

2.2.4 Other Non-functional Requirements

2.2.4.1 Performance Requirements

The performance of *CodeCodez* is critical to ensure efficient and reliable project generation. The system must be capable of handling both small-scale and large-scale project specifications while maintaining responsiveness and stability. Key performance requirements include:

- **Response Time:**
 - The system should process user input and generate an initial project structure within **20–30 seconds** for standard requirements.
 - For large and complex projects (e.g., 100+ modules), the maximum acceptable processing time is **600 seconds**.
- **Scalability:**
 - The system should handle project specifications ranging from simple CRUD applications to enterprise-grade multi-service architectures.
 - Modular design must allow incremental addition of features without affecting existing workflows.
- **Resource Utilization:**
 - Optimized usage of CPU/GPU resources when running LLM-based agents.
 - Batch processing for repetitive tasks to reduce overhead.

2.2.4.2 Safety Requirements

Although *CodeCodez* is a software system and not directly safety-critical, certain measures must be enforced to ensure safe and reliable operation:.

- **Error Handling:**
 - In case of LLM failure or incomplete output, the system must roll back to the last stable state instead of producing broken artifacts.
 - Clear **error messages and recovery suggestions** should be displayed to guide users.
- **Misuse Prevention:**
 - The system should prevent execution of **malicious or harmful code snippets** generated by LLMs.