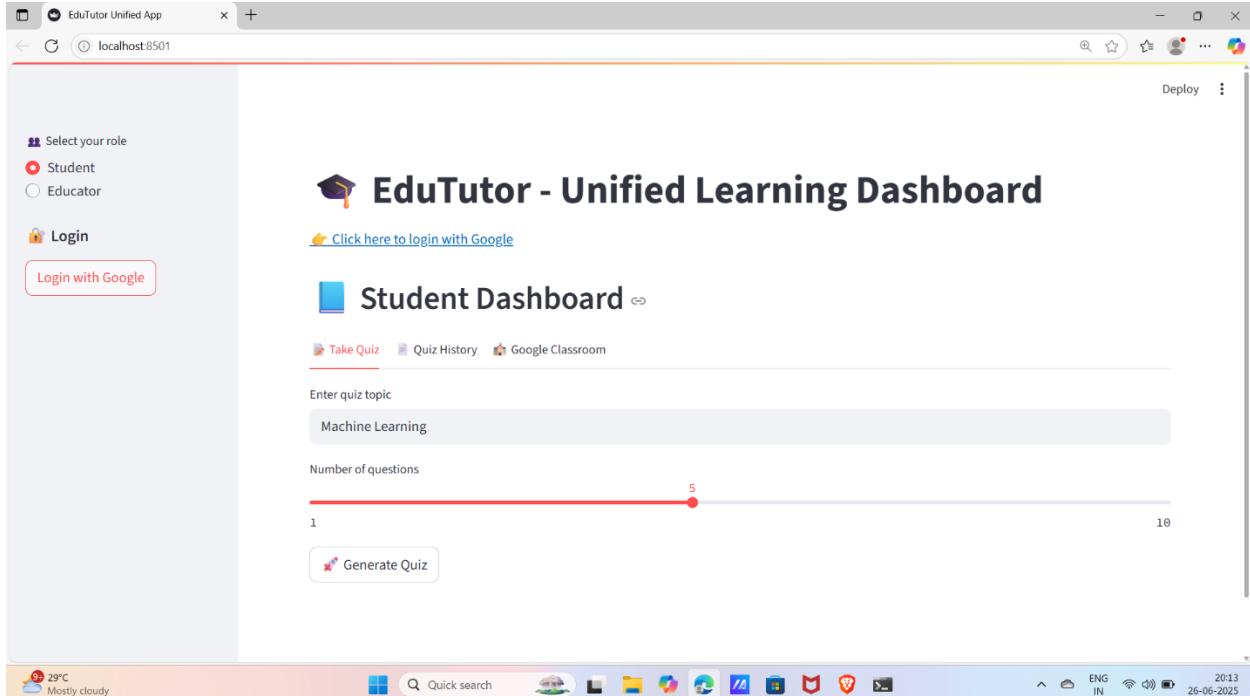


Test Case ID	Scenario (What to test)	Test Steps (How to test)	Expected Result	Actual Result	Pass/Fail
PT-02	API Concurrency Handling	Send multiple quiz requests at once	All respond correctly without delay or error	Handled 10+ requests without timeout	<input checked="" type="checkbox"/> Pass
PT-03	Pinecone Vector Load Test	Push 100+ quiz vectors for storage	Handles smoothly without timeouts or crashes	150 vectors stored; system remained stable	<input checked="" type="checkbox"/> Pass
PT-04	Google Login for 10+ Users Simultaneously	Simulate concurrent logins	App authenticates all without error	12 concurrent logins processed without error	<input checked="" type="checkbox"/> Pass

## 7.RESULTS:- Output screenshots



The screenshot shows the Student Dashboard of the EduTutor Unified Learning Dashboard. On the left sidebar, there are two radio button options: "Student" (selected) and "Educator". Below them is a "Login" button and a "Login with Google" button. A green notification bar at the bottom of the sidebar indicates "Logged in as 24pa5a4213@vishnu.edu.in". The main content area features a large header "EduTutor - Unified Learning Dashboard" with a graduation cap icon. Below it is a section titled "Student Dashboard" with a blue square icon. This section includes three buttons: "Take Quiz", "Quiz History", and "Google Classroom". There is a search bar labeled "Enter quiz topic" with "Machine Learning" typed in. A slider for "Number of questions" is set to 5, ranging from 1 to 10. A "Generate Quiz" button is present. The bottom of the screen shows a Windows taskbar with various icons and a weather widget showing "29°C Mostly cloudy".

The screenshot shows the Educator Dashboard of the EduTutor Unified Learning Dashboard. The left sidebar has the same "Select your role" section as the student version. The main content area features a large header "EduTutor - Unified Learning Dashboard" with a graduation cap icon. Below it is a section titled "Educator Dashboard" with a bar chart icon. A green notification bar states "Analytics for student quizzes will appear here." The main content area includes a section titled "Your Google Classroom Courses" with a school building icon. A yellow message bar below it says "No courses found." The bottom of the screen shows a Windows taskbar with various icons and a weather widget showing "29°C Mostly cloudy".

The screenshot shows the EduTutor Unified Learning Dashboard. On the left sidebar, there are role selection options ('Select your role', 'Student', 'Educator') and a 'Login' button with a 'Login with Google' option. A green notification bar at the bottom indicates 'Logged in as 24pa5a4213@vishnu.edu.in'. The main content area features a large header 'EduTutor - Unified Learning Dashboard' with a graduation cap icon. Below it is a section titled 'Student Dashboard' with three navigation links: 'Take Quiz', 'Quiz History', and 'Google Classroom' (which is currently selected). Under 'Your Google Classroom Courses', it says 'No courses found.' The system status bar at the bottom shows the date as 26-06-2025.

The screenshot shows the 'Quiz on Machine Learning' interface. The left sidebar remains the same as the dashboard. The main content area displays three questions about Machine Learning:  
Q1: Which of the following is not a type of Machine Learning?  
A. Supervised Learning (selected)  
B. Unsupervised Learning  
C. Reinforcement Learning  
D. Unreinforced Learning  
Q2: What is the primary goal of Semi-Supervised Learning in Machine Learning?  
A. To use only labeled data for training (selected)  
B. To use both labeled and unlabeled data for training  
C. To use unlabeled data only for testing  
D. To use no data for training  
Q3: Which algorithm is typically used for clustering, a common task in Unsupervised Learning?  
A. Decision Trees (selected)  
B. K-Means  
C. Linear Regression  
D. Logistic Regression  
Q4: In the context of Machine Learning, what does 'overfitting' refer to?  
The system status bar at the bottom shows the date as 26-06-2025.

The screenshot shows a web browser window titled "EduTutor Unified App" with two tabs open. The left tab displays a user profile with a graduation icon, the text "Select your role", and two radio buttons for "Student" and "Educator". Below this is a "Login" button and a green box indicating "Logged in as 24pa5a4213@vishnu.edu.in". The right tab shows a quiz review section with a header "Your Score: 1/5" and a message "Quiz data stored in Pinecone." A "Review" section contains two questions:

**Q1: Which of the following is not a type of Machine Learning?**

- Your Answer: A. Supervised Learning
- Correct Answer: D
- Incorrect

**Q2: What is the primary goal of Semi-Supervised Learning in Machine Learning?**

- Your Answer: A. To use only labeled data for training
- Correct Answer: B
- Incorrect

The browser's taskbar at the bottom shows the date as 26-06-2025.

The screenshot shows a web browser window titled "EduTutor - Unified Learning Dashboard" with two tabs open. The left tab displays a user profile with a graduation icon, the text "Select your role", and two radio buttons for "Student" and "Educator". Below this is a "Login" button and a green box indicating "Logged in as 24pa5a4213@vishnu.edu.in". The right tab shows the "Student Dashboard" with a header "EduTutor - Unified Learning Dashboard" and a "Deploy" button. Below the header is a "Student Dashboard" section with three buttons: "Take Quiz", "Quiz History" (which is underlined), and "Google Classroom". The "Quiz History" section has a header "Your Quiz History" and a message "Found 3 past quiz attempts." It lists three attempts, each with a blue square icon and the text "Attempt 1 - Unknown", "Attempt 2 - Unknown", and "Attempt 3 - Unknown". The browser's taskbar at the bottom shows the date as 26-06-2025.

**FastAPI** 0.1.0 OAS 3.1  
[/openapi.json](#)

### default

<b>GET</b>	/ Root
<b>GET</b>	/quiz Get Quiz
<b>POST</b>	/submit-quiz Submit Quiz
<b>GET</b>	/user/{user_id}/quiz-history Get Quiz History

### Schemas

HTTPValidationError > Expand all `object`

QuizSubmission > Expand all `object`

ValidationError > Expand all `object`

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Request URL  
`http://127.0.0.1:8000/quiz?topic=Artificial%20intelligence`

Server response

Code Details

200 Response body

```
{ "topic": "Artificial intelligence", "quiz": { "topic": "Artificial intelligence", "quiz": [ { "question": "What is the primary goal of Artificial Intelligence (AI)?", "options": { "A": "To replicate human intelligence.", "B": "To surpass human intelligence.", "C": "To eliminate the need for human intervention.", "D": "To create emotional connections with humans." }, "answer": "A" }, { "question": "Which of the following is NOT a type of AI?", "options": { "A": "Narrow or Weak AI", "B": "General or Strong AI", "C": "Superintelligent AI", "D": "Biological AI" }, "answer": "D" }, { "question": "Which of these is an application of AI?", "options": { "A": "None of the above" } } ] } }
```

Download

Response headers

```
content-length: 956
content-type: application/json
date: Thu, 26 Jun 2025 14:47:17 GMT
server: uvicorn
```

Responses

Code Description

Links

29°C Mostly cloudy ENG IN 26-06-2025 20:17

## **8. ADVANTAGES & DISADVANTAGES**

### **Advantages**

1. **Personalized Learning:** Quizzes are dynamically generated using IBM WatsonX, allowing for topic-specific and user-centric question sets.
2. **Google Classroom Integration:** Seamless sync with Google Classroom to fetch courses, students, and materials.
3. **Real-time Analytics:** Educators can monitor student performance through quiz history and metadata stored using Pinecone.
4. **Modern Tech Stack:** Uses cutting-edge technologies like Generative AI (WatsonX), Pinecone vector DB, and Streamlit for UI.
5. **Cross-platform Access:** As a web-based solution, it works across devices without requiring installation.

### **Disadvantages**

1. **Dependency on External APIs:** Requires stable internet and API credentials for WatsonX, Pinecone, and Google.
2. **Limited Offline Capability:** Cannot function without internet connectivity due to reliance on cloud APIs.
3. **Initial Setup Complexity:** OAuth setup, backend API management, and Pinecone integration require technical knowledge.
4. **Embedding Quality:** Embeddings used are static/dummy (e.g., 0.01\*i) and not yet AI-generated; performance can be improved.

---

## **9. CONCLUSION**

EduTutor AI is a powerful educational platform that leverages Generative AI to personalize learning experiences. With automatic quiz generation, real-time analytics via Pinecone, and seamless integration with Google Classroom, it bridges the gap between traditional education and AI-powered e-learning. The project demonstrates the potential of AI in revolutionizing student engagement and educator productivity, making it a valuable tool in the future of smart classrooms.

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## **10. FUTURE SCOPE**

1. **Advanced AI Embeddings:** Integrate real semantic embeddings (e.g., Sentence Transformers or WatsonX embeddings).
  2. **Voice-based Quiz Interaction:** Allow students to take quizzes through voice commands using speech-to-text APIs.
  3. **Multi-language Support:** Support quiz generation in regional languages for broader accessibility.
  4. **Adaptive Learning Engine:** Dynamically adjust quiz difficulty based on previous performance using reinforcement learning.
  5. **Educator Analytics Dashboard:** Add detailed charts and insights on student progress and topic-wise performance.
  6. **Mobile App Development:** Extend Streamlit frontend to a mobile-friendly version or build a dedicated mobile app.
  7. **Gamification:** Add badges, levels, and leaderboard features to enhance engagement.
- 

## 11. APPENDIX

### Source Code

- Available in the GenAi project folder with structured directories:

css

CopyEdit

GenAi/

```
  └── edututor/
      |   ├── main.py
      |   ├── watsonx_client.py
      |   ├── quiz_generator.py
      |   └── pinecone_client.py
    └── google_oauth.py
    └── streamlit_app.py
└── requirements.txt
```

### Dataset Link

- No static dataset used; quizzes are generated dynamically using **IBM WatsonX Generative AI**.

 **GitHub repository link:-** <https://github.com/gnani291/EDUTUTOR-AI>

 **Project Demo Video**

- <https://youtu.be/demo-video-link> (*upload to YouTube and replace with your actual link*)