

- Sandbox testing environments must be used to validate code before allowing deployment.
- **Fail-Safe Defaults:**
  - If a module cannot be generated successfully, the system should generate **stub code with warnings** instead of producing nothing.
  - Default configurations should prioritize **safe execution** over performance.

#### **2.2.4.3 Security Requirements**

Given that *CodeCodez* deals with potentially sensitive project specifications, **security is paramount**. The following security requirements must be met:

- **Authentication and Authorization:**
  - Role-based access control (RBAC) must be implemented (e.g., admin, developer, stakeholder).
  - Multi-factor authentication (MFA) must be enforced for critical actions like project export or deletion.
- **Data Protection:**
  - All data in transit must be encrypted using **TLS 1.3** or higher.
  - Sensitive data (user credentials, API keys) must be stored using **AES-256 encryption**.