POV project

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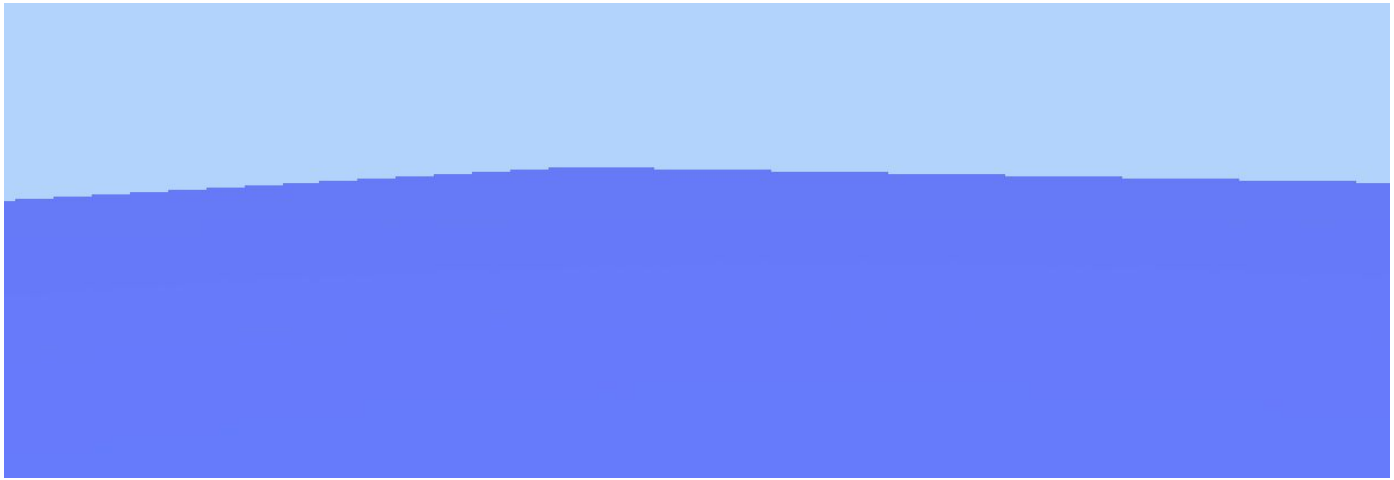
Introduction

- The base idea of this project was a Vietnam landscape.
- The reason we choose it was because it contained all the required elements.

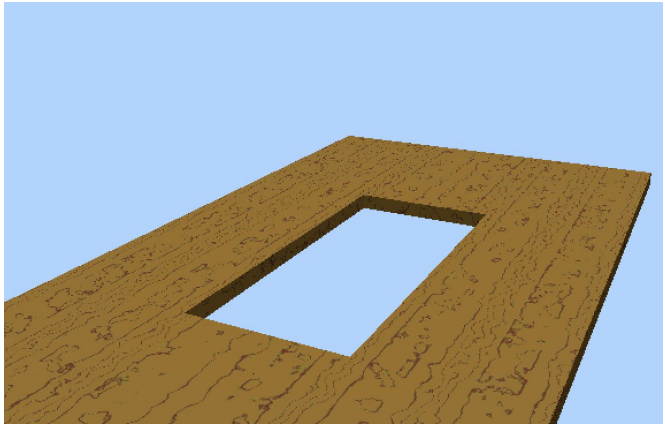
Modeling and Layout

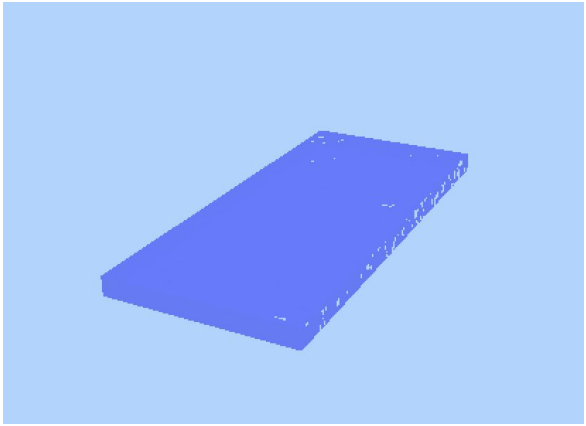
Original Models - Mountain

Ocean

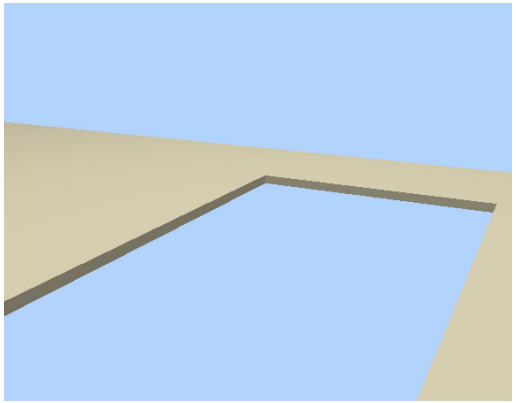


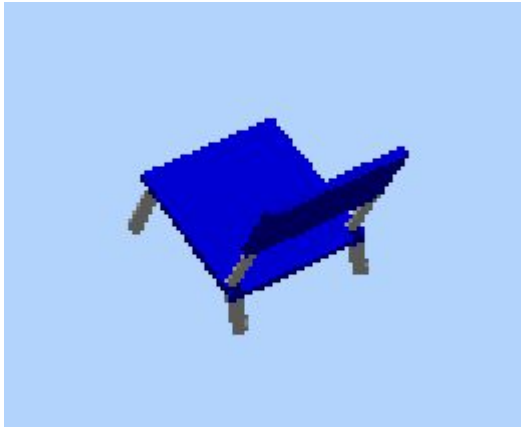
Pool



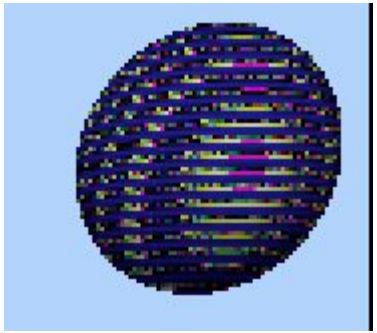


Sand and Chair

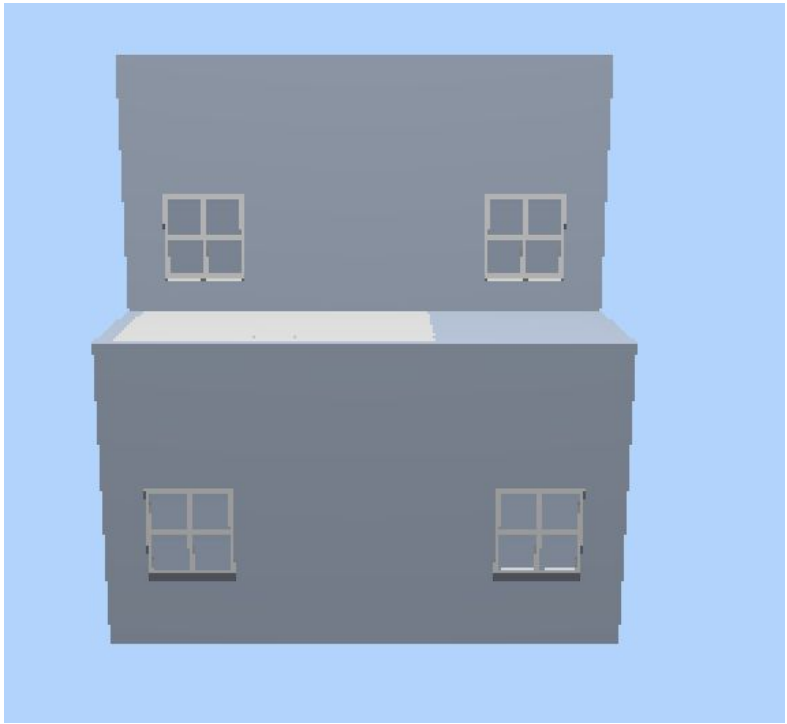




Moon with fractal

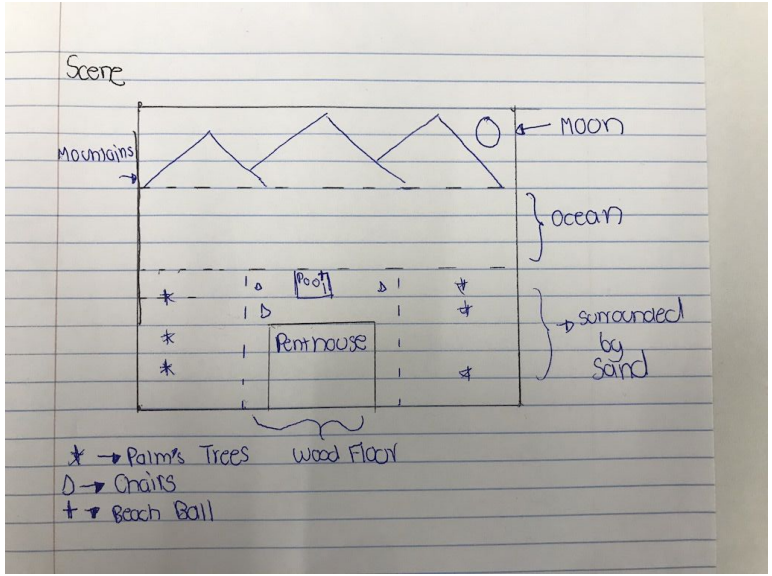


Penthouse



Imported Models - Beach Ball

Layout and Composition



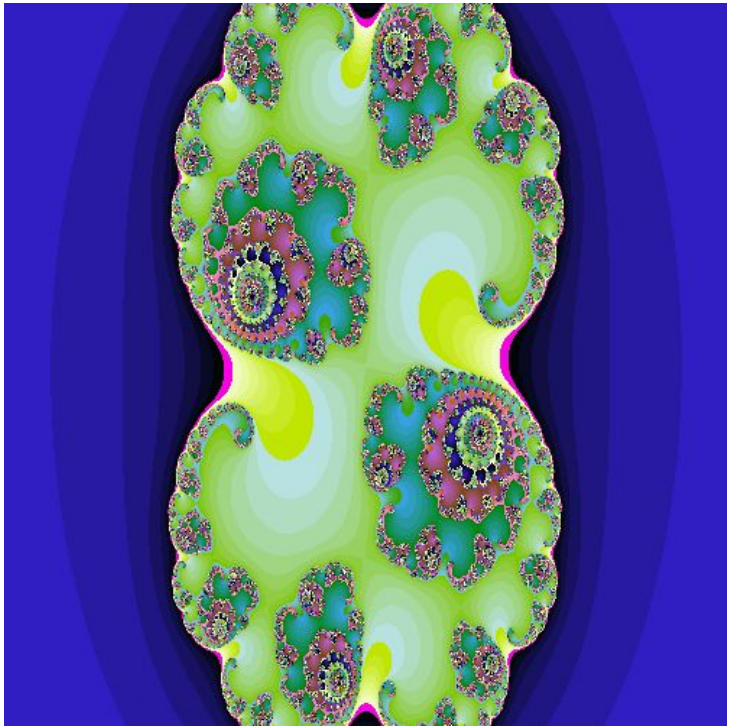
Fractal terrain

Fractal

```
'''
cx, cy = equation for the fractal
maxIter = maximum number of iterations
'''
cX, cY = 0.285, 0.01
maxIter = 199

for x in range(w):
    for y in range(h):
        '''
        zx, zy = Scaled coordinates
        '''
        zx = 1.5*(x - w/2)/(0.5*w)
        zy = 1.0*(y - h/2)/(0.5*h)
        i = maxIter
        '''
        Break when iterations droped to 1 or the scaled coordinates
        achieve the size of the imaginary plane
        '''
        while zx*zx + zy*zy < 4 and i > 1:
            tmp = zx*zx - zy*zy + cX
            zy,zx = 2.0*zx*zy + cY, tmp
            i -= 1

        '''
        Assign a color to the specific pixel.
        '''
        pix[x,y] = (i << 21) + (i << 10) + i*8
```



Principles of Realism

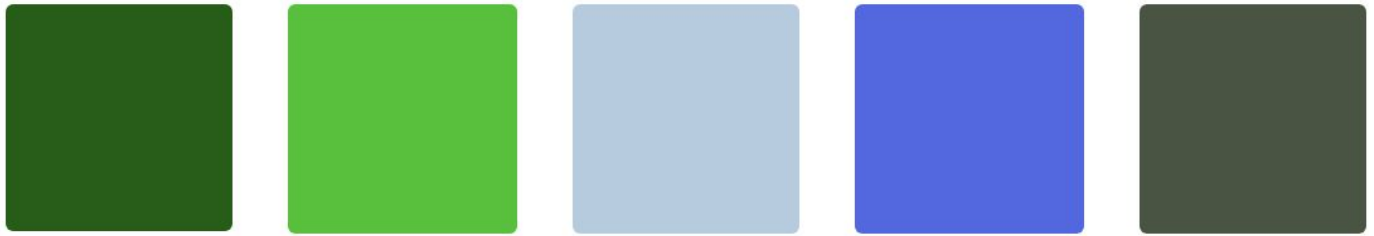
- Clutter and chaos - Palm trees
- Believability - Most objects are easily identify due to similarity to their real life representation.
- Radiosity: Light on ocean fades

Textures and Color

Textures

- Water
- Dark_Wood
- Variations of colors

Color Palette



Dark Green
#045F05

Lime Green
#1BC416

Light Steel Blue
#B2CCE1

Royal Blue
#5065E7

Dark Slate Gray
#475540

Illumination & Cameras

Illumination

- The light source of this image comes from a point located at the top of the scene with a white color.

Cameras – Mountain_Left

This view captures one type of the palm trees as well as some of the mountains and the yellow chair.

Cameras – Mountain_Right

This view captures other types of palm trees as well as another perception of other mountains and the moon, the blue chairs and the beach ball on the pool.

Cameras – House

This view captures the back part of the house where we can see the reflection on the windows and a better perspective of the pool and the trees.

Conclusions

Research

We investigated how to make a realistic sky and lake. As a result of the investigation we found out that there is an object “sky_sphere” which shows an sky in the environment and also we discovered the right properties to have a nice lake.

Also, from the Julia fractal approach we saw how a small arbitrary change can create a drastic change in the sequence, making it more chaotic.

Technical conclusions

- The hardest challenge we faced was setting up the fractal. We had to make a research on how to make a Julia fractal and understand the conditions inside the code.

Ethical conclusions

- For this project we tried to write most of code and when needed code from other sources we referenced.

Citizenship Conclusions

- The things we learn making this project can help us develop work for communitarian groups, such as NGOs.

Environmental Conclusions

- The development of this project made us realize the importance of this project to generate environmental friendly models.

Executive Summary

Modeling:

The models that we used on this project were elements that we see in a daily basis which resembles the realism. Such elements include a house, moon, pool, sand, trees and mountains.

Fractals are used to create an image which is displayed in the moon. The code is presented in the slides.

Executive Summary - cont.

Illumination and Cameras:

A single light source was used to create the effect of a sun which gave interesting shadows to the models.

3 Cameras were used which gave 3 different perspective of the scene.

Bibliography

Lohmüller, F. A. (2006). House. Retrieved March 22, 2018, from www.f-lohmueller.de/pov_tut/x_sam/sam_110e.htm &cd=1&hl=en&ct=clnk&gl=mx

Perle, C. (1999, February 01). Downloading of sat1ball.zip. Retrieved March 23, 2018, from http://objects.povworld.org/objects/cgi-bin/dl.cgi?sat1ball.zip