EDUTUTOR AI

**INTRODUCTION:**

**EduTutor AI is an innovative project designed to provide personalized learning experiences forstudents by leveraging IBM Granite models integrated with Hugging Face. The system allows forconcept explanations, quiz generation, and interactive learning features. With AI in education, theproject addresses the need for adaptive learning tools that cater to individual student requirements.The objective is to make education more accessible, efficient, and personalized.**

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**PROJECT DESCRIPTION:**

**EduTutor AI combines Natural Language Processing (NLP) and Machine Learning techniques to deliver a virtual classroom experience. It helps students understand concepts, practice exercises, and improve their knowledge in various subjects. The platform also provides:**

**Step-by-step explanations**

**Progress tracking**

**Resource recommendations**

**24/7 learning assistance**

**EduTutor AI is designed to support students, teachers, and institutions by bridging the gap between classroom learning and self-study. With its multilingual support, assessments, and feedback, it ensures an effective and continuous learning experience.**

**TEAM MEMBERS:**

**This project has been successfully developed by our team members:**

**1. Team Lead : KALEESWARI V**

**2. Team Member : RAJESHWARY S**

**3. Team Member : DIVYA KARSHINI S**

**LITERATURE SURVEY:**

**Traditional e-learning platforms such as MOOCs (Coursera, Udemy) have provided global reachbut lack deep personalization. Artificial Intelligence in education bridges this gap by adaptingteaching methods to student needs. IBM Granite and Hugging Face provide models that simplifythe integration of generative AI into education.**

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**PROBLEM DEFINITION:**

**Conventional classroom teaching does not always meet the diverse needs of students.Standardized content delivery often leaves behind slow learners while advanced learners feelunder-challenged. EduTutor AI addresses this gap by providing tailored content generation,quizzes, and explainers.**

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**SYSTEM ANALYSIS:**

**The system analysis involves a feasibility study: 1. Technical feasibility – feasible due to IBMGranite’s lightweight models and Google Colab GPU support. 2. Operational feasibility – easydeployment using GitHub and Colab. 3. Economic feasibility – low-cost solution since Colab offersfree GPU access.**

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**REQUIRMENTS:**

**Hardware Requirements: - Computer with 4GB+ RAM - Internet connection - GPU (Google Colab**

**T4) Software Requirements: - Python 3.x - Gradio Framework - Hugging Face API (IBM Granite) -**

**Git & GitHub for version control**

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**PROPOSED SYSTEM:**

**The proposed EduTutor AI system integrates IBM Granite models for generative learning. It uses**

**Google Colab for execution and Gradio for deployment of interactive interfaces. The system**

**workflow includes portal exploration, model selection, execution, and GitHub upload.**

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**IMPLEMENTATION:**

**Implementation steps: 1. Access Naan Mudhalvan Smart Internz Portal. 2. Select IBM Granite**

**model (granite-3.2-2b-instruct). 3. Execute project in Google Colab using T4 GPU. 4. Install**

**dependencies (transformers, torch, gradio). 5. Deploy application and view results via Gradio. 6.**

**Upload project code to GitHub for version control.**

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**RESULTS AND DISCUSSION:**

**The EduTutor AI project successfully generated personalized learning outputs. The Gradio app**

**provided an interactive interface for concept explainers and quizzes. The IBM Granite model**

**performed efficiently in Colab with minimal setup and quick execution.**

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**APPLICATIONS AND ADVANTAGES:**

**Applications: - Personalized tutoring for students - Quiz and assessment generation - AI-based**

**education tools for teachers Advantages: - Adaptive learning experience - Free deployment using**

**Google Colab - Lightweight and fast execution with IBM Granite**

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**LIMITATIONS AND FUTURE ENHANCEMENTS:**

**Limitations: - Dependency on internet and Colab GPU availability - Limited customization in UI/UX**

**Future Enhancements: - Mobile application integration - Voice-enabled tutoring - Multi-language**

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**Support**

**CONCLUSION:**

**EduTutor AI demonstrates the potential of AI in education by combining IBM Granite with Hugging**

**Face for personalized learning. The system proves effective, accessible, and scalable. With future**

**improvements, EduTutor AI can become a powerful educational platform.**

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