**Game Design Document (GDD)**

(Title)

Tower Defense

Contents

[Overview 3](#_Toc357070537)

[Intro 3](#_Toc357070538)

[Gameplay Description 3](#_Toc357070539)

[Platform Information 3](#_Toc357070540)

[Artistic Style Outline 3](#_Toc357070541)

[Systematic Breakdown of Components 3](#_Toc357070542)

[Unity3D Game Engine 3](#_Toc357070543)

[Save/Load System 4](#_Toc357070544)

[UI System 4](#_Toc357070545)

[Tower Building System 4](#_Toc357070546)

[Asset Breakdown 4](#_Toc357070547)

[Art Assets 4](#_Toc357070548)

[Text Assets 4](#_Toc357070549)

[Sound Assets 5](#_Toc357070550)

[Suggested Game Flow Diagram 5](#_Toc357070551)

[Suggested Project Timeline 5](#_Toc357070552)

[Additional Ideas and Possibilities 5](#_Toc357070553)

[Setup 6](#_Toc357070554)

[Git Repository 6](#_Toc357070555)

[Git clone 6](#_Toc357070556)

[Setting up ‘origin’ and ‘upstream’ 6](#_Toc357070557)

[Git for Windows/Mac/Linux Installation 6](#_Toc357070558)

[Windows 6](#_Toc357070559)

[Mac 6](#_Toc357070560)

[Linux 6](#_Toc357070561)

[Unity3D Installation 6](#_Toc357070562)

[Local Machine Setup 6](#_Toc357070563)

[Local Git Setup 6](#_Toc357070564)

[Basic Git Commands 7](#_Toc357070565)

[Add 7](#_Toc357070566)

[Commit 7](#_Toc357070567)

[Push 7](#_Toc357070568)

[Work Delegation 7](#_Toc357070569)

[Working in Unity3D 7](#_Toc357070570)

# Overview

## Intro

Your computer is being invaded by evil packets! Hackers are trying to send malicious code through your firewall, and you’re here to stop it. In this 2D, no-art tower defense, you will become the greatest System Administrator ever by blocking all virulent traffic heading to your open ports.

## Gameplay Description

The player will be in a top-down (or bird’s-eye) view of each level. At the start of the level, enemies will spawn in a location designated for starting per level. These enemies will move toward their destination along a set path, also per level. The player will attempt to destroy the enemies by building towers that will target and shoot the enemies. The win-scenario is when all enemies have been eliminated.

## Platform Information

We will be using Unity3D (<http://unity3d.com/>) as the game engine and C# as the scripting language.

## Artistic Style Outline

Currently, the art style is one that is provided by the default objects available in the Unity3D Game Engine. Once an actual artist joins for the project, this can definitely be changed. <Pictures of current map, towers go here>

## Systematic Breakdown of Components

### Unity3D Game Engine

Includes these systems but is not limited to:

* Collision
* Particles
* 2D/3D Renderer
* Graphical 3D Scene Designer
* Game Object Hierarchy View

### Save/Load System

The user is going to need a way to save information between sessions of play. For example, a list of levels they have beaten in order to determine what towers are available for building. This may end up being platform specific, because a web player is going to save information differently than Android, iOS, Mac, PC, and Linux.

### UI System

A UI will be needed for the following things, but not limited to:

* Menu
* Level Picker
* In-Level HUD

### Tower Building System

In-game, the player will need to be able to place towers in certain areas. The Tower Building system will need to be created in order to give the player the ability to place towers in certain areas in the level.

In order to build these towers, the player will spend currency and select an available spot in designated areas. As the player destroys enemies, they are awarded a certain amount of currency that is used to purchase more towers. Only certain towers are usable per level.

## Asset Breakdown

### Art Assets

Assets will not need to be very detailed, as this is a 2D game built in a 3D game engine. We will be able to texture cubes and other primitive types, such as: spheres, capsules (spheres with a height), and planes. Dependent upon the art direction, it can range from pixel art to low-poly count models. Unity3D can import a wide array of file types, so we can reference their site for info on what programs can be used to create assets (<http://unity3d.com/unity/workflow/asset-workflow>).

Areas that will need art assets:

* Enemies
* Levels
* UI/Menus
* HUD
* Particle effects

### Text Assets

There will not need to be many text assets since there is no story, narration, or dialogue in game. Most of what is needed is: names for enemies, names for towers, menu option text, and credits.

Minimal time is required for these.

### Sound Assets

As per art assets, a variety of sounds can be imported into Unity3D. A quick explanation of music vs. sound: music is the long form sound that is looped; a sound is the short form that is usually only lasts about .25 to .5 seconds. A list of what might be needed:

* Menu/Level Picker music
* Menu/UI sounds
* In-game sounds
  + Tower projectiles
  + Enemy explosion

## Suggested Game Flow Diagram

The game will commence as thus: Menu -> Level Picker -> Level -> Results screen -> Level Picker, etc.

## Suggested Project Timeline

Since this projected started out as a 1 Game A Month (<http://www.onegameamonth.com/>), the schedule will be scoped for only a month and will include only gameplay. If a month goes by and it is decided that the game will continue for an undetermined about of time, then the scope will change.

## Additional Ideas and Possibilities

It’s possible that a story line could be thrown in here once the gameplay is polished enough or another person is on the project, but currently there is no story scoped for this. Another possibility would be art affecting gameplay and or design. It could be that the art style would drive level design and possibly change how the tower building system functions.

# Setup

## Git Repository

How to set up git repository

### Git clone

Information on how to clone a git repository from remote to local machine

### Setting up ‘origin’ and ‘upstream’

Information on how to point origin and upstream correctly

## Git for Windows/Mac/Linux Installation

### Windows

Setup instructions

### Mac

Setup instructions

### Linux

Setup instructions

## Unity3D Installation

Information on how to download via website or internal version.

## Local Machine Setup

Information on how to create folders to house the Unity project and Github stuff.

## Local Git Setup

* Open Unity3D
* Go to **Edit** -> **Project Settings** -> **Editor**
* Under **Version Control**, select the dropdown next to **Mode** and choose **Meta Files**
* Close Unity
* In your choice of file viewer, go to the where the project is stored on your local machine
* Delete the **Library** and **Temp** folder
* Create a file called **.gitignore** on the parent folder
* Copy and paste the following into it:

# Ignore The following directories / file extensions

Library

Temp

obj

# Ignore the following file extensions

\*.exe

\*.vcproject

\*.sln

\*.suo

\*.userprefs

\*.csproj

\*.pidb

\*.unityproj

* Save the file
* Reopen Unity
* Check and make sure that all objects have links to their proper objects
* In your choice of file viewer, go to the where the project is stored on your local machine
* Make sure there are .meta files for your files

By following these instructions, no Library meta data will get sent to the Git repository, thus allowing for a cleaner repository and coding environment.

## Basic Git Commands

### Add

Information on how to add files to the staging area

### Commit

Information on how to commit files to the staging area

### Push

Information on how to push commits to the remote repository

### Pull

Information on how to pull commits from the remote repository

### Branch

Information on how to create/manage branches on local machine and remote repository

# Work Delegation

## Working in Unity3D

Information on how to work in separate scenes within the same project. Ie, work with the 2D gui in one scene, work with the enemy/towers in another scene, and a master scene. Also, another scene can be a main menu, a level select, etc.