Tutorial Tips and Tricks

Performance

There are always few ways to kill performance of the game:
GPU

- Draw calls – number of request to make a draw for GPU
- Shader complexity
- Scene complexity

CPU

- bad thread balance and/or locks – (unity works heavily in single thread)
- too much processing within single frame

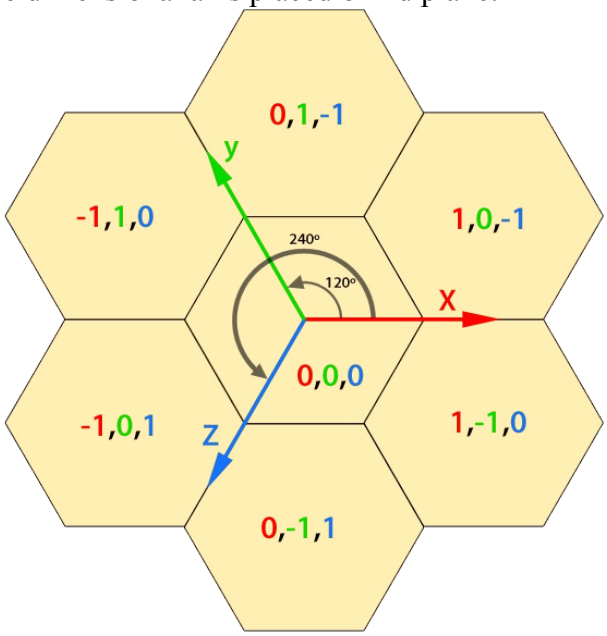
Finally

- sending to much data between CPU and GPU – which may be a result of bad project structure

To avoid those issues Honey Hex Framework do heavy preparation during terrain generation, but then all data is very simple to work with later.
When map is ready we use simple structure where whole chunk is build from 2 planes, one water plane and one tessellated. On top of which there is scattered mesh representing foliage

Hex system

Hexagonal world uses three dimensional axis placed on 2d plane:



You could specify any position in the world using only 2 axis, because sum of all three components is always equal 0 in which case you can easily calculate third component eg:

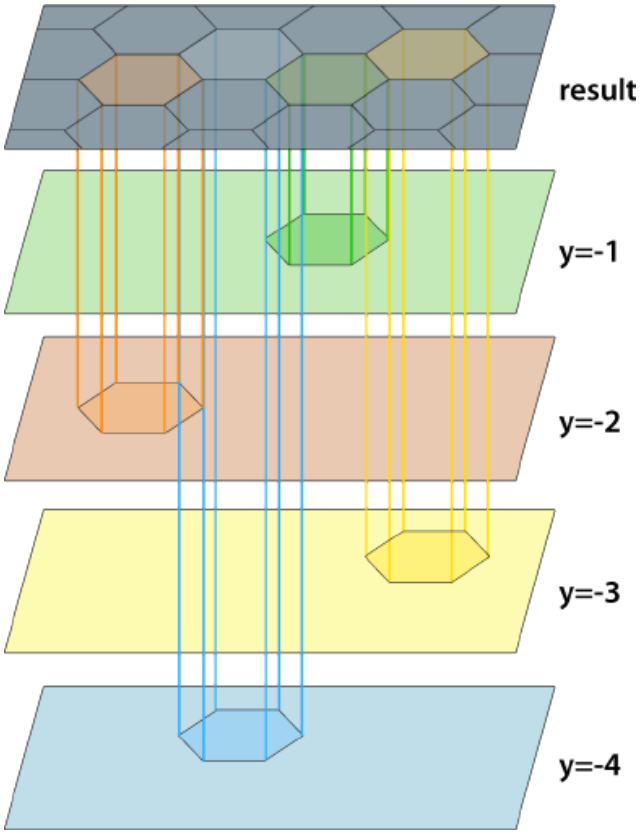
```
z = -x -y;
```

Having 3 components allows us easily calculate distances and many other useful data. For example distance between any two hexes is

```
Max(x2-x1, y2-y1, z2-z1);
```

Terrain generator

World oven generates chunks using orthographic camera and placing temporary meshes of the hex in depth layers based on their generated preference (this way they always have the same order).



Because each hex have texture coverage bigger than single hex area.
Scale of the texture and scale of the single hex can be retrieved from Hex.hexRadius and Hex.hexTextureScale. Those two are used to define how aggressive blending is.
But blending isn't only about order and scale. Hexes uses mixing texture to define which areas have strong dominance. This way even if hex end-up below others it will be able to keep its natural shape if nerby hexes are not that aggressive, what more distance from hex centre lowers aggression strength.

Mixing all those features on gpu takes only part of the second but produces natural look of the terrain especially that hex texture gets randomly rotated textures and only result of all those mixes gets procedural shadows based on the result not source data.