GRAMAZIO
KOHLER
RESEARCH

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ETH zürich

MAS Digital Fabrication

GH Python: Intro to Libraries

October 9th, 2020

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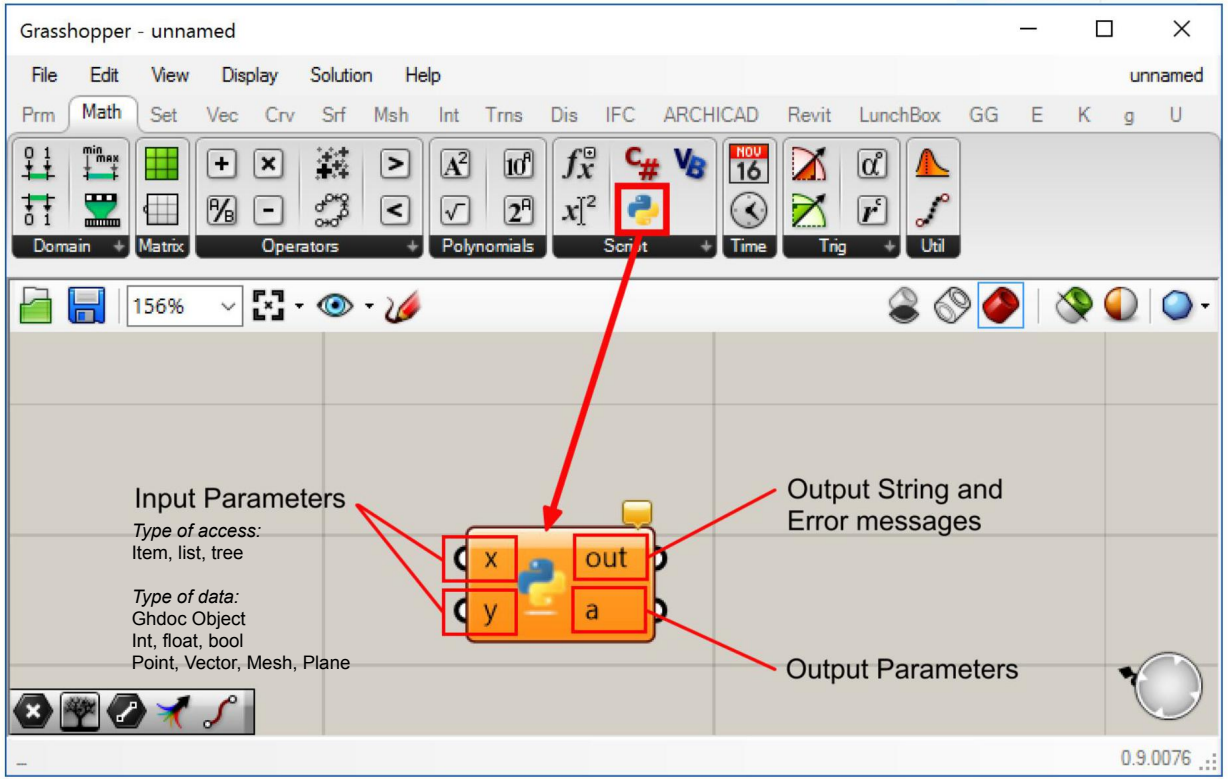
GRAMAZIO KOHLER RESEARCH

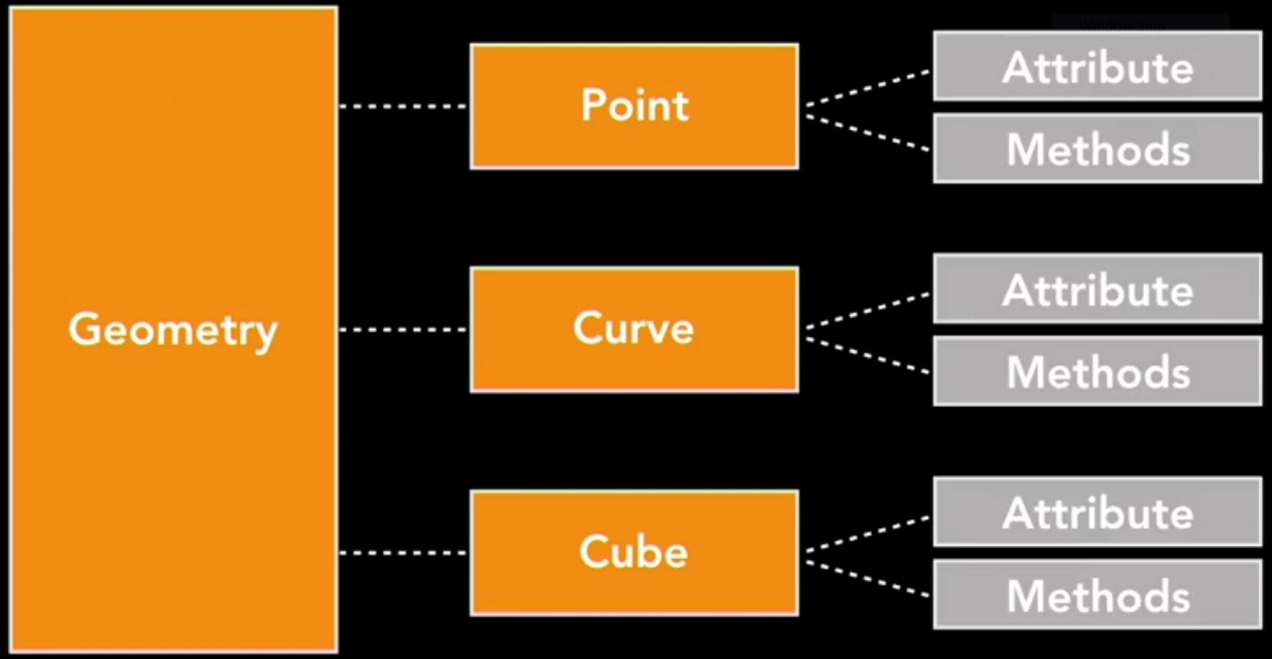
Why GH Python?

- Extend Grasshopper’s functionality by working directly with Rhino’s API (application programming interface)

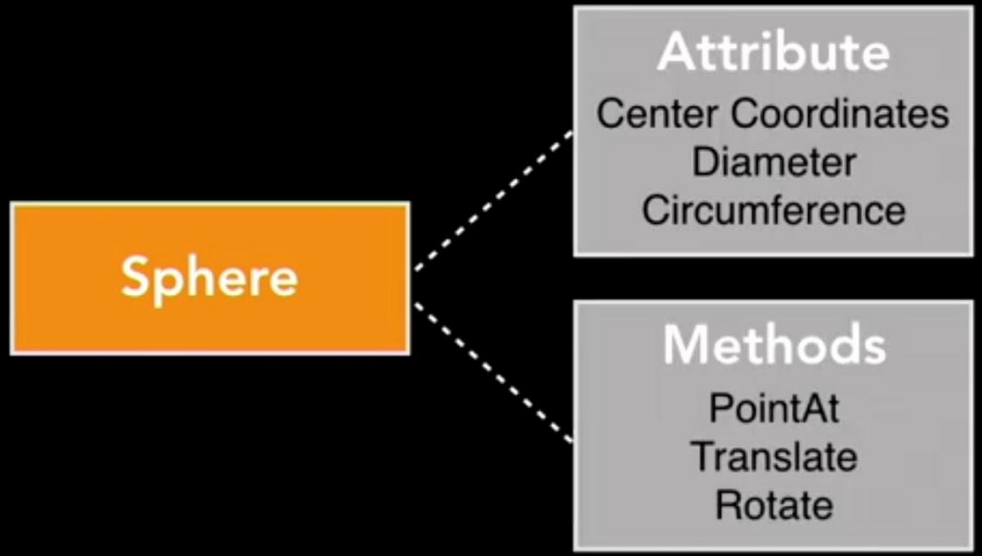
Meet the Python Script Editor



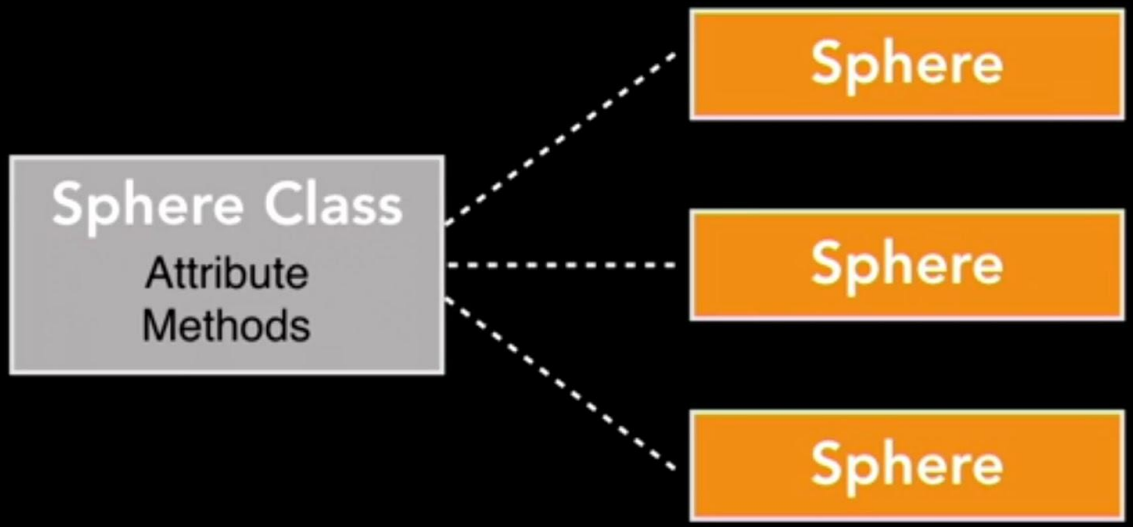
OOP - Objects


Geometry
Point
Attribute
Methods
Curve
Attribute
Methods
Cube
Attribute
Methods

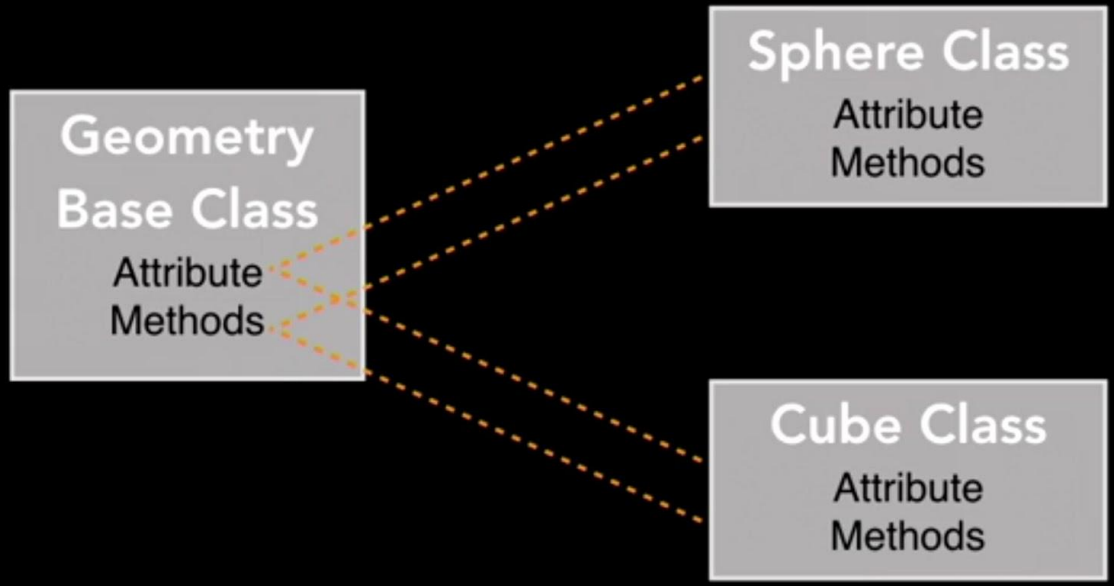
OOP - objects


Sphere
Attribute
Center Coordinates
Diameter
Circumference
Methods
PointAt
Translate
Rotate

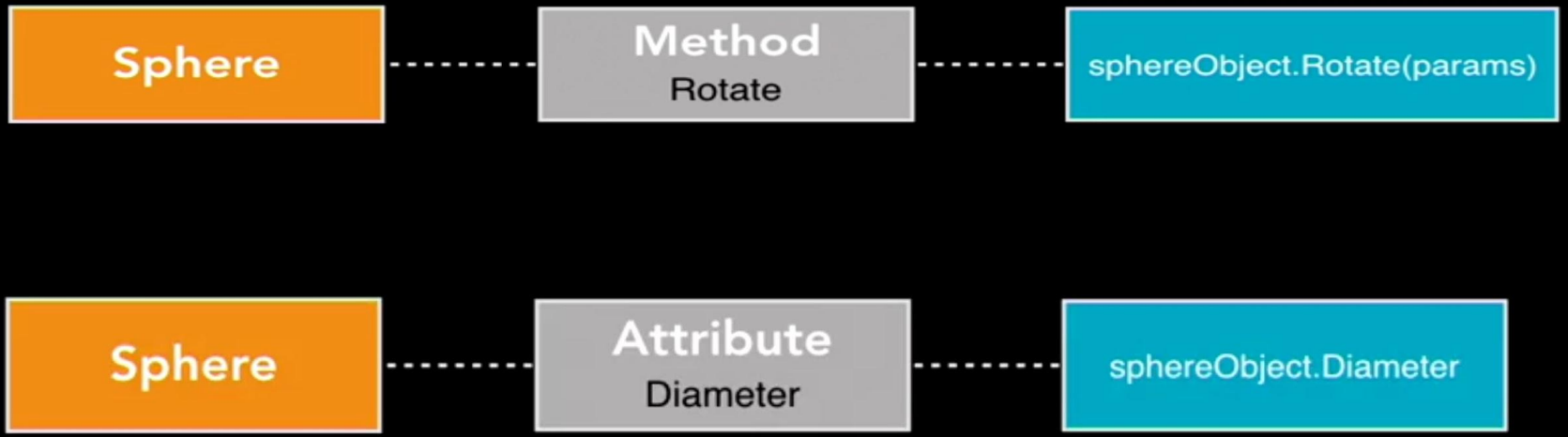
OOP - Class and Structures



Inheritance



Dot Notation



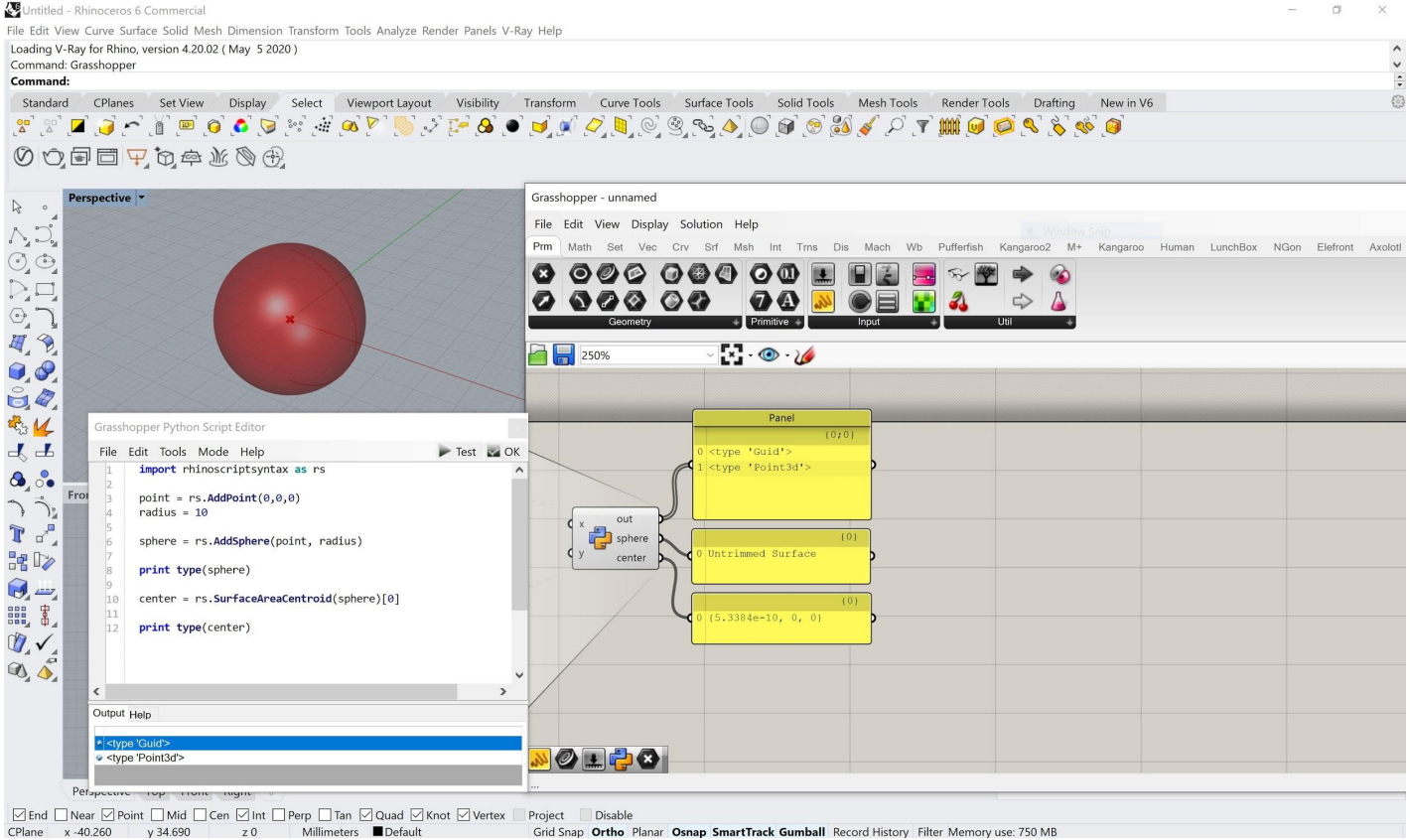
Libraries

RhinoCommon

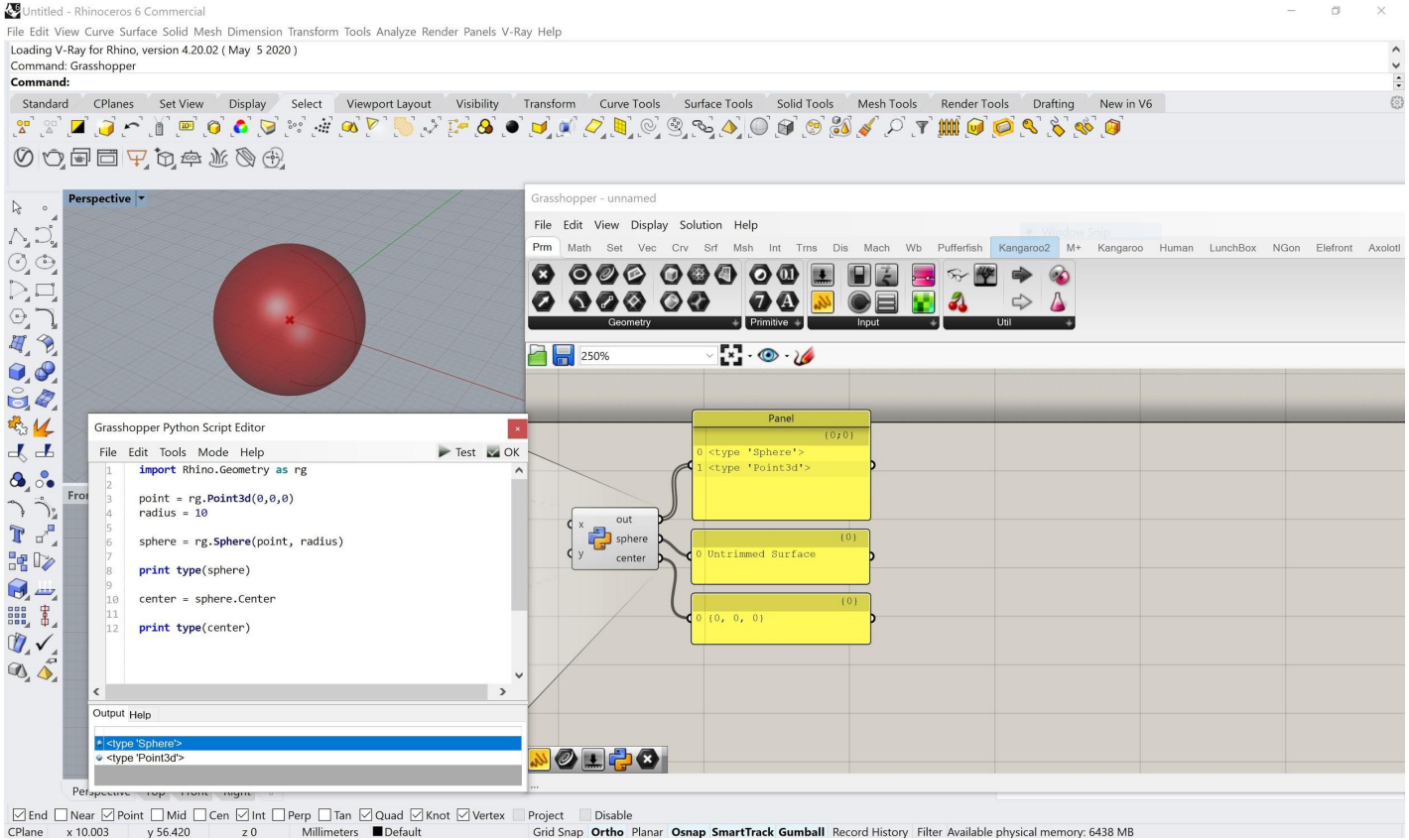
rhinoscriptsyntax

ghpythonlib

Rhinoscriptsyntax - example



RhinoCommon - example



Rhinoscriptsyntax (rs) vs Rhino.Geometry (rg)

- works with GUIDS
- Contains only functions
- is written in python and you can find it inside your computer as a collection of .py files under : C:\Users\USERNAME\AppData\Roaming\McNeel\Rhinoceros\6.0\Plug-ins\IronPython (814d908a-e25c-493d-97e9-ee3861957f49)\settings\lib\rhinoscript
- is really a bunch of python scripts that use RhinoCommon classes + functions!

- works with Rhino objects
- Contains classes + functions
- is part of RhinoCommon, which is an extensive, low level .NET library of the Rhino SDK. RhinoCommon is not a .py file but rather a .dll file whose functions and classes we use to access Rhino which is written in C++. It is found on your computer under C:\Program Files\Rhino 6\System)

Python, who?

- Rhino uses Python version 2.7. To be more specific Rhino uses IronPython which brings together the Python language and Microsoft's .NET framework.

Python 2

```
print 'Hello, World!'
print('Hello, World!')
```

Python 3

```
print('Hello, World!')
```

rhinoscriptsyntax

Rhino.Geometry