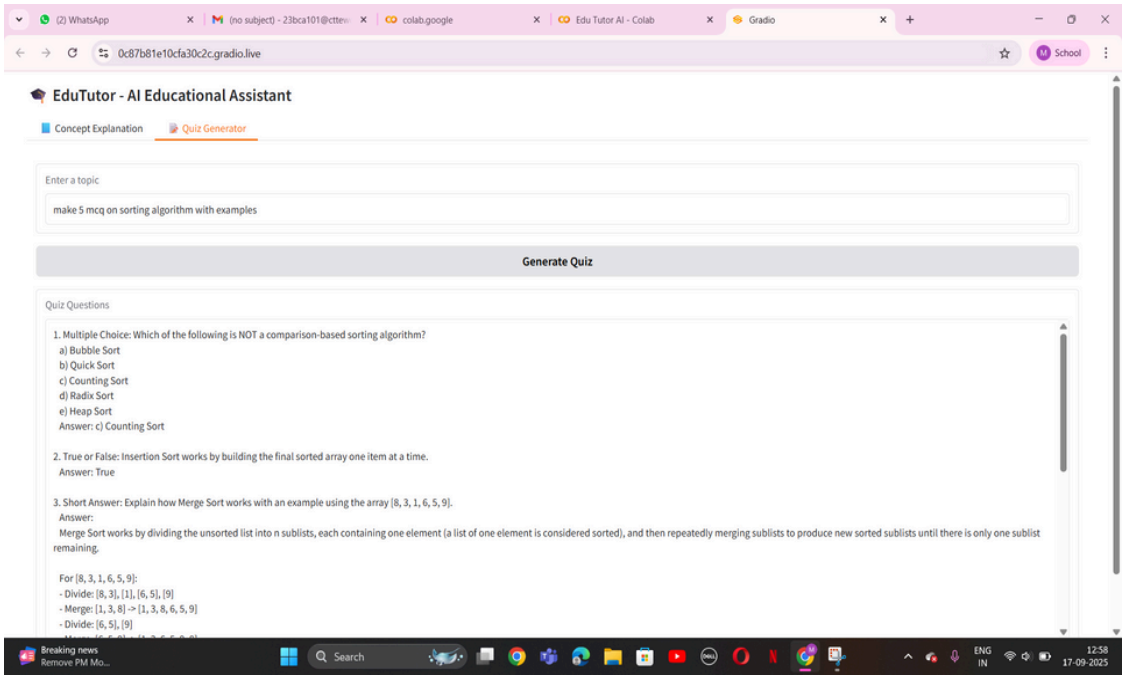
•Open the link to interact with the application.

7.Output Screenshots:

□ Concept Explanation



□ Quiz Generator



8. Known Issues

- Initial model loading may take time.
- Responses can vary due to randomness in generation.
- Requires internet connection for Hugging Face model download.

9. Future Enhancements

- Add more learning tools like flashcards and summaries.
- Support for uploading notes or PDFs for quiz generation.
- Multi-language support for wider accessibility.