Llama 200 test

- Cave Generation
  - we need:
  - 2D matrix of integuers
  - Dimentions of the matrix
  - The random fill percentaje
  - a Seed (Big Prime number) (Maybe a Bank of seeds)
  - Number of smooth iterations
  - Check the file neighbor states
  - The size of the border in matrix elements
  - Flood fill to identify rooms, return a tile list
  - A method that Get All regions
  - A Matrix to see which tiles have been seen
  - A wall minimum size
  - A min room size
  - A Room class
    - coords: tiles
    - connectedrooms: Rooms
    - Edgetiles: List<coord s>)
    - conect Rooms method
    - Isconected method
    - createPassage method

Steps

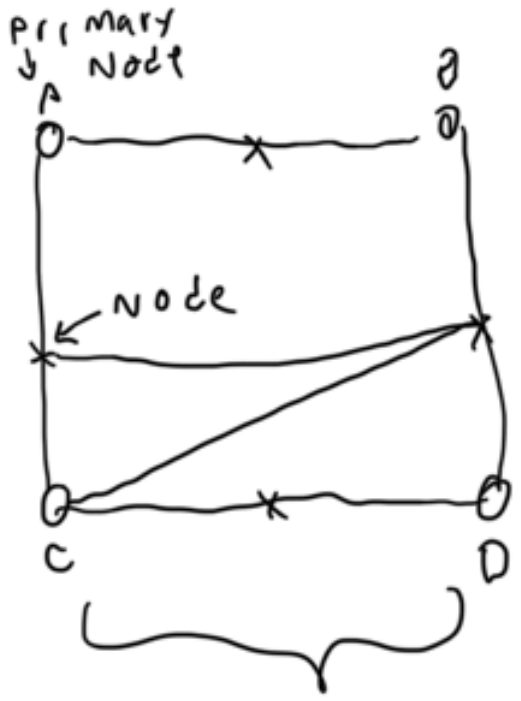
- Fill the map randomly
- optional: (Debug function).
- Fill the borders as walls
- Smooth the map with cellular automata
  - coont each tile neighboor
    - 4-5 role
      - wall
    - less - floor
  - identify all the created wall regions with flood fill
  - if the region is too small, we delet it
  - identify all the rooms regions
  - store the surviving rooms
  - using the edgetiles calculate and conect all the rooms to their closest one.
  - iterate until tue have just one Room
  -

- Get the list of coordinates
- Max room size

- Convert to Mesh
  - By marching squares

  we need:

  - A base node structure
    - Position
    - index
    (primary)
  - A Control Node structure inherits from node



Binary
A B C D
0 0 2 2 = 15

cell

- Active Flag (bool)
- Horizontal NodeConnection
  - Pos : Parent → Pos + Vector → Right × Size/2
- Vertical NodeConnection
  - pos: Parent → Pos + vector. forward × Size/2

- A Cube or square Class
  - Contains all control nodes
  - al sub nodes or nodes
    (see the picture)

- A grid class
  - 2D matrix of square Nodes
  - The map data

- A mesh Generator class
  - A grid
  - A generate mesh method
  - A method that converts to mesh from the points
  - A triangle structure
    - vertex A, B, C
  - A dictionary of triangles list
  - A method that checks if the triangle is an edge
  - A method that gets the number of the connections or index
  - A list of lists to save outlines
  - A method to calculate Mesh outlines

- Creating the prefab
  - A clas containing the cave generator and the mesh Generator class
  - A method to generate the prefab, receiving all the properties needed for the generation
    - Generate the map Data
    - Generate Mesh Data
    - Create Cave container
    - create cave Walls object
      - Add mesh component
    - create cave Shape object
      - Add Mesh component

- Create ground object (plane)
- Add container as parent
- Add Cave Data Component and set to container