



BSc Final Project

Computer Science Department

Reykjavík University

Making a Game

Operations Manual

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Document description

This document outlines the development environment used to create the game called Cold Bargain. For more information on the methods used to develop the game see the Project Report. This document does not describe the game itself nor how to play it, for that information see the Game Manual.

System Requirements (Recommended)

The following are the recommended specifications required for running the project.

OS: Windows 11 / MacOS 15 Sequoia

RAM: 16 GB

Storage Space: 10 GB

CPU: Quad-core 2.5 GHz

GPU: Dedicated (Nvidia GTX 3050 or newer)

Resolution: 1920x1080 minimum

DirectX: Version 11 (Windows)

Installation and Set-up Instructions

Start by downloading the [Unity Hub](#) and install the Unity Editor version 6 (6000.0.36f1).

Open a terminal and navigate to a folder where you'd like to store the repository.

Running the following command will download the source code:

[git clone <https://github.com/HermannHelgi/making-a-game-G13>].

This is assuming you have already installed [git](#) onto your device.

Once you have cloned the repository, open the Unity Hub and press 'Add Project from Disk'. From there select the file location of the repository you have just downloaded.

This will generate the rest of the necessary files required by the unity engine.

Launch the project from the Unity Hub to begin editing the project.

Core Scripts and Architecture

Unity File Structure

Within the Assets folder are two main folders. These folders were made to follow the Git Flow architecture, for more information see the Project Report.

First, there is the features folder. Within it are several folders, each of which created specifically for the development of a feature throughout development. When a developer created a new feature branch, the first thing they did was to create a new folder within the feature folder in Unity and name the folder the same as the branch or feature. All work that was done on that feature was within that folder. That is to say prefabs, levels, scripts, scenes, etc.

Secondly, there was the development folder. This folder contained all finished features which were ready to be used for development use. This folder was updated when updating the develop branch.

Aside from these folders there is the packages folder. This folder contains all of the asset packages used for the project. The game used four scenes, the Main Menu Scene, the Game Scene, The Intro Scene, and the Outro Scene.

AI Architecture

The enemy, the “Wendigo,” was designed and implemented using a state machine for its core behavior. In addition, it uses the NavMesh package for pathfinding, and various predator-prey logic following the integrated states.

Animation & Rigging

Characters were rigged and animated using 3rd party software and assets, but Unity's animator system was also used.

Audio

For audio, the team created and used a custom made sound manager to set up and instantiate all sounds within the game.

Packages & Assets

For packages unity comes with many inbuilt packages and offers some optional packages. When the project is initialized, unity should automatically fetch these packages and their version. However in case this may not happen or for some reason these packages have to be fetched manually, then below is a list of all of these packages and their versions.

Packages - Unity:

- 2D Sprite package. Version: 1.0.0.
 - <https://docs.unity3d.com/Packages/com.unity.2d.sprite@1.0/manual/index.html>
- AI Navigation. Version: 2.0.7.
 - <https://docs.unity3d.com/Packages/com.unity.ai.navigation@2.0/manual/index.html>
- Animation Rigging. Version: 1.3.0.
 - <https://docs.unity3d.com/Packages/com.unity.animation.rigging@1.3/manual/index.html>
- About Autodesk® FBX® SDK for Unity. Version: 5.1.1.
 - <https://docs.unity3d.com/Packages/com.autodesk.fbx@5.1/manual/index.html>
- Burst. Version: 1.8.18:
 - <https://docs.unity3d.com/Packages/com.unity.burst@1.8/manual/index.html>
- Cinemachine. Version: 3.1.2.
 - <https://docs.unity3d.com/Packages/com.unity.cinemachine@3.1/manual/index.html>
- Collections. Version: 2.5.1.
 - <https://docs.unity3d.com/Packages/com.unity.collections@2.5/manual/index.html>
- Core RP Library. Version: 17.0.3.
 - <https://docs.unity3d.com/Packages/com.unity.render-pipelines.core@17.0/manual/index.html>
- Custom NUnit. Version: 2.0.5.
 - <https://docs.unity3d.com/Packages/com.unity.ext.nunit@2.0/manual/index.html>
- FBX Exporter. Version: 5.1.3.
 - <https://docs.unity3d.com/Packages/com.unity.formats.fbx@5.1/manual/index.html>

- High Definition RP. Version: 17.0.3.
 - <https://docs.unity3d.com/Packages/com.unity.render-pipelines.high-definition@17.0/manual/index.html>
- High Definition RP Config. Version: 17.0.3.
 - <https://docs.unity3d.com/Packages/com.unity.render-pipelines.high-definition-config@17.0/manual/index.html>
- Input System. Version: 1.12.0.
 - <https://docs.unity3d.com/Packages/com.unity.inputsystem@1.12/manual/index.html>
- JetBrains Rider Editor. Version: 3.0.31.
 - <https://docs.unity3d.com/Packages/com.unity.ide.rider@3.0/manual/index.html>
- Mathematics. Version: 1.3.2.
 - <https://docs.unity3d.com/Packages/com.unity.mathematics@1.3/manual/index.html>
- Mono Cecil. Version: 1.11.4.
 - <https://docs.unity3d.com/Packages/com.unity.nuget.mono-cecil@1.11/manual/index.html>
- Multiplayer Center. Version: 1.0.0.
 - <https://docs.unity3d.com/Packages/com.unity.multiplayer.center@1.0/manual/index.html>
- Performance testing API. Version: 3.0.3.
 - <https://docs.unity3d.com/Packages/com.unity.test-framework.performance@3.0/manual/index.html>
- Polybrush. Version: 1.1.8.
 - <https://docs.unity3d.com/Packages/com.unity.polybrush@1.1/manual/index.html>
- Post Processing. Version: 3.4.0.
 - <https://docs.unity3d.com/Packages/com.unity.postprocessing@3.4/manual/index.html>
- Searcher. Version: 4.9.2.
 - <https://docs.unity3d.com/Packages/com.unity.searcher@4.9/manual/index.html>

- Settings Manager. Version: 2.0.1.
 - <https://docs.unity3d.com/Packages/com.unity.settings-manager@2.0/manual/index.html>
- Shader Graph. Version: 17.0.3.
 - <https://docs.unity3d.com/Packages/com.unity.shadergraph@17.0/manual/index.html>
- Splines. Version: 2.7.2.
 - <https://docs.unity3d.com/Packages/com.unity.splines@2.7/manual/index.html>
- Terrain Tools. Version: 5.1.2.
 - <https://docs.unity3d.com/Packages/com.unity.terrain-tools@5.1/manual/index.html>
- Test Framework. Version: 1.4.5.
 - <https://docs.unity3d.com/Packages/com.unity.test-framework@1.4/manual/index.html>
- Timeline. Version: 1.8.7.
 - <https://docs.unity3d.com/Packages/com.unity.timeline@1.8/manual/index.html>
- Unity Light Transport Library. Version: 1.0.1.
 - <https://docs.unity3d.com/Packages/com.unity.rendering.light-transport@1.0/manual/index.html>
- Unity UI. Version: 2.0.0.
 - <https://docs.unity3d.com/Packages/com.unity.ugui@2.0/manual/index.html>
- Universal RP. Version: 17.0.3.
 - <https://docs.unity3d.com/Packages/com.unity.render-pipelines.universal@17.0/manual/index.html>
- Universal RP Config. Version: 17.0.3.
 - <https://docs.unity3d.com/Packages/com.unity.render-pipelines.universal-config@17.0/manual/index.html>
- Version Control. Version: 2.6.0.
 - <https://docs.unity3d.com/Packages/com.unity.collab-proxy@2.6/manual/index.html>

- Visual Effect Graph. Version: 17.0.3.
 - <https://docs.unity3d.com/Packages/com.unity.visualeffectgraph@17.0/manual/index.html>
- Visual Scripting. Version: 1.9.5.
 - <https://docs.unity3d.com/Packages/com.unity.visualscripting@1.9/manual/index.html>
- Visual Studio Code Editor. Version: 1.2.5.
 - <https://docs.unity3d.com/Packages/com.unity.ide.vscode@1.2/manual/index.html>
- Visual Studio Editor. Version: 2.0.22.
 - <https://docs.unity3d.com/Packages/com.unity.ide.visualstudio@2.0/manual/index.html>

Packages - Asset store:

- Blood splatter decal package. Version: 1.0.
 - <https://assetstore.unity.com/packages/2d/textures-materials/blood-splatter-decal-package-7518>
- Cabin Environment. Version: 1.0.
 - <https://assetstore.unity.com/packages/3d/environments/cabin-environment-98014>
- Cross_Plains - Lowpoly Environment by Unvik_3D. Version: 1.0.0.
 - <https://assetstore.unity.com/packages/3d/environments/landscapes/cross-plains-lowpoly-environment-by-unvik-3d-203644>
- Day-Night System with Events and Custom Lighting. Version: 1.0.
 - <https://assetstore.unity.com/packages/tools/game-toolkits/day-night-system-with-events-and-custom-lighting-258318>
- Hail Particles Pack. Version: 1.0.
 - <https://assetstore.unity.com/packages/vfx/particles/environment/hail-particles-pack-62038>
- Item Pack: Survival. Version: 4.0.0.
 - <https://assetstore.unity.com/packages/3d/props/item-pack-survival-131598>

- Low poly snowy lands. Version: 1.0
 - <https://assetstore.unity.com/packages/3d/environments/low-poly-snowy-lands-132172>
- Low Poly Trees and Vegetation - Pack. Version: 1.2.0.
 - <https://assetstore.unity.com/packages/3d/environments/low-poly-trees-and-vegetation-pack-265300>
- Low Poly: Woods Lifestyle. Version 1.1.
 - <https://assetstore.unity.com/packages/3d/environments/low-poly-woods-lifestyle-65306>
- Lowpoly Forest Pack Winter. Version: 1.0.
 - <https://assetstore.unity.com/packages/3d/environments/landscapes/lowpoly-forest-pack-winter-129565>
- Low-Poly Ice World. Version: 1.0.
 - <https://assetstore.unity.com/packages/3d/environments/fantasy/low-poly-ice-world-83909>
- Quick Outline. Version: 1.1.
 - <https://assetstore.unity.com/packages/tools/particles-effects/quick-outline-115488>
- Starter Assets: Character Controllers | URP. Version: 2.0.2
 - <https://assetstore.unity.com/packages/essentials/starter-assets-character-controllers-urp-267961>
- Tent Pack. Version: v1.
 - <https://assetstore.unity.com/packages/3d/environments/fantasy/tent-pack-19370>
- Terrain Sample Asset Pack. Version: 2.0.1.
 - <https://assetstore.unity.com/packages/3d/environments/landscapes/terrain-sample-asset-pack-145808>
- Wooden House - Free - Low Poly. Version 1.0.1.
 - <https://assetstore.unity.com/packages/3d/environments/wooden-house-free-low-poly-270889>

Known Issues

Some font files might get corrupted and create merge conflicts. Git LFS was used during development and might create issues as well, such as causing problems with scene loading. These issues were either out of the developers hands or the team couldn't find a resolution to the problems.