**Project Design Phase**

**Solution Architecture**

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| Date | 15 February 2025 |
| Team ID | LTVIP2025TMID20458 |
| Project Name | EduTutor AI |
| Maximum Marks | 4 Marks |

**Solution Architecture:**

Solution architecture is a complex process – with many sub-processes – that bridges the gap between business problems and technology solutions. Its goals are to:

* Find the best tech solution to solve existing business problems.
* Describe the structure, characteristics, behavior, and other aspects of the software to project stakeholders.
* Define features, development phases, and solution requirements.
* Provide specifications according to which the solution is defined, managed, and delivered.

**EduTutor AI** follows a three-tier architecture:  
  
1. **Presentation Layer**:  
 - Web interface built with Flask templates  
 - Responsive design with CSS/HTML/JavaScript  
 - Google OAuth integration

2. A**pplication Layer**:  
 - Flask web application (Python)  
 - IBM Watsonx API for AI quiz generation  
 - Google Classroom API integration  
 - Pinecone for answer storage (future ML capabilities)  
  
3. **Data Layer**:  
 - JSON-based user database  
 - Quiz history storage  
 - Google Classroom data cache

**Key Components**:  
- User Interface (Web Browser)  
- Flask Application Server  
- IBM Watsonx AI Service  
- Google Classroom API  
- Local JSON Database  
- Pinecone Vector Database (future use)