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# Technical Design Document

## Introduction

The purpose of this document is to provide a guide for programming and other technologies used, including usage conventions

## Document Format

- Code is presented in **Bold**
- Coding language used is C#

## Technologies

- Main technologies used are:
    - Unity 2019.2.3
    - Blender 2.8
    - Visual Studio 2019 (C#)
    - Github Repo/ Github Desktop

## C# Conventions

### Order

Code should be ordered in this way:

1. Serialized variables
   Example:

   **[SerializeField]**
   **private int i_Num = 5;**

   **Public GameObject go_ MyGameObject;**

   **Protected float f_FloatNumber = 10.0f;**

2. Constructors
   Example:

   **Public TestClass() {...}**

3. Method
   Example:

   **Public bool BoolMethod(){...}**

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**Private Transform TransformMethod(){...}**

Commenting

A summary or comment should be placed directly above each method with a brief description of its purpose.

Example:

```
///<summary>
/// Summary of ExampleMethod
///</summary
Private void ExampleMethod
```

Access Modifiers

Access Modifiers MUST be declared for all classes, variables and methods regardless of default modifiers. Public variables that are used inside of the Unity Editor must be Serialized Private instead.

Example:

```
[SerializeField]
Private Int i_ExampleInt;
```

Naming

All variable names must use Camelcase and should start with an abbreviated version of their type.

Example:

```
Private Int i_ExampleInt;

Private GameObject go_ExampleGameObject;
```

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# Unity Conventions

## Directory Layout

The intended structure of the Unity Directory should look as follows:

- Assets - Root Folder
    - Animations
        - Animation Controllers
        - Model Specific animations
    - Audio - Contains MP4, VLE and other audio formats
    - Materials - Contains material files
    - Models - Contains a copy of the exported blender models
    - Prefabs - Contains assets  that are ready to be placed into the scene
    - Scenes - Contains Unity Scenes
    - Scripts - Contains C# files
    - UI - Contains custom UI assets
    - UV Textures - Contains model texture PNG files

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## Risks and Contingencies

- Data Loss
    - Consequence of power outages and crashes
    - Contingencies
        - Save work frequently
        - Upload to repository in intervals

- Personal Health
    - Physical Stress
        - Aches and pains
        - Poor posture
        - Eye strain from looking at monitors
    - Mental Stress
        - Too long periods with no breaks
    - Contingencies
        - Take frequent breaks
        - Hour-long work stretch followed by 5-10 minute break
        - Step away from work station

- Time Constraints
    - Some tasks may take longer to complete than others
    - Contingencies
        - Reduce scope of project if overscoped
        - Divert time from other tasks that may be a lower priority