Abstract

Design document for the short platformer NOVA.

GAME NAME  
Cross Platform Development

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# Change Log

Updates made to the document should be described below.

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| --- | --- | --- | --- |
| Version | Author | Date of change | Description |
| 0.0.0 | AIE | 31/08/2020 | Initial Template created |
| 0.1.0 | Ryan | 04/09/2020 | Filled in templated fields with limited info |
| 0.2.0 | Ryan | 09/09/2020 | Fleshed out some provided info |
| 0.3.0 | Ryan | 16/09/2020 | Filled in some left out info such as sound effects and Hazards. |
| 0.4.0 | Ryan | 17/09/2020 | Final Revision before first submit. Removed N/A Sections. Re-added 3rd party assets and filled them out. |
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Contents

[Change Log 1](#_Toc49774281)

[1.0 Development Environment 3](#_Toc49774282)

[1.1 Game Engine 3](#_Toc49774283)

[1.2 Source Control 3](#_Toc49774284)

[1.3 Third-Party Libraries / assets 3](#_Toc49774285)

[2.0 Game Overview 3](#_Toc49774286)

[2.1 Genre 3](#_Toc49774287)

[2.2 Camera Perspective and Movement 3](#_Toc49774288)

[2.3 Platform 3](#_Toc49774289)

[2.4 Technical Goals 4](#_Toc49774290)

[2.5 Game Objects and Logic 4](#_Toc49774291)

[3.0 Controls 4](#_Toc49774292)

[3.1 Windows / Web 4](#_Toc49774293)

[3.2 Console / Xbox 4](#_Toc49774294)

[3.1 Android / Touch 4](#_Toc49774295)

[4.0 Mechanics 4](#_Toc49774296)

[5.0 Graphics 5](#_Toc49774297)

[6.0 Audio 5](#_Toc49774298)

[7.0 Artificial Intelligence 5](#_Toc49774299)

[8.0 Game Flow 5](#_Toc49774300)

[8.1 ‘Mission’ / ‘Level’ structure 5](#_Toc49774301)

[8.2 Objectives/Goal 5](#_Toc49774302)

[11.0 Interface 5](#_Toc49774303)

[11.1 Menu 5](#_Toc49774304)

[11.2 High scores 5](#_Toc49774305)

[11.3 UI/HUD 5](#_Toc49774306)

[12.0 Progress report and feedback Meeting Minutes 6](#_Toc49774307)

[Friday 4th September 6](#_Toc49774308)

[Wednesday 9th September 6](#_Toc49774309)

[Thursday 10th September 6](#_Toc49774310)

[Friday 11th September 7](#_Toc49774311)

# Development Environment

## Game Engine

**NOVA** is developed in **Unity 2019.3.6f1**, Unity as well as its version were chosen due to availability, being the newer of 2 versions available.

## Source Control

Link to GitHub repo: *https://github.com/Volpanic/Nova*

## Third-Party Libraries / assets

|  |  |  |
| --- | --- | --- |
| **Asset Name**  **License** | **URL** | **Reason for use** |
| 2D Sprite  Unity Companion License. | Unity Package Manager | Allow use of 2D sprites. |
| 2D Tile map Editor  Unity Companion Package License. | Unity Package Manager | To allow tile map editing |
| 2D Tile map extras  MIT | Unity Package Manager | To allow auto-tiling |
| Input System  Unity Companion Package License. | Unity Package Manager | To allow input parity between devices. |
| ProGrids  Unity Companion License. | Unity Package Manager | To allow pixel perfect snapping. |
| Universal RP (Render Pipeline)  Unity Companion License. | Unity Package Manager | To allow easy post-processing. |
| Various ambient and SFX  Creative Commons 0 | freesound.org | Add sound effects and ambiance to game. |

# Game Overview

**NOVA** is a **2D linear** **platformer**, the player will go through one large world instead of being level based. The main aim of the game is to navigate the caves and come out the other end. The main machinic of the game is the fact that **fire** **propels the** **player** upwards, while water hurts them.

## Genre

2D platformer, Side view, Linear.

## Camera Perspective and Movement

The camera will lerp to the players position.

## Platform

**PC** – The intended platform of the game, no extra requirements are needed to deploy to PC. Has keyboard and controller support.

**Web** – Same as PC.

**Mobile** – On Screen controls (Left and right arrow and jump).

## Technical Goals

* Create a game the functions on mobile in a fully playable state.
* Controller support
* Menus that can be controlled with mouse, controller and keyboard.
* 2D platformer in unity (Trust me it’s harder than it looks to get one that feels remotely good)

## Game Objects and Logic

**Player** – The player, user controlled.

**Lava** **Boost** **Platform** – Boosts the player with a high jump.

**Fireball** – Boosts the player with a high jump, Moves along a path.

**Water** **Droplet** – A drop of water that falls towards the ground, hurts the player

**Water** **Droplet** **spawner** – spawns water droplets on a timer.

# Controls

## 3.1 Windows / Web

**Keyboard** **and** **gamepad**:

Arrow keys / D-Pad / Left Stick, Horizontal movement.

Z key / A Button, Jumping

R Key / Select, Respawn

## 3.2 Console / Xbox

**Gamepad**:

D-Pad / Left Stick, Horizontal movement.

A Button, Jumping

Select, Respawn

## 3.1 Android / Touch

**Touch** **controls**.

Left and right arrow, Horizontal movement

Up Arrow Jump

Respawn Button, respawn/

# Mechanics

* **Fire Boosting**Since the player is a fire elemental, when they **make contact with fire they are boosted high into the air.**

## Hazards

Water droplets and rising water.

## Obstacles

* Water
  + Water droplets and rising water will harm the player.
* Tricky Jumps
  + Some jumps are quite tricky due to either or dodging water or timing on fire jumps.
* Timing
  + Moving fire platforms and fireballs create situations where things need to be timed.

# Graphics

**Side view 2D**. Post processing wise I’m using some vignettes some color correction and some bloom. Art style is pixel art, this was decided so I can make my own assets instead of using ones of the asset store. Anti-aliasing is disabled.

# Audio

A few sound effects such as player footsteps and a sound when a fire boost is activated. Some ambient wind tracks we’re used to add some texture to the audio. The games theme was composed by myself and made to sound very open.

All sound effects were found on Freesound.org and licensed under the creative commons 0 license.

# Game Flow

## ‘Mission’ / ‘Level’ structure

The game, while having sperate scenes isn’t in “level” structure as in, it’s not clearly defined when an area is completed there’s no level complete screen or anything, this was done to make the world feel more connected as opposed to moving from area to area autonomously.

## Objectives/Goal

The goals to move through the cave and eventually reach the end. A smaller objective would be reaching the next save point.

1. Levels

Levels are built using a tile map and the tile map collider component, using tile rules generated by tilesetter a program that automates making tiles sets with 2 user defined sprites.

# Interface

## Menu

New Game starts a game at the intended starting area.

Continue, loads game at the last save point

Exit, exits game, not in mobile and console versions.

Menus can be navigated through using mouse, keyboard and controller.

Buttons can be clicked or navigated using keyboard or gamepad.

## UI/HUD

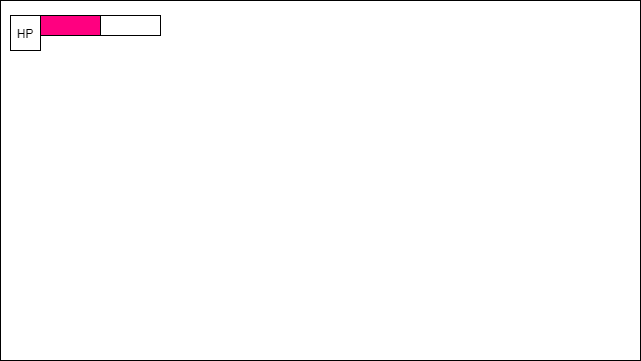
What is involved in the UI/HUB, what information is being provided to the player. Mock up of intended UI/HUD design

Main Menu

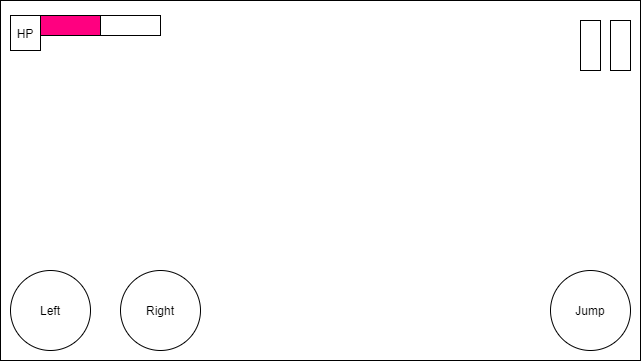


* New game – Begins a game from the starting area.
* Continue – Spawns the player at their last save point.
* Exit – Closes the game, Non-existent on web and mobile.

Gameplay



Gameplay Mobile



* Left / Right – take the place of the arrow keys
* Jump – Causes the player to jump
* Pause – Unimplemented in final product

# Progress report and feedback Meeting Minutes

## Wednesday 9th September

Describe state of project

* Fireball, MoveEntityAlongPlath( and editor), HurtPlayerOnTouch components (scripts)
* Fireball sprite, emission map, animation.
* Fireball prefab
* FireballFollowPath prefab variant

Feedback from teacher and peers:

* Change camera to show fire jumping.

Action Items:

* Made the cameras Y lerp slightly less aggressive.

## Thursday 10th September

Describe state of project

* Main Menu Actions Thing
* Hp bar
* Player can die
* 2D lights

Feedback from teacher and peers:

* Add Lights
* Add Tutorial
* Fix a visual bug on tiles

Action Items:

* Added lights
* Added a tutorial screen
* Disabled upscale render texture on camera, lessening the tile bug.

## Friday 11th September

Describe what has been done since last time

* Changed some lighting settings
* Tutorial screen only appears on pc
* Change lighting settings.
* Added comments and tooltips to most scripts.

Feedback from teacher and peers:

* Turn down ambient noise.

Action Items:

* Turned down ambient noise, and adjusted scripts to take in mind initial volume.