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CONCEPT

For this project, I want to design a floating island which changes depending on user input. The goal is to create a scene using the keys of the keyboard without over polluting the land and therefore, killing it. The user can draw trees, different types of life, different types of buildings, and pollution. There are a few rules: life can only be drawn if trees have already been drawn, buildings can only be drawn if life has already been drawn, and pollution will be drawn if trees are cut down and factories are built. The player has to ensure that pollution doesn't overtake the island. When the limit of pollution is met, the player loses the game. The longer the island is kept alive, the more points the player receives. Players will not be told how the pollution works, therefore, they have to figure it out on their own. My objective is to represent the environmental issues happening today.
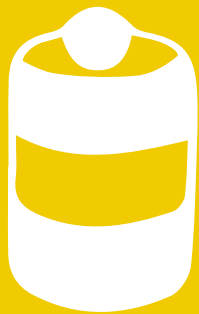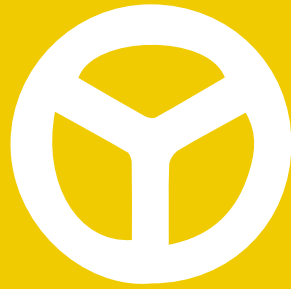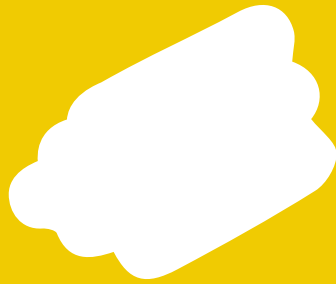
INSPIRATION

I owe all my inspiration to the web game, Grow Island, which I had an unhealthy obsession with as a child. Players are not given instructions at the start of the game, therefore, they are forced to learn as they go. There are multiple sequences which have different endings, some endings more futuristic than others. Given this, players are drawn to play over and over to see all the alternate endings.

Spilltroppen. "Grow Island." *YouTube*, YouTube, 22 June 2015, www.youtube.com/watch?v=-qT2G-riRFU.

SIMILAR WORK

Edward Hampson's work illustrates a floating island with small ships flying around it. This simple animation was made with processing. I imagine my floating island to have the same flat and simple look, however, with interactivity.

Daniel Buschek's game was made with processing. Players can manipulate the flat plane by dragging up the handles to create handles. This is similar to my idea of creating a scene however, my idea incorporates more classes.

Hampson, Edward. "Island." Island, OpenProcessing, 19 May 2016, www.open-processing.org/sketch/372105.
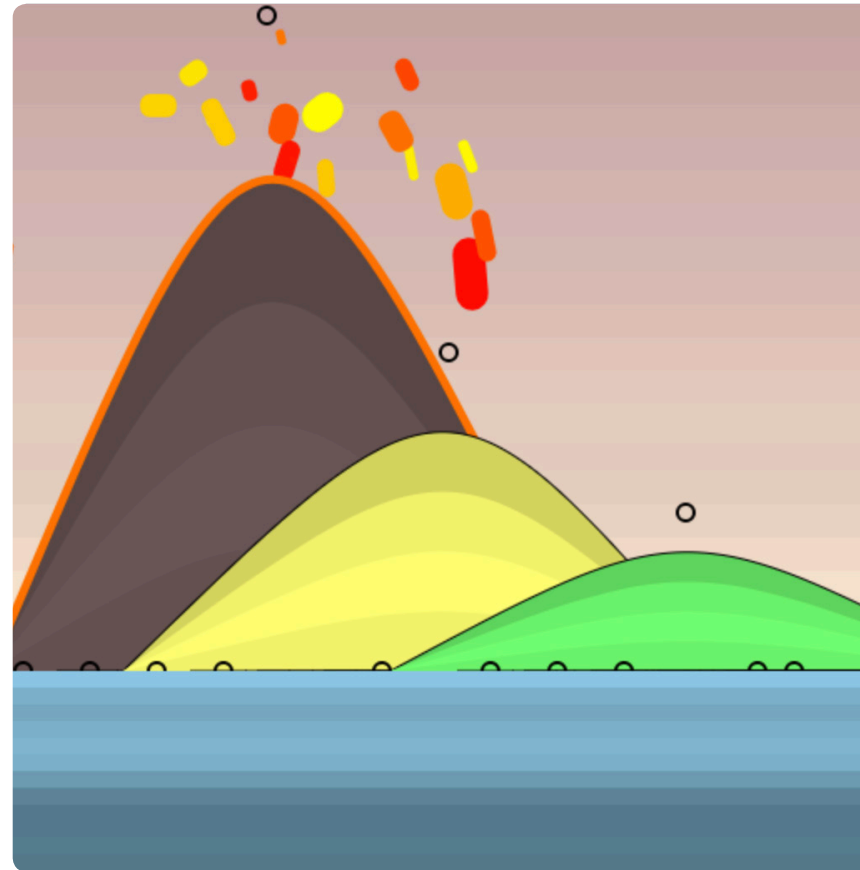
Buschek, Daniel. "Island." Island, OpenProcessing, 20 Feb 2012, www.openpro-cessing.org/sketch/53059.
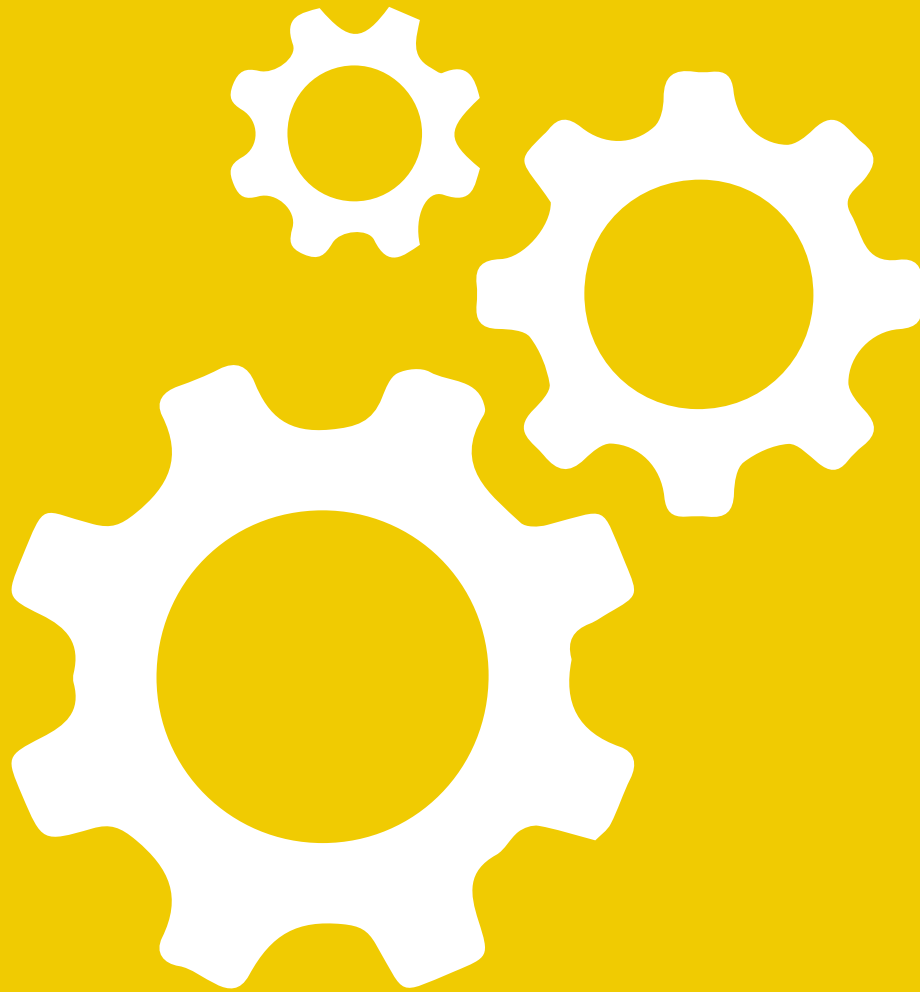
PROCESS

In order to keep this project to a manageable size, it will consist of one level and have a flat design. I will only be including a few functions which will be to draw trees, life, buildings, and pollution. It is important to me to have the interaction be minimal and simple but ensure that it is completely clear and functional. Making my idea come to life will be a complete learning process as I've never created something like this.

The first step will be to make my setting. In order to do this, I am doing to design each element, such as the island, buildings, trees, on illustration and then import it into my sketch. For the interaction, different keys will trigger different things. For example, to add life, the player will press the L key. However, I want to incorporate a pattern that needs to be followed to progress in the game. For example, trees need to be drawn before life since life can not exist without trees. The pollution will spread depending on how many buildings a player draws and how many trees they cut down; when the limit is reached, I want to release a particle system which will resemble the island decaying. I will use minim for background music as well as make a simple start screen with instructions.

UML CLASS DIAGRAM

Island is the parent class. Everything is grown on the island. What is grown on the island depends on which keys the player presses.

Island

+ x:int
+ y:int
+ up:int
+ down:int
+ life:int
+ size:int

+ grow()
+ die()
+ keyPressed()
+ update()

Player

+ score:int
+ progress:int

+ drawBuilding()
+ drawTree()
+ drawPollution()
+ destroy()
+ restart()
+ win()
+ keyPressed()

Players control what is grown on the island given which keys are pressed. Players will lose the game if too much pollution is spread.

Buildings can only be drawn if there is life on the island already. Three types of buildings, factories, skyscrapers, and small buildings. Drawing too many factories causes pollution which kills the island.

Building

+ color:color
+ height:int

+ drawFactory()
+ drawSkyscraper()
+ drawSmallBuilding()

Tree

+ color:color
+ height:int

+ changeColor()

Life

+ type:boolean

+ drawHuman()
+ drawAnimal()

Pollution

+ spreadSize:int

+ destroyIsland()
+ restore()

Pollution is caused by the removal of trees and the growth of factories.

Factory

Skyscraper

SmallBuilding

Trees create oxygen which allows the island to live. When trees are cut down, pollution spreads.

Human

+ gender:boolean

+ draw()

Animal

+ type:boolean

+ draw()

Life can only be drawn if there are trees on the island. Two types of life, humans, and animals. The type that is drawn is random.

Particles

+ xLoc:int
+ yLoc: int
+ particleValue:int

+ releaseParticles()

Particles release when pollution limit is met.