

## // ProceduralTerrain

```
float height11 = 0f;
```

```
float amplitude = 1f;
```

```
float frequency = 1f;
```

We process each of our octaves in turn

```
for (int i = Octaves; i > 0; i--) {
```

```
    float octave_x0 = x / Scale * frequency;
```

```
    float octave_z0 = z / Scale * frequency;
```

```
    float octave_x1 = (x + 1f) / Scale * frequency;
```

```
    float octave_z1 = (z + 1f) / Scale * frequency;
```

```
    height00 += Mathf.PerlinNoise(octave_x0, octave_z0) * amplitude;
```

```
    height01 += Mathf.PerlinNoise(octave_x0, octave_z1) * amplitude;
```

```
    height10 += Mathf.PerlinNoise(octave_x1, octave_z0) * amplitude;
```

```
    height11 += Mathf.PerlinNoise(octave_x1, octave_z1) * amplitude;
```

```
    amplitude *= Persistence;
```

```
    frequency *= Lacunarity;
```

```
}
```

```
int x0 = x * CellSize;
```

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```
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```

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Each octave will contribute to the total height of our quad's four vertices

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    float octave_z0 = z / Scale * frequency;
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```
    float octave_x1 = (x + 1f) / Scale * frequency;
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    float octave_z1 = (z + 1f) / Scale * frequency;
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```
    height00 += Mathf.PerlinNoise(octave_x0, octave_z0) * amplitude;
```

```
    height01 += Mathf.PerlinNoise(octave_x0, octave_z1) * amplitude;
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```
    height10 += Mathf.PerlinNoise(octave_x1, octave_z0) * amplitude;
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    height11 += Mathf.PerlinNoise(octave_x1, octave_z1) * amplitude;
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```
    amplitude *= Persistence;
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```
}
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```
int x0 = x * CellSize;
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