Game Design Document (GDD)

Title: Virtual Art Museum

Authors: Siddharth Singh, Devansh Singh, Aditya Takale, Shrikunj Rathi

Studio: Digital Dimension Studios

Theme Colors: Warm Beige & Royal Blue

Render Style: Realistic 3D Architectural Visualization

1. Game Overview

Game Title: Virtual Art Museum

Genre: 3D Exploration / Simulation / Educational

Platform: PC (Windows) / WebGL (Optionally VR Ready)

Engine: Unity 2019.4 (URP – Universal Render Pipeline)

Mode: Single Player (First-Person Exploration)

Target Audience: Art enthusiasts, students, museum visitors (ages 10+)

Development Time: Approximately 6–8 weeks

Team Size: 4 Members (Developers, Level Designers, 3D Artists, Testers)

2. Core Concept

Virtual Art Museum is an immersive 3D experience that lets users walk through a digitally crafted gallery. Players can explore curated halls filled with sculptures and paintings, click on each exhibit to view its details, and enjoy realistic lighting, reflections, and ambient sound. The project simulates a real-world art museum environment using Unity 2019.4, URP, and ProBuilder—combining educational and visual realism.

3. Gameplay and Mechanics

Game Flow:

- The player launches the application.
- A main menu appears (Start Tour / Exit).
- On start, the player spawns in the main hall of the museum.
- The player uses WASD keys to walk and Mouse to look around.
- Clicking on any art object opens an info panel with the artwork’s name, artist, and description.
- A soft ambient soundtrack plays throughout the museum.
- The player can press Esc to return to the main menu or quit.

4. Core Features

- First-Person Movement: Smooth navigation using keyboard and mouse controls.
- Interactable Artworks: Paintings and sculptures with clickable info panels.

- Dynamic Lighting: Spotlights and reflection probes for realistic lighting.
- Optimized 3D Environment: Modeled with ProBuilder; lightmapped for performance.
- UI Information System: On-screen panels show artwork details.
- Ambient Audio: Soft museum music.
- Replay Option: Restart the tour from the main menu.

5. Game Logic

- Interaction Logic: Detect mouse click on art objects to show info panel.
- Exploration Logic: Player movement via Character Controller with gravity and collisions.
- Optimization: Static geometry with occlusion and baked lighting.

6. Technical Design

- Game Engine: Unity 2019.4 (URP)
- Modeling & Layout: ProBuilder
- Programming Language: C#
- 3D Assets: Unity Asset Store / Blender exports (FBX)
- User Interface: Unity UI (Canvas System)
- Lighting System: Baked Global Illumination + Reflection Probes
- Audio: Unity Audio Mixer
- Data Storage: PlayerPrefs (optional)

7. Art and Visual Style

- Theme: Realistic contemporary museum environment.
- Color Palette: Warm beige walls, cool gray floors, blue highlights.
- Lighting: Mixed baked spotlights and subtle bloom effects.
- Post-Processing: Bloom, color grading, ambient occlusion.

8. Audio Design

- Footsteps: Soft echoing steps on marble floors.
- Ambient Music: Calm instrumental track.
- Interaction Click: Sound when info panel opens.
- Close Panel: Subtle fade or “back” sound.

9. User Interface (UI/UX)

- Main Menu: Start Tour / About / Exit
- In-Game HUD: Tooltip – “Click on an artwork to learn more.”
- Info Panel: Artwork Title, Artist, Description, Close Button
- End Screen: “Thank You for Visiting the Virtual Art Museum”

10. Multiplayer (Future Scope)

- Shared museum tour mode for multiple users.
- Networked avatars (Photon / Netcode).
- Voice chat and VR support.

11. Testing Plan

- Unit Testing: Verify player and interaction scripts.
- Playtesting: User feedback on layout.
- Lighting Tests: Evaluate bake quality.
- Performance Tests: Monitor FPS under URP.
- Compatibility: Check PC and WebGL builds.

12. Future Enhancements

- Voice-guided narration.
- Interactive quiz mode.
- VR version for Meta Quest.
- Dynamic lighting system.
- Additional themed galleries.

13. Project Timeline

- Concept & Design: 1 week
- Prototype: 2 weeks
- Core Development: 3 weeks
- QA & Optimization: 1 week
- Final Delivery: 1 week

14. Monetization (Optional)

- Free educational version.
- Paid version with user-uploaded galleries.
- Optional DLC for new art themes.

15. References and Tools

- Unity 2019.4 Documentation / URP Manual
- ProBuilder (Unity Registry 2025 Edition)
- Blender for 3D modeling
- Photoshop for textures
- Audacity for audio loops
- Unity Asset Store for props