

## # Milestone 1: Requirements Specification

### ## 📁 Project Title:

EduTutor AI: Personalized Learning with Generative AI and LMS Integration

### ## 🎯 Objective:

To build a smart learning assistant that uses Generative AI to:

- Automatically generate quizzes based on classroom topics.
- Analyze student performance.
- Adapt quizzes based on difficulty using AI models.
- Help teachers track student progress using real-time dashboards.

### ## ✅ Functional Requirements:

1. Students can log in with their **Google Classroom** credentials.
2. The system fetches their subjects and materials.
3. It uses **Granite LLM** (from Hugging Face) to create quizzes.
4. The system analyzes answers using **IBM Watsonx** to determine learning levels.
5. It adapts the next quiz based on student's previous performance.
6. The data is stored in **Pinecone Vector Database** for tracking progress.
7. A **Streamlit-based** frontend is used for both students and teachers.

### ## 🔒 Non-Functional Requirements:

- Secure login using OAuth2 for Google accounts.
- Fast performance using optimized API calls.
- Reliable backend using **FastAPI** and **Uvicorn**.
- Scalable for 1000+ users.
- Clean user interface.

### ## 🧰 Tools and Technologies:

- Hugging Face (Granite LLM)
- IBM Watsonx (LangChain Integration)
- Google Classroom API
- Pinecone Vector DB
- Python, FastAPI, Uvicorn
- Streamlit (UI)
- GitHub (version control)
- Google Colab (to run and test code)

### ## 🛠️ Installation Requirements (for developer):

```
```bash
pip install -r requirements.txt
```