

Python Tutor: Visualize code in Python, JavaScript, C, C++, and Java

Python 3.6  
(known limitations)

```
1 class cylinder():
2     r=0
3     h=0
4     def cal(self):
5         self.volume=3.14*(self.r*self.r)*self.h
6         return self.volume
7
8 cylinder1=cylinder()
9 cylinder1.r=5
10 cylinder1.h=10
11
12
13 cylinder2=cylinder()
14 cylinder2.r=7
15 cylinder2.h=13
16
17
18 print(str(cylinder1.cal()))
19 print(str(cylinder2.cal()))
```

line that just executed

next line to execute

[Edit this code](#)

Print output (drag lower right corner to resize)

785.0  
2000.1800000000003

Frames

Objects

Global frame

cylinder

cylinder1

cylinder2

cylinder class

cal

function

cal(self)

h

0

r

0

cylinder instance

h

10

r

5

volume

785.0

cylinder instance

h

13

r

7

volume

2000.18

```
1 class pyramid():
2     P_length=''
3     P_width=''
4     P_height=''
5     def cal(self):
6         self.volume=(self.P_length.length*self.P_width.width*self.P_height.height)
7         return self.volume
8
9 class Base_length():
10     length=''
11
12 class Base_width():
13     width=''
14
15 class Pyramid_height():
16     height=''
17
18 myPyramid=pyramid()
19 myPyramid_length=Base_length()
20 myPyramid_width=Base_width()
21 myPyramid_height=Pyramid_height()
22
23 myPyramid_length.length=10
24 myPyramid_width.width=7
25 myPyramid_height.height=17
26
27 myPyramid.P_length=myPyramid_length
28 myPyramid.P_width=myPyramid_width
29 myPyramid.P_height=myPyramid_height
30
31 print(myPyramid.cal())
```

line that just executed

next line to execute

Print output (drag lower right corner to resize)

396.6666666666667

Frames

Objects

Global frame

pyramid

Base\_length

Base\_width

Pyramid\_height

myPyramid

myPyramid\_length

myPyramid\_width

myPyramid\_height

pyramid class

P\_height

''

P\_length

''

P\_width

''

cal

function

cal(self)

Base\_length class

length

''

Base\_width class

width

''

Pyramid\_height class

height

''

pyramid instance

P\_height

''

P\_length

''

P\_width

''

volume

396.6667

Base\_length instance

length

10

Base\_width instance

width

7

Pyramid\_height instance

height

17

```

1 class Node:
2     def __init__(self, dataval=None):
3         self.dataval = dataval
4         self.poiter = None
5
6 class SlinkedList:
7     def __init__(self):
8         self.header = None
9
10 list = SlinkedList()
11
12 e1 = Node("44")
13 e2 = Node("36")
14 e3 = Node("90")
15 e4 = Node("10")
16 e5 = Node("60")
17 e6 = Node("99")
18
19 list.header = e1
20 e1.poiter = e2
21 e2.poiter = e3
22 e3.poiter = e4
23 e4.poiter = e5
24 e5.poiter = e6

```

header → 44 → 36 → 90 → 10 → 60 → 99

```

1 class Node:
2     def __init__(self, dataval=None):
3         self.dataval = dataval
4         self.poiter = None
5
6 class SlinkedList:
7     def __init__(self):
8         self.header = None
9
10 list = SlinkedList()
11
12 e1 = Node("44")
13 e2 = Node("36")
14 e3 = Node("90")
15 e4 = Node("10")
16 e5 = Node("60")
17 e6 = Node("99")
18 e7 = Node("104")
19
20 list.header = e1
21 e1.poiter = e2
22 e2.poiter = e3
23 e3.poiter = e4
24 e4.poiter = e5
25 e5.poiter = e6
26
27 e7.poiter = e1
28 list.header = e7

```

header → 44 → 36 → 90 → 10 → 60 → 99

↑  
104

header 44 → 36 → 90 → 10 → 60 → 99

↑  
104

header → 104 → 44 → 36 → 90 → 10 → 60 → 99

```

1 class Node:
2     def __init__(self, dataval=None):
3         self.dataval = dataval
4         self.poiter = None
5
6 class SlinkedList:
7     def __init__(self):
8         self.header = None
9
10 list = SlinkedList()
11
12 e1 = Node("44")
13 e2 = Node("36")
14 e3 = Node("90")
15 e4 = Node("10")
16 e5 = Node("60")
17 e6 = Node("99")
18 e7 = Node("104")
19 e8 = Node("57")
20
21 list.header = e1
22 e1.poiter = e2
23 e2.poiter = e3
24 e3.poiter = e4
25 e4.poiter = e5
26 e5.poiter = e6
27
28 e7.poiter = e1
29 list.header = e7
30
31 e8.poiter = e6

```

header → 104 → 44 → 36 → 90 → 10 → 60 → 99

header → 104 → 44 → 36 → 90 → 10 → 60 → 99 → 57

```

1 class Node:
2     def __init__(self, dataval=None):
3         self.dataval = dataval
4         self.poiter = None
5
6 class SlinkedList:
7     def __init__(self):
8         self.header = None
9
10 list = SlinkedList()
11
12 e1 = Node("44")
13 e2 = Node("36")
14 e3 = Node("90")
15 e4 = Node("10")
16 e5 = Node("60")
17 e6 = Node("99")
18 e7 = Node("104")
19 e8 = Node("57")
20
21 list.header = e1
22 e1.poiter = e2
23 e2.poiter = e3
24 e3.poiter = e4
25 e4.poiter = e5
26 e5.poiter = e6
27
28 e7.poiter = e1
29 list.header = e7
30
31 e8.poiter = e6
32
33 e3.poiter = e5

```

header → 104 → 44 → 36 → 90 → 10 → 60 → 99 → 57

header → 104 → 44 → 36 → 90 → 60 → 99 → 57