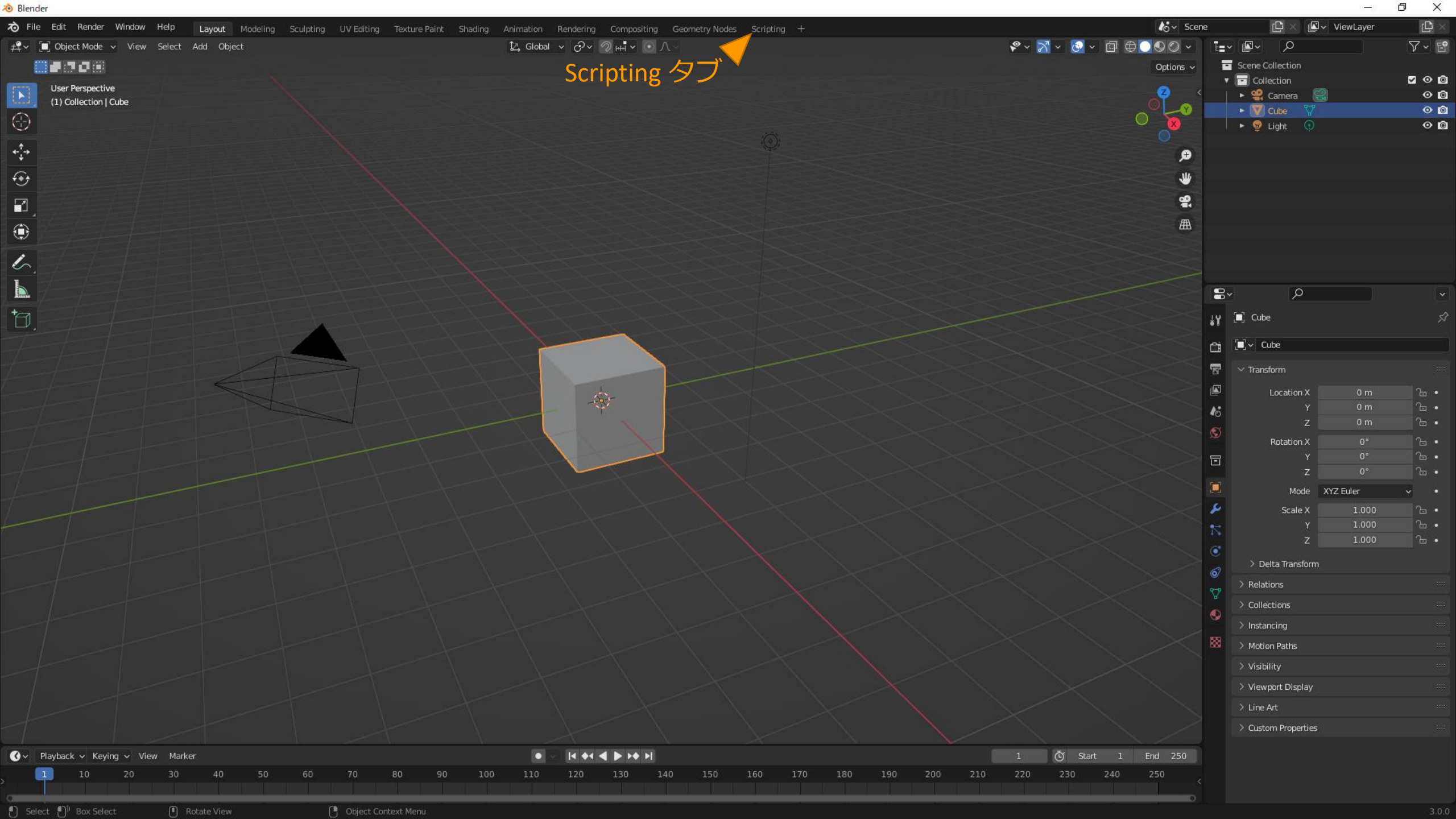
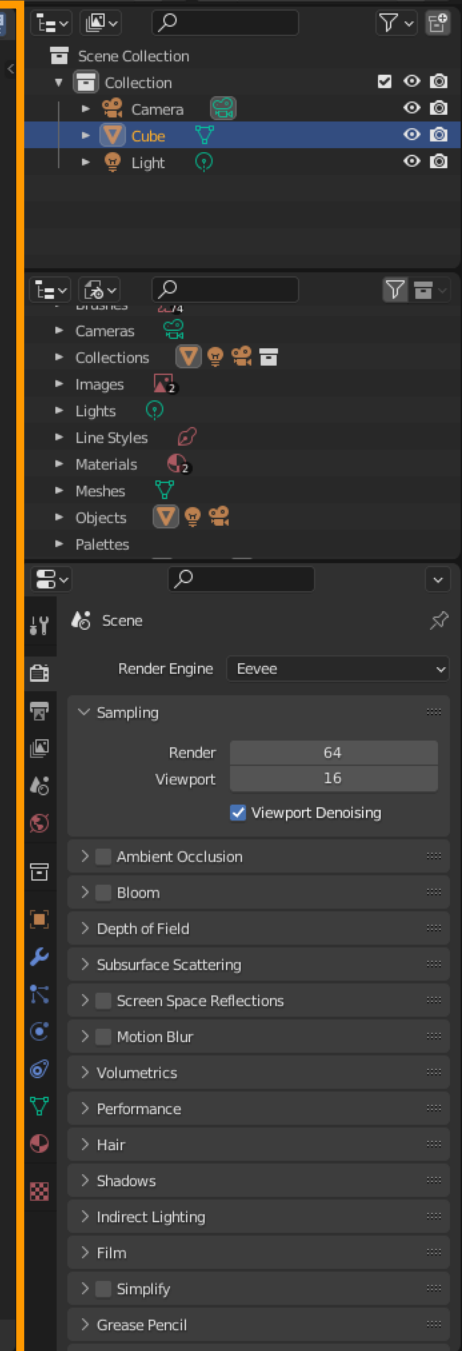
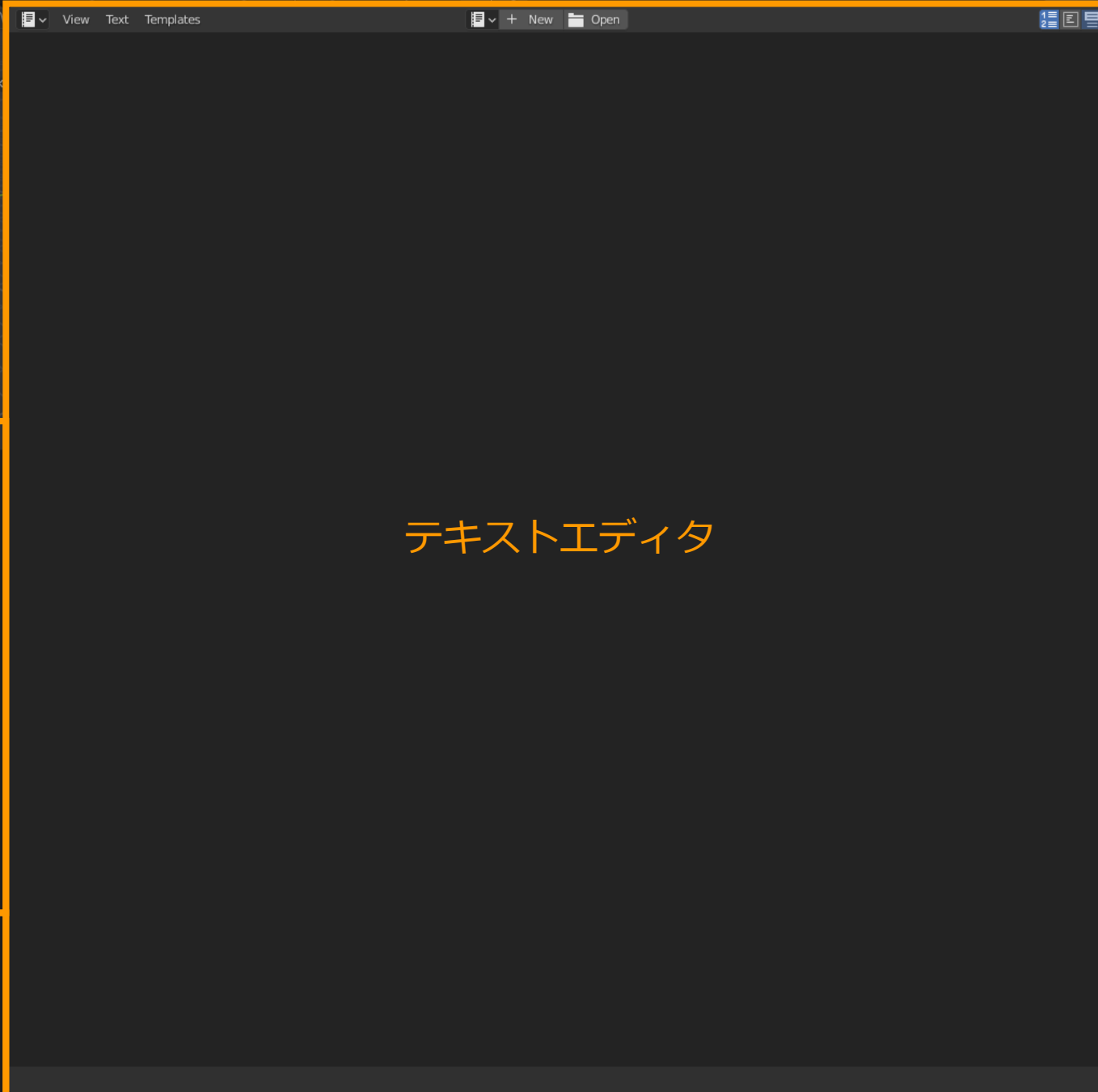
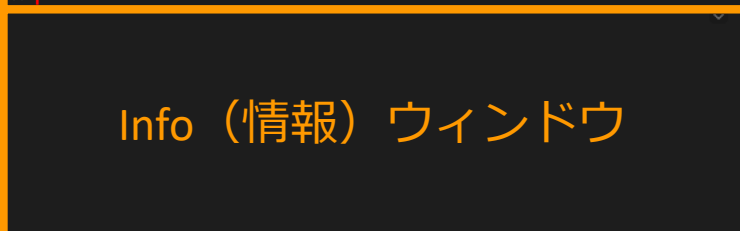
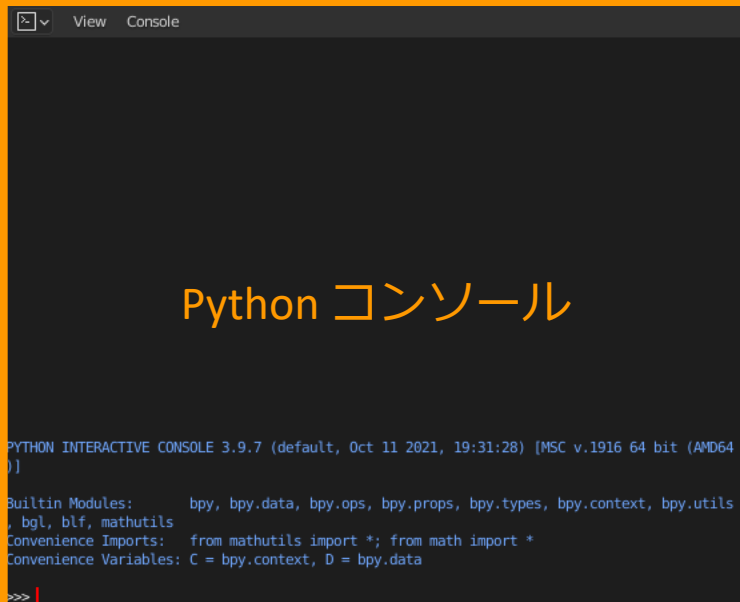
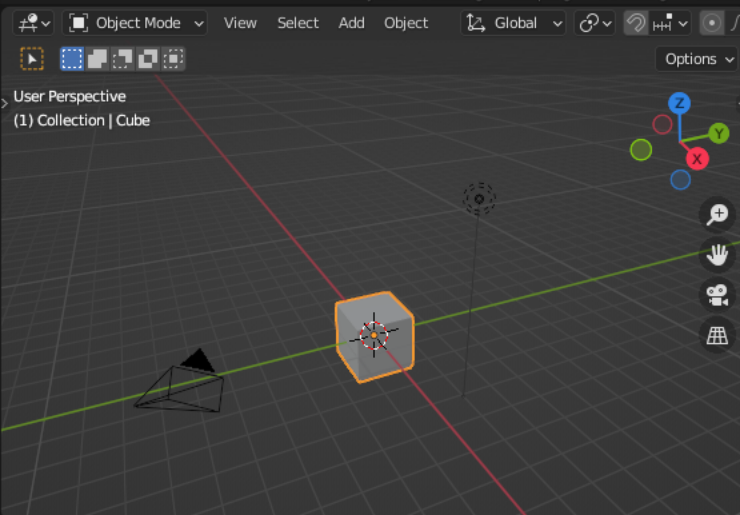


# スクリプティング

Blender の Python スクリプト



Scripting タブ



# Python コンソール

```
PYTHON INTERACTIVE CONSOLE 3.9.7 (default, Oct 11 2021, 19:31:28) [MSC v.1916 64 bit  
(AMD64)]
```

```
Builtin Modules:      bpy, bpy.data, bpy.ops, bpy.props, bpy.types, bpy.context,  
bpy.utils, bgl, blf, mathutils
```

```
Convenience Imports:  from mathutils import *; from math import *
```

```
Convenience Variables: C = bpy.context, D = bpy.data
```

```
>>>
```

テキストカーソル

プロンプト

# 計算してみる（下線部を入力、↵ は Enter）

```
>>> 1+1↵  
2
```

```
>>> 1/2↵  
0.5
```

```
>>> pi↵  
3.141592653589793
```

pi は円周率  $\pi$

```
>>> sin(pi/2)↵  
1.0
```

$\sin\left(\frac{\pi}{2}\right) = 1$

```
>>> radians(180)↵  
3.141592653589793
```

$180^\circ = \pi$

```
>>> a=3*4↵
```

$3 \times 4$  を計算して結果の 12 を変数 a に代入（結果は出力されない）

```
>>> a*2↵  
24
```

$12 \times 2 = 24$

# bpy モジュールを試してみる (⇧ は Tab)

```
>>> bpy
<module 'bpy' from 'C:\Program Files\Blender Foundation\Blender
3.0\scripts\modules\bpy\__init__.py'>
```

Python から Blender の機能を使うには  
bpy というモジュールを使う

```
>>> bpy.⇧
  app
  context
  data
  msgbus
  ops
  path
  props
  types
  utils
```

⇧ (Tab) をタイプすれば  
後ろに続く候補の一覧が表示される

```
>>> bpy.data
<bpy_struct, BlendData at 0x0000020CB4AC4108>
```

bpy モジュールの中の data モジュールを試してみる  
ここでも ⇧ (Tab) をタイプすれば候補の一覧が表示される

```
>>> bpy.data.objects
<bpy_collection[3], BlendDataObjects>
```

objects は 3 つの要素を持つ iterative (反復可能な) データ

# bpy.data のオブジェクト (D = bpy.data)

```
>>> list(bpy.data.objects)↵  
[bpy.data.objects['Camera'], bpy.data.objects['Cube'], bpy.data.objects['Light']]
```

```
>>> len(bpy.data.objects)↵  
3
```

要素数は 3

bpy.data.objects は iterative なので  
list() 関数でリスト化すると全部見れる

```
>>> bpy.data.objects[0]↵  
bpy.data.objects['Camera']
```

Camera が入っている

```
>>> bpy.data.objects[1]↵  
bpy.data.objects['Cube']
```

Cube が入っている

```
>>> bpy.data.objects[2]↵  
bpy.data.objects['Light']
```

Light が入っている

```
>>> list(D.objects)↵  
[bpy.data.objects['Camera'], bpy.data.objects['Cube'], bpy.data.objects['Light']]
```

bpy.objects は変数 D を介しても参照できる

# オブジェクト名の一覧を得る

```
>>> for object in bpy.data.objects:↵  
...     print(object)↵  
...  
<bpy_struct, Object("Camera") at 0x00000224364BA408>  
<bpy_struct, Object("Cube") at 0x00000224364B8F08>  
<bpy_struct, Object("Light") at 0x00000224364B8808>
```

bpy.data.objects の要素そのものを表示する

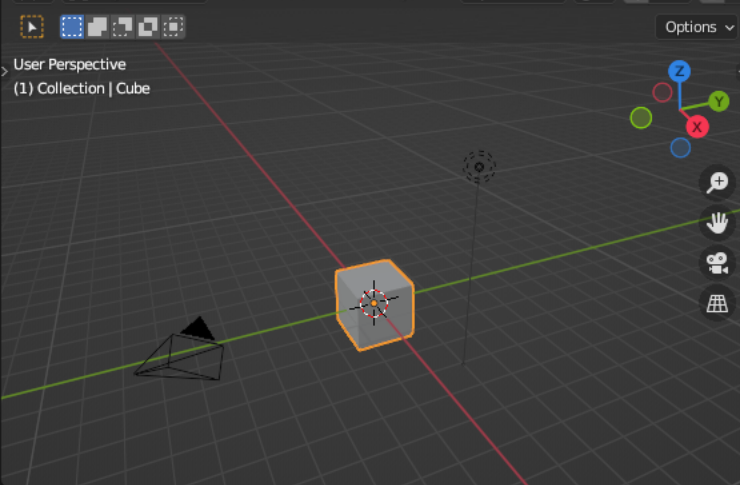
```
>>> for object in bpy.data.objects:↵  
...     print(object.name)↵  
...  
Camera  
Cube  
Light
```

各要素の name メンバを表示する



# Python スクリプトの作成

試しにオブジェクトの一覧を表示するスクリプトを作ってみる



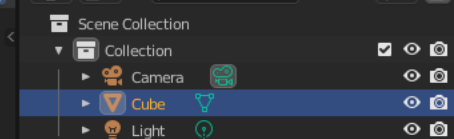
View Console

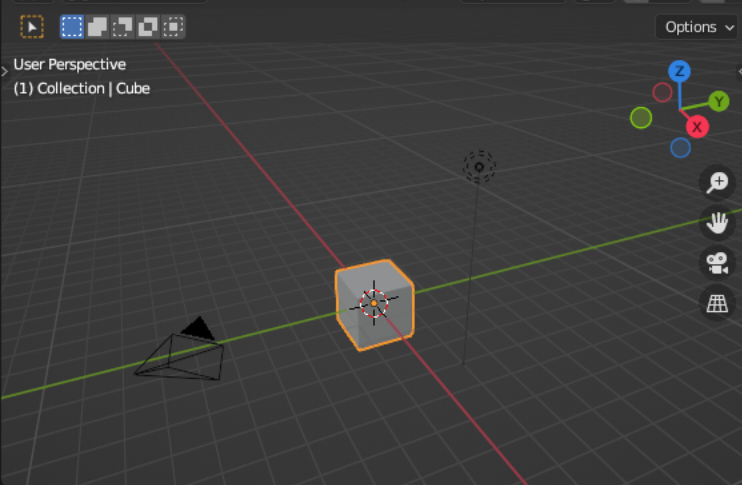
```
PYTHON INTERACTIVE CONSOLE 3.9.7 (default, Oct 11 2021, 19:31:28) [MSC v.1916 64 bit (AMD64)]
```

```
Builtin Modules:      bpy, bpy.data, bpy.ops, bpy.props, bpy.types, bpy.context, bpy.utils  
, bgl, blf, mathutils  
Convenience Imports:  from mathutils import *; from math import *  
Convenience Variables: C = bpy.context, D = bpy.data
```

&gt;&gt;&gt; |

New をクリック

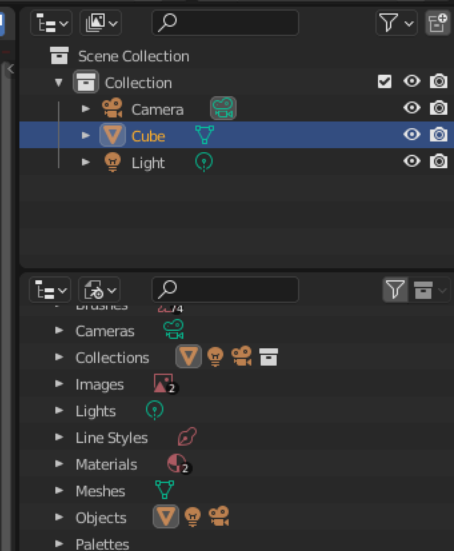




View Console

```
PYTHON INTERACTIVE CONSOLE 3.9.7 (default, Oct 11 2021, 19:31:28) [MSC v.1916 64 bit (AMD64)]  
  
Builtin Modules:      bpy, bpy.data, bpy.ops, bpy.props, bpy.types, bpy.context, bpy.utils  
, bgl, blf, mathutils  
Convenience Imports:  from mathutils import *; from math import *  
Convenience Variables: C = bpy.context, D = bpy.data  
  
>>> |
```

適当なファイル名を付けておく  
(ここでは listObject.py)



Scene

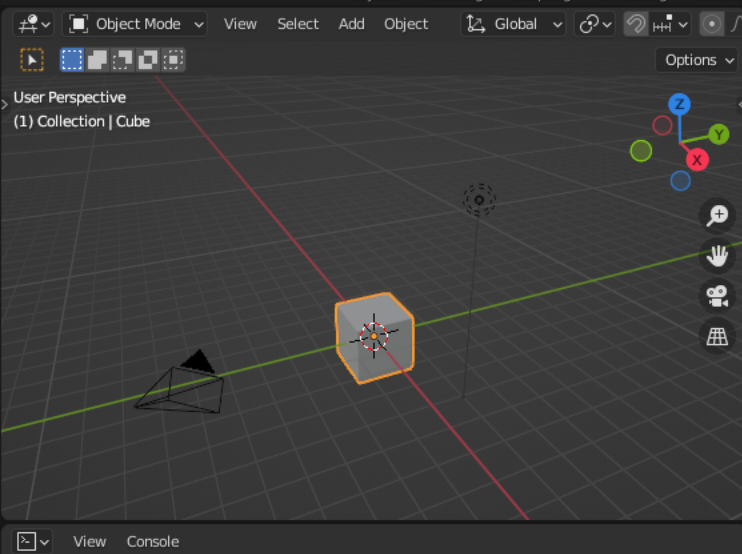
Render Engine Eevee

Sampling

Render 64

Viewport 16

☒ Viewports Denoising☐ Ambient Occlusion☐ Bloom☐ Depth of Field☐ Subsurface Scattering☐ Screen Space Reflections☐ Motion Blur☐ Volumetrics☐ Performance☐ Hair☐ Shadows☐ Indirect Lighting☐ Film☐ Simplify☐ Grease Pencil



View Console

PYTHON INTERACTIVE CONSOLE 3.9.7 (default, Oct 11 2021, 19:31:28) [MSC v.1916 64 bit (AMD64)]

Builtin Modules: bpy, bpy.data, bpy.ops, bpy.props, bpy.types, bpy.context, bpy.utils, bgl, blf, mathutils  
Convenience Imports: from mathutils import \*; from math import \*  
Convenience Variables: C = bpy.context, D = bpy.data

&gt;&gt;&gt; |

bpy.data.texts["listObject.py"].name = "listObject.py"

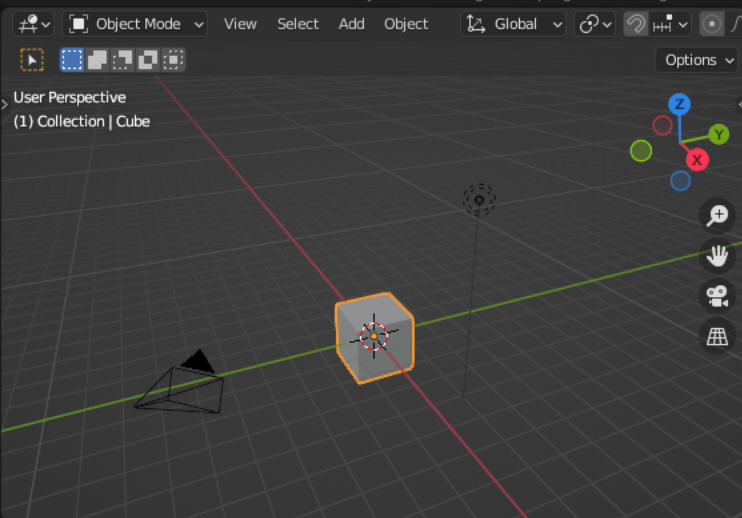
View Text Edit Select Format Templates

listObject.py

```
1 for object in bpy.data.objects:  
2     print(object.name)  
3
```

```
for object in bpy.data.objects:  
    print(object.name)
```

Text: Internal



View Console

PYTHON INTERACTIVE CONSOLE 3.9.7 (default, Oct 11 2021, 19:31:28) [MSC v.1916 64 bit (AMD64)]

Builtin Modules: bpy, bpy.data, bpy.ops, bpy.props, bpy.types, bpy.context, bpy.utils, bgl, blf, mathutils

Convenience Imports: from mathutils import \*; from math import \*

Convenience Variables: C = bpy.context, D = bpy.data

>>> |

bpy.data.texts["listObject.py"].name = "listObject.py"

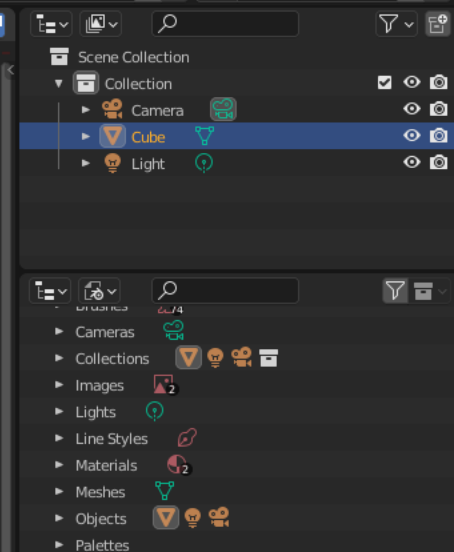
bpy.ops.text.run\_script()

Python script failed, check the message in the system console

```
1 for object in bpy.data.objects:
2   print(object.name)
3
```

実行

スクリプトが失敗したから  
システムコンソールを見ろと言っている



Scene

Render Engine Eevee

Sampling

Render 64

Viewport 16

Viewport Denoising

Ambient Occlusion

Bloom

Depth of Field

Subsurface Scattering

Screen Space Reflections

Motion Blur

Volumetrics

Performance

Hair

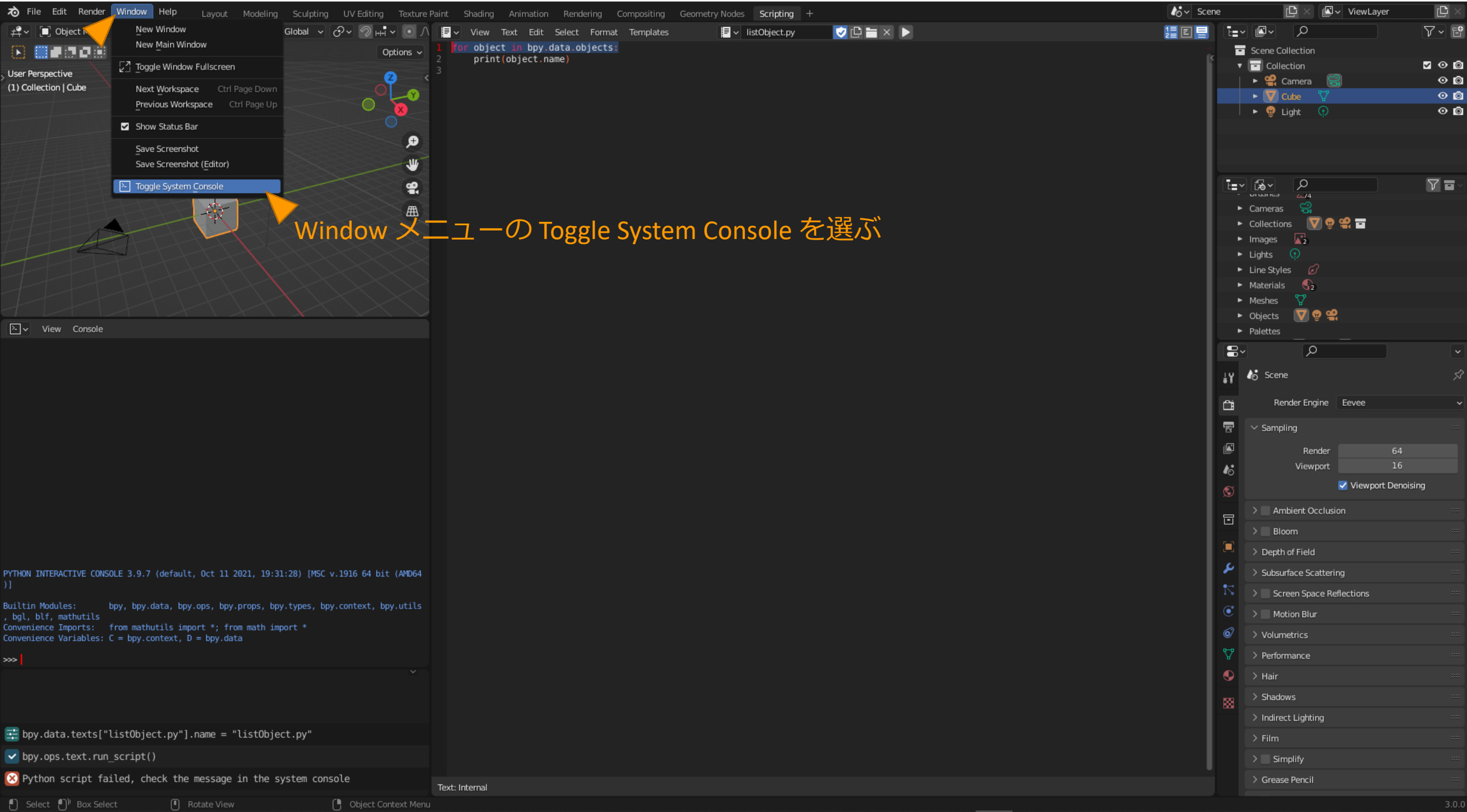
Shadows

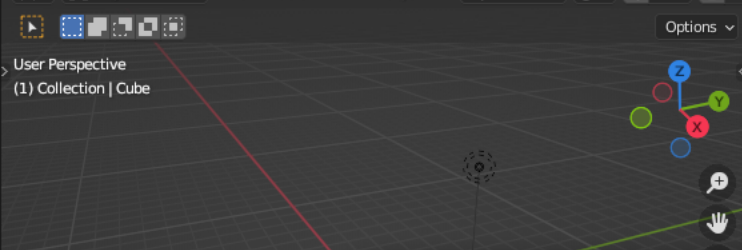
Indirect Lighting

Film

Simplify

Grease Pencil





```
1 for object in bpy.data.objects:  
2     print(object.name)  
3
```

```
Blender  
-Read prefs: C:\Users\tokoi\AppData\Roaming\Blender Foundation\Blender\3.0\config\userpref.blend  
Traceback (most recent call last):  
  File "listObject.py", line 1, in <module>  
NameError: name 'bpy' is not defined  
Error: Python script failed, check the message in the system console
```

File "listObject.py", line 1, in <module>  
NameError: name 'bpy' is not defined

“listObject.py” 中にある “bpy” が未定義だと言っている

```
PYTHON INTERACTIVE CONSOLE 3.9.7 (default, 0...  
)
```

```
Builtin Modules:  bpy, bpy.data, bpy.ops, bpy.props, bpy.types, bpy.context, bpy.utils  
, bgl, blf, mathutils  
Convenience Imports:  from mathutils import *; from math import *  
Convenience Variables: C = bpy.context, D = bpy.data
```

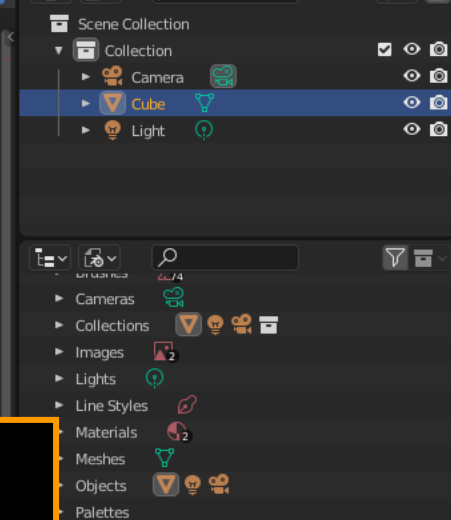
```
>>> |
```

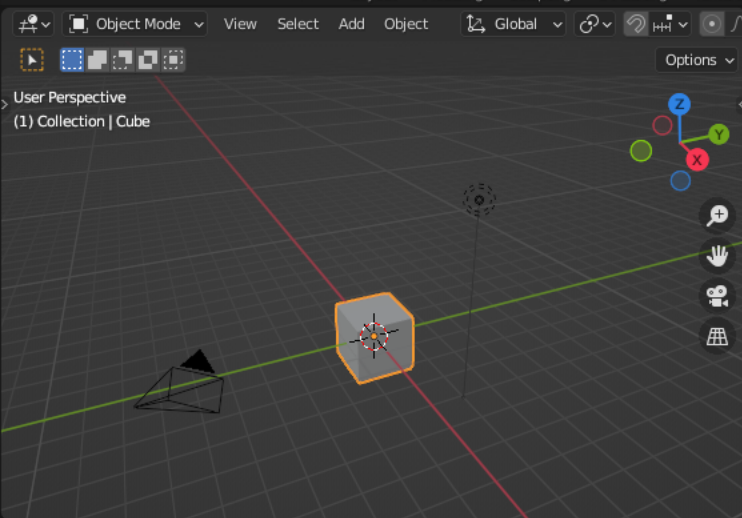
```
bpy.data.texts["listObject.py"].name = "listObject.py"
```

```
bpy.ops.text.run_script()
```

```
Python script failed, check the message in the system console
```

Text: Internal





View Console

PYTHON INTERACTIVE CONSOLE 3.9.7 (default, Oct 11 2021, 19:31:28) [MSC v.1916 64 bit (AMD64)]

Builtin Modules: bpy, bpy.data, bpy.ops, bpy.props, bpy.types, bpy.context, bpy.utils, bgl, blf, mathutils  
Convenience Imports: from mathutils import \*; from math import \*  
Convenience Variables: C = bpy.context, D = bpy.data

>>> |

bpy.data.texts["listObject.py"].name = "listObject.py"

✓ bpy.ops.text.run\_script()

✗ Python script failed, check the message in the system console

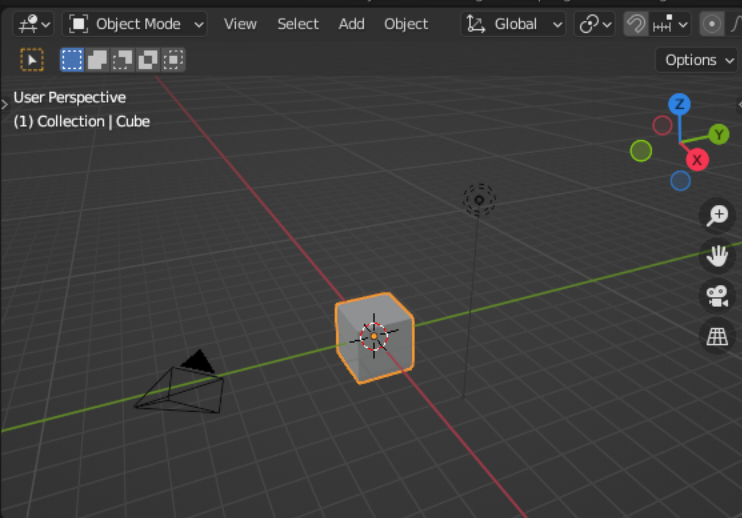
```
1 import bpy
2 for object in bpy.data.objects:
3     print(object.name)
4
```

“bpy” を import する

```
import bpy↵
for object in bpy.data.objects:↵
    print(object.name)↵
```

Text: Internal





View Console

PYTHON INTERACTIVE CONSOLE 3.9.7 (default, Oct 11 2021, 19:31:28) [MSC v.1916 64 bit (AMD64)]

Builtin Modules: bpy, bpy.data, bpy.ops, bpy.props, bpy.types, bpy.context, bpy.utils, bgl, blf, mathutils

Convenience Imports: from mathutils import \*; from math import \*

Convenience Variables: C = bpy.context, D = bpy.data

>>> |

bpy.data.texts["listObject.py"].name = "listObject.py"

bpy.ops.text.run\_script()

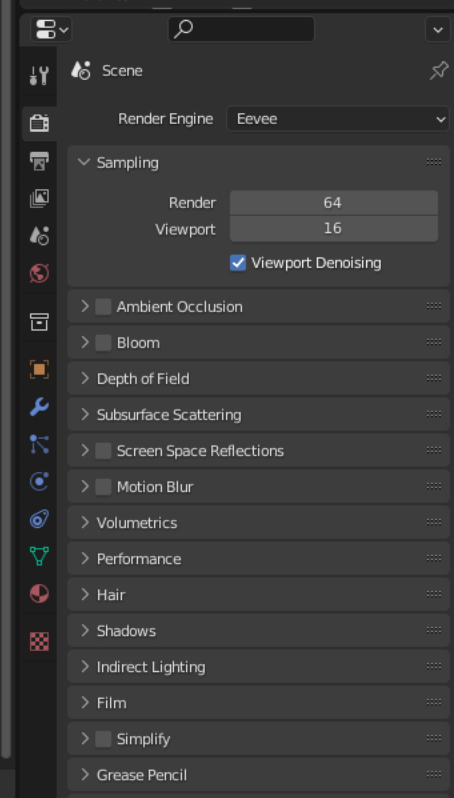
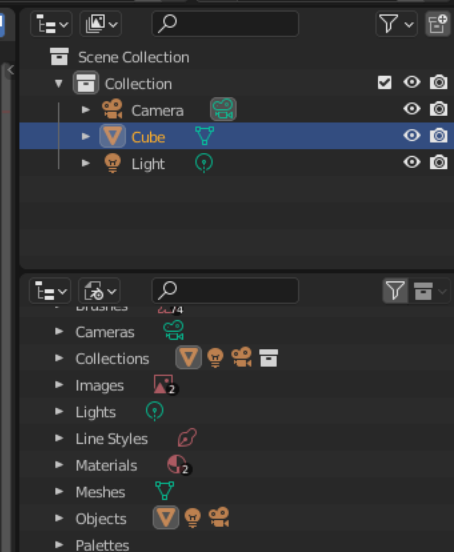
Python script failed, check the message in the system console

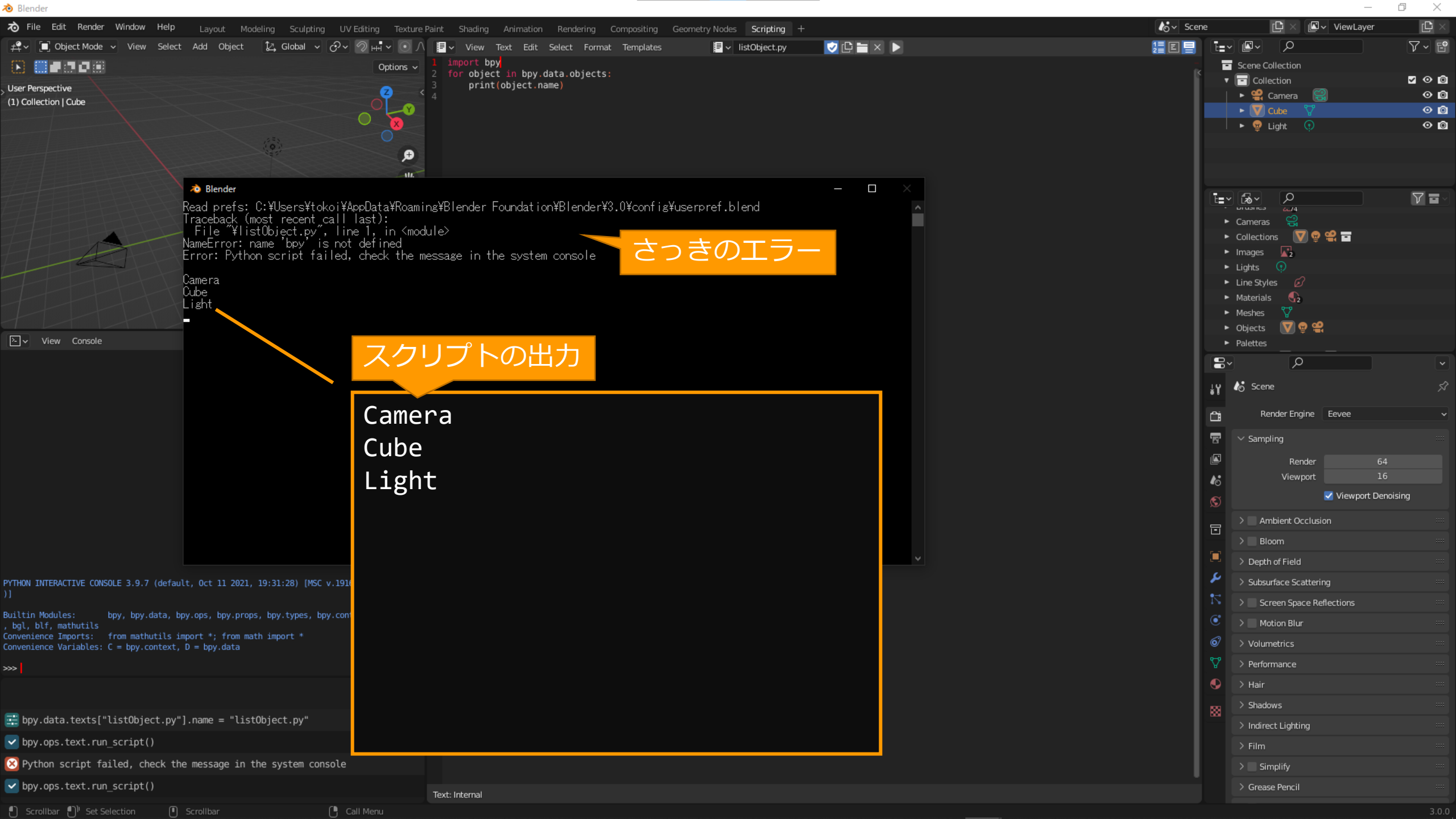
bpy.ops.text.run\_script()

```
1 import bpy
2 for object in bpy.data.objects:
3     print(object.name)
4
```

実行

今度は文句を言われていない





さっきのエラー

スクリプトの出力

Camera  
Cube  
Light