Procedural Map Generation

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Status : Ongoing

Tags :gamedev

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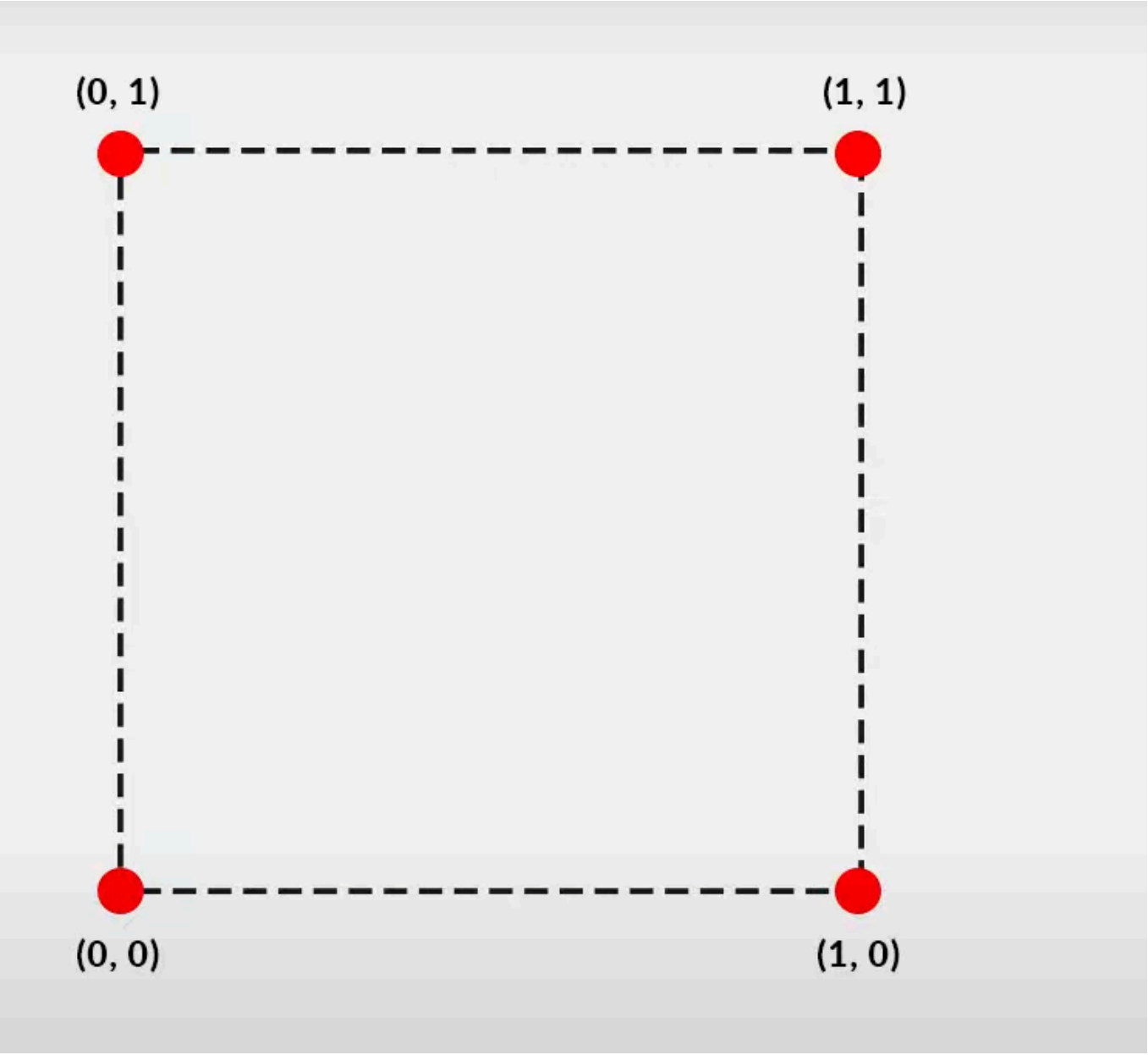
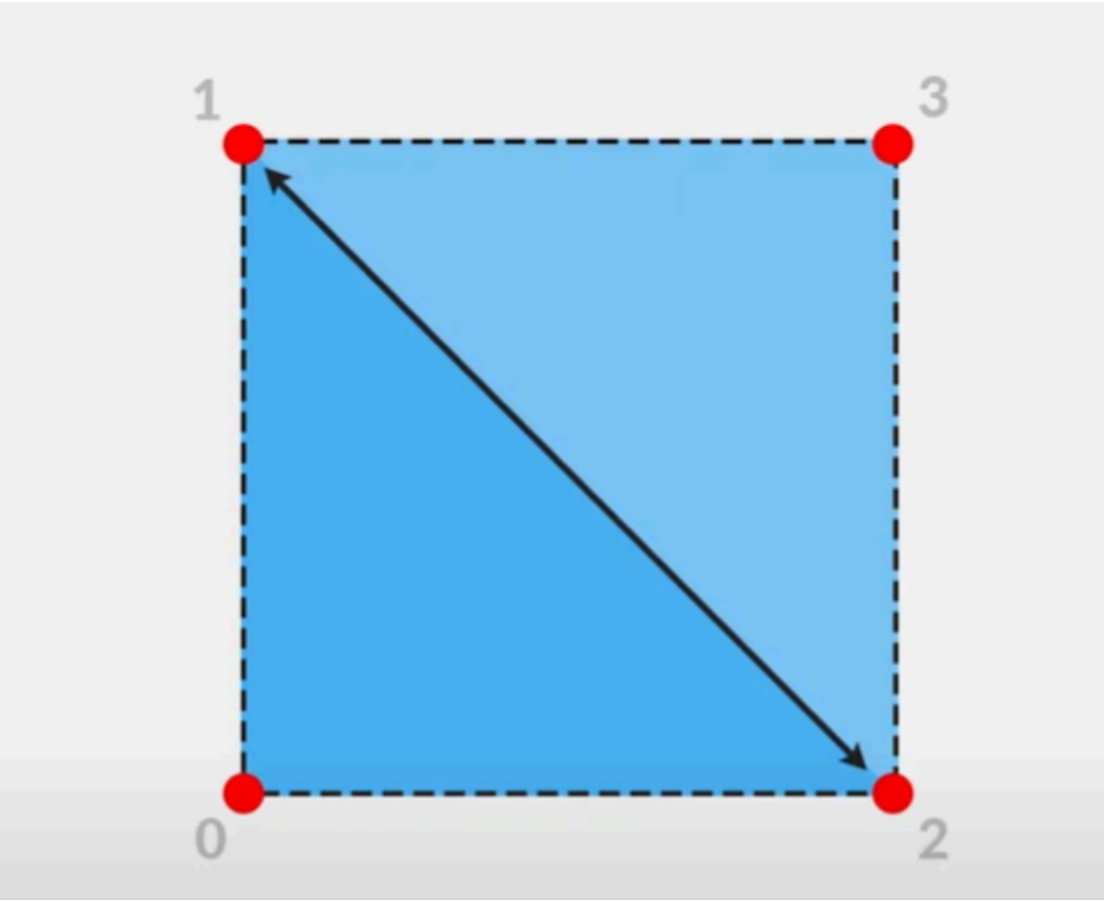
Mesh

mesh can be made up of verttices and triangles
a quad is a mesh with 4 vertices



these positions can be stored in an array called an **vertex array**
to fill in the shappes we use **triangles** (2 triangles per quacd)

we make the first triangle

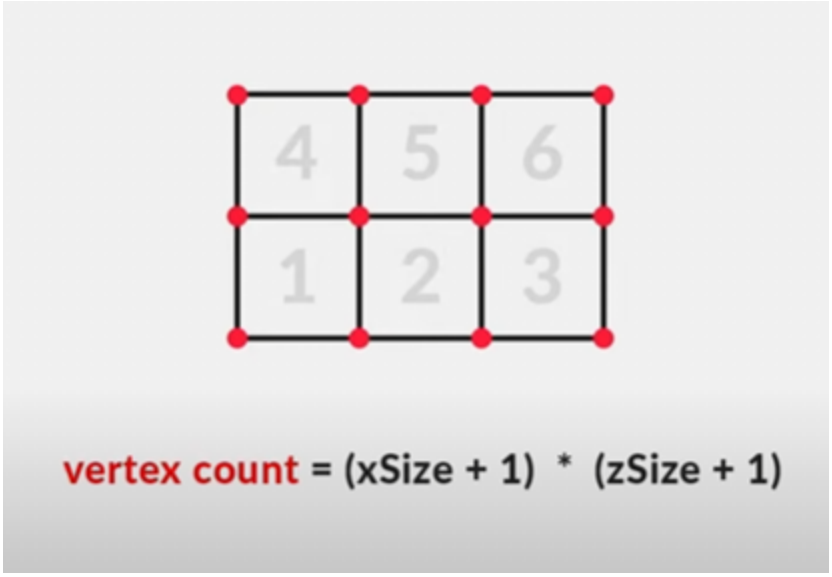


triangle array stores the triangle by adding values 0,1,2

second being point 1 2 3 **note** unity creates triangle in a clockwise direction so the first triangle being 012 is not a problem but the second triangle cannot be taken from 1 2 3 but rather 213 or 132 to ensure the clockwise direction (apparently this is supposed to make sense)

now to start with a terrain we make a grid

we initialise a vertex variable for x size and z size



now we can operate a for loop throughout the x and z size ,
optionally u can use gizmos.drawsphere to print the vertices (we wont be doing dat)

now we define the triangles,

```
    triangles = new int[xSize * zSize * 6];

    int vert = 0;
    int tris = 0;

    for (int z = 0; z < zSize; z++)
    {
        for (int x = 0; x < xSize; x++)
        {
            triangles[tris + 0] = vert + 0;
            triangles[tris + 1] = vert + xSize + 1;
            triangles[tris + 2] = vert + 1;
            triangles[tris + 3] = vert + 1;
            triangles[tris + 4] = vert + xSize + 1;
            triangles[tris + 5] = vert + xSize + 2;

            vert++;
            tris += 6;
        }
        vert++;
    }
}
```

this is the most confusing but most important part, it took u nearly an hour to figure it out but heres the gist,
you use the grid vertices to creeate 2 traingles (forming a quad) and you iterate that over ur entire x space (xSize) and you make 6 triangle vertices for each quad
your xsize is used to keep track of which vertices u draw the triangles from
ur vert is use to keep track of the up to down Inside the loop AND another addition outside so the generation can start with the vertices starting with 2 (second line)
and then u use tris, to keep track of the triangles so u can index them in the array

now to be honest , some of this is jargon and someof this i understand but do read thru it dumbass

now if u wanna see it all cool and generating real time u can make the createshape a coroutine and add the UpdateMesh() function to the Update()

method but i ain doing allat

in the UpdateMesh() method
we clear prev data with mesh.clear
then input ur vertex and triangle array
and voila IT GODDAMN WORKS

READ THROUGH THIS AND WATCH THE BITWIZ AND BRACKEYS VIDEO WHEN WORKING WITH THIS ON A PERSONAL PROJECT

References

https://www.youtube.com/watch?v=bG0uEXV6aHQ&list=PLPV2KyIb3jR5qEyOlJImGFoHcxg9XUQci&index=9
https://www.youtube.com/watch?v=eJEpeUH1EMg
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