

ingenieur
wissenschaften
htw saar

ino

Game Design & Development

Prototype 2

TEAM_CK



Introduction

Genre

- Jump'n'Run genre
- procedurally generated map
- snow setting

Technologies

- GitHub (Source Control, Milestones)
- Unity Engine

Gameplay



Gameplay

Camera mechanics

- moves with a certain speed
- speed will increase at some point, based on your score

Gameplay

Player mechanics

- Health points (5), indicated by heart icons in hud
- loses health by
 - stepping on dangerous platforms (-1)
 - going out of sight (left side, bottom \Rightarrow death)

Gameplay

Player mechanics

- Player moves with a speed that depends on camera speed
- Keys A,D (left, right movement)
- Space (jumping)

Environment

Collectibles

- candy canes increase your score
- cookies restore health points (1 health point each)

Environment

Dangerous platforms

- Lava platform decreases your health points
- Ice platforms will cause you to slide

Environment

Snowballs

- starting at 1000 score points there is a chance that a snowball is thrown at the player

Architecture



Architecture

GameManager

- Singleton class
- provides access to variables, e.g.
 - player health
 - player status
 - camera speed
- ability to access all needed variables at one central point

Background



Parallax effect

Where is it used ?

- often used in 2D games
 - ori and the blind forest
- used in webdesign
- in our opinion it improves the look and feel of a game

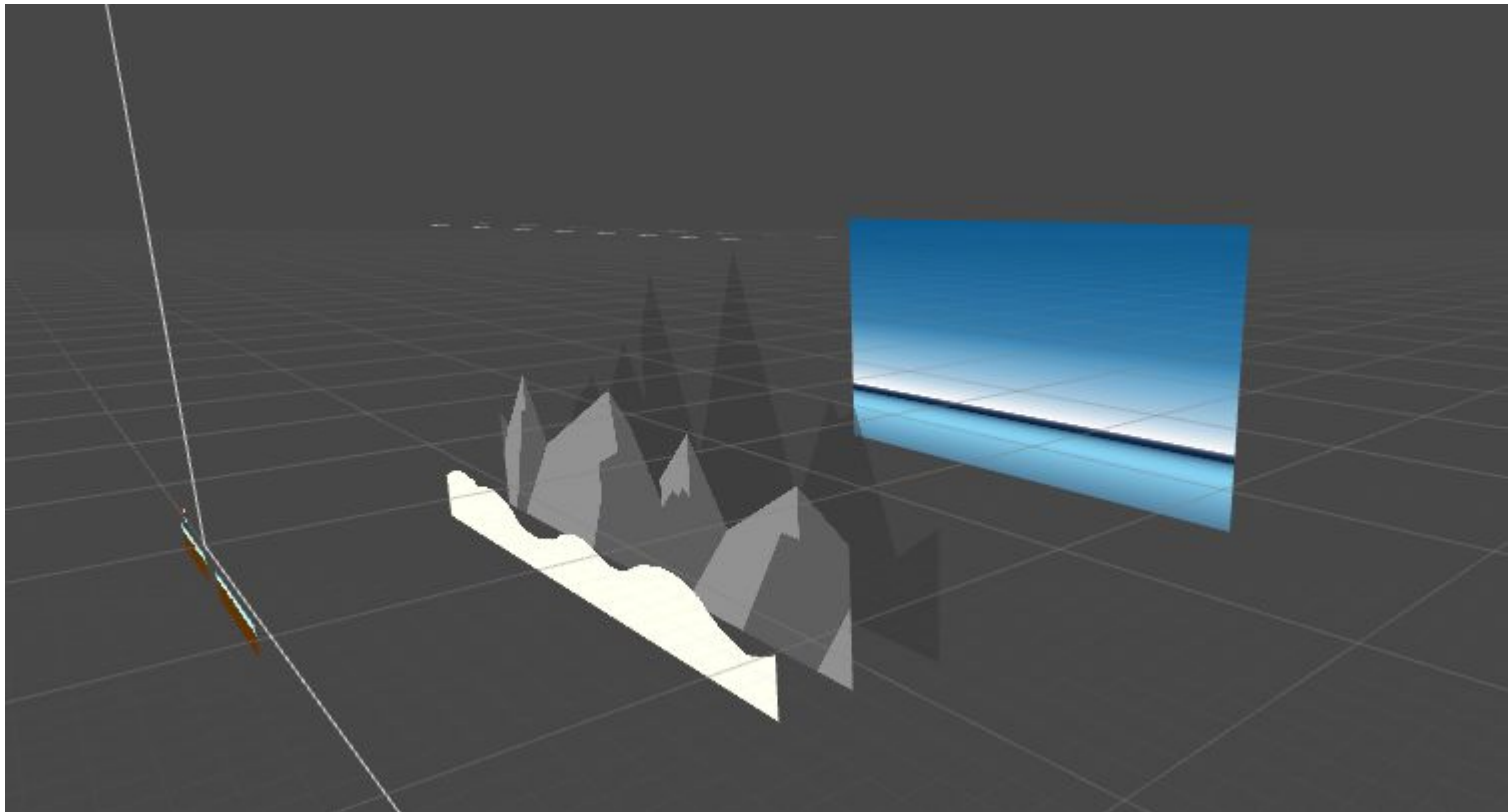
Parallax effect

What does the parallax effect and how to create it ?

- it creates depth in a 2D environment
- you need more layers in your background
- the layers need different scrolls speeds



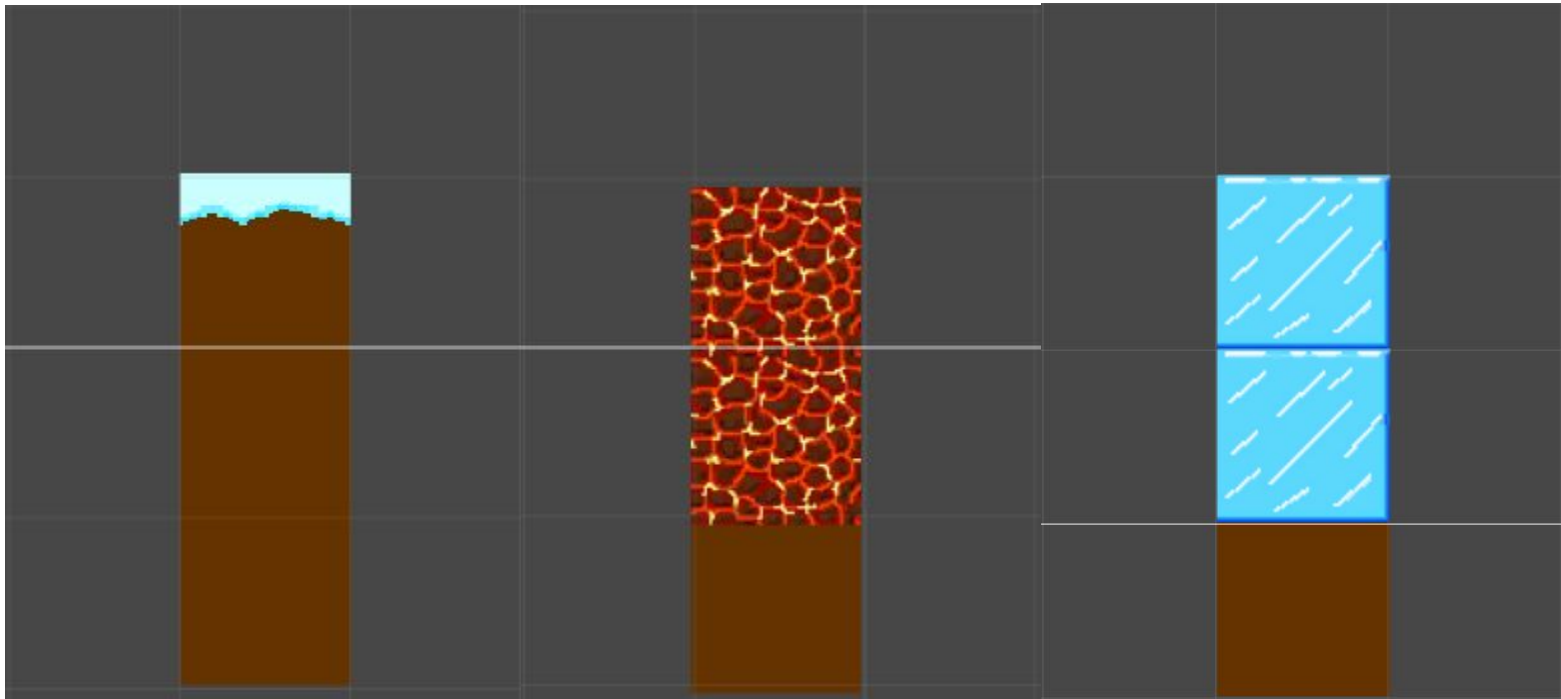
Parallax effect



Platforms



Platforms



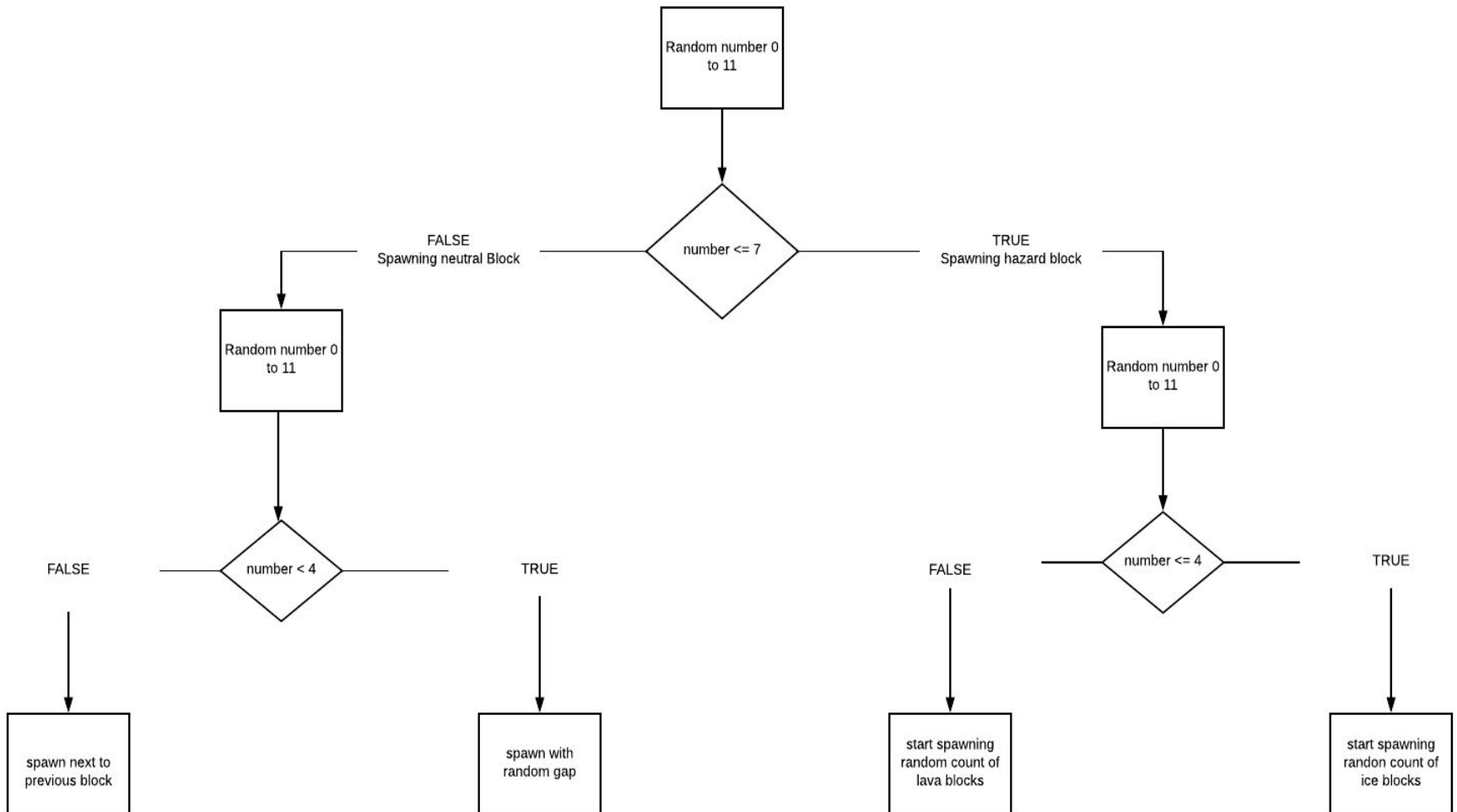
Algorithm



Generating Algorithm



Generating Algorithm



Spawning Hazards Condition

- *Random period initialized with the Time as Seed*
- *Take a random number between 1 and 1000*
- *If this number is smaller than $f(x)$, spawn Hazard*

$$f(x) = \left\lfloor \frac{x}{500} \right\rfloor$$

Spawning Hazards Execution

- *Instantiate an object of the Hazard*
- *Parameters:*
 - *Physikal body, low gravity*
 - *Relative position, player in relation to spawn position*
 - *A force to push in direction of the player*