PROCEDURAL GEOMETRY

DAY 1 OF
"ADVANCED UNITY PROGRAMMING" (2015)
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HERMITE TUBES

Task for the morning:

- **Write a function that generates the Mesh of a MeshFilter for a cylindrical tube around a Hermite curve.**
- **Use the translation point of two Matrix4x4 transformations to specify the starting point and the ending point of the center line of the Hermite curve.**
- **Use the y-axis of the two Matrix4x4 transformations to specify the starting tangent and the ending tangent of the curve.**
- **Use two integer variables to specify the number of points around the cylinder and along the cylinder, i.e., the resolution of the generated mesh.**
- **Optional: add normals, texture coordinates, tangents, and colors to the vertices of the mesh.**

L-SYSTEMS

Task for the afternoon:

- **Extend the function of this morning to call itself recursively (once or multiple times) in order to continue the tube and to create branches. (The recursive calls correspond to the recursive application of production rules of L-systems.)**
- **Stop the recursion at a specified recursion level.**
- **Make sure that adjacent tube segments use the same Matrix4x4 transformation for the corresponding end points.**
- **Use parametrized (and randomized) transformations between adjacent Matrix4x4 transformations.**
- **Optional: create a LODGroup with meshes of different resolutions; use a SkinnedMeshRenderer to rig the mesh; change the geometry to leaves at the highest recursion level.**