Agile Project Documentation
Text-to-Floorplan and 3D Generation System

1. Vision & Purpose
This document provides lightweight and evolving Agile documentation for the Text-to-Floorplan and 3D Generation System, following Agile principles of clarity, collaboration, and continuous improvement.

2. Project Scope
The system converts natural language descriptions into 2D floorplans and further into navigable 3D architectural models using AI models such as LLMs, LayoutGAN++, Stable Diffusion with ControlNet, and Raster-to-Vector pipelines.

3. User Personas
Primary users include architecture students, architects/designers, homeowners, and system administrators.

4. Core User Stories
Key functionality is defined using user stories and acceptance criteria in table format below.

5. Product Backlog

Story ID	User Story	Priority	Acceptance Criteria
US-1	User enters text description	High	System accepts valid input
US-2	System generates structured layout JSON	High	JSON schema validated
US-3	Generate 2D floorplan	High	Floorplan rendered correctly
US-4	Generate 3D model	Medium	3D model navigable
US-5	View metrics dashboard	Low	Metrics visible

6. Sprint Plan

Sprint	Focus	Deliverables
Sprint 1	Text Parsing & Dataset Prep	LLM parser, JSON schema
Sprint 2	2D Layout Generation	LayoutGAN++, rasterizer

Sprint 3	2D Visualization	Stable Diffusion + ControlNet
Sprint 4	3D Generation	Raster-to-Vector, 3D extrusion

7. Milestones

Checkpoint	Date	Deliverables
Checkpoint 1	February 25, 2026	Text-to-2D Floorplan System
Checkpoint 2	March 10, 2026	Full Text-to-3D System

8. Definition of Done

Criteria	Description
Code	Implemented and reviewed
Testing	All tests pass
Demo	Working system demo
Docs	Updated documentation

9. Risks & Mitigation

Risk	Impact	Mitigation
Text misinterpretation	High	Prompt tuning, RAG
Geometry errors	High	Constraint solver
Latency	Medium	Model distillation