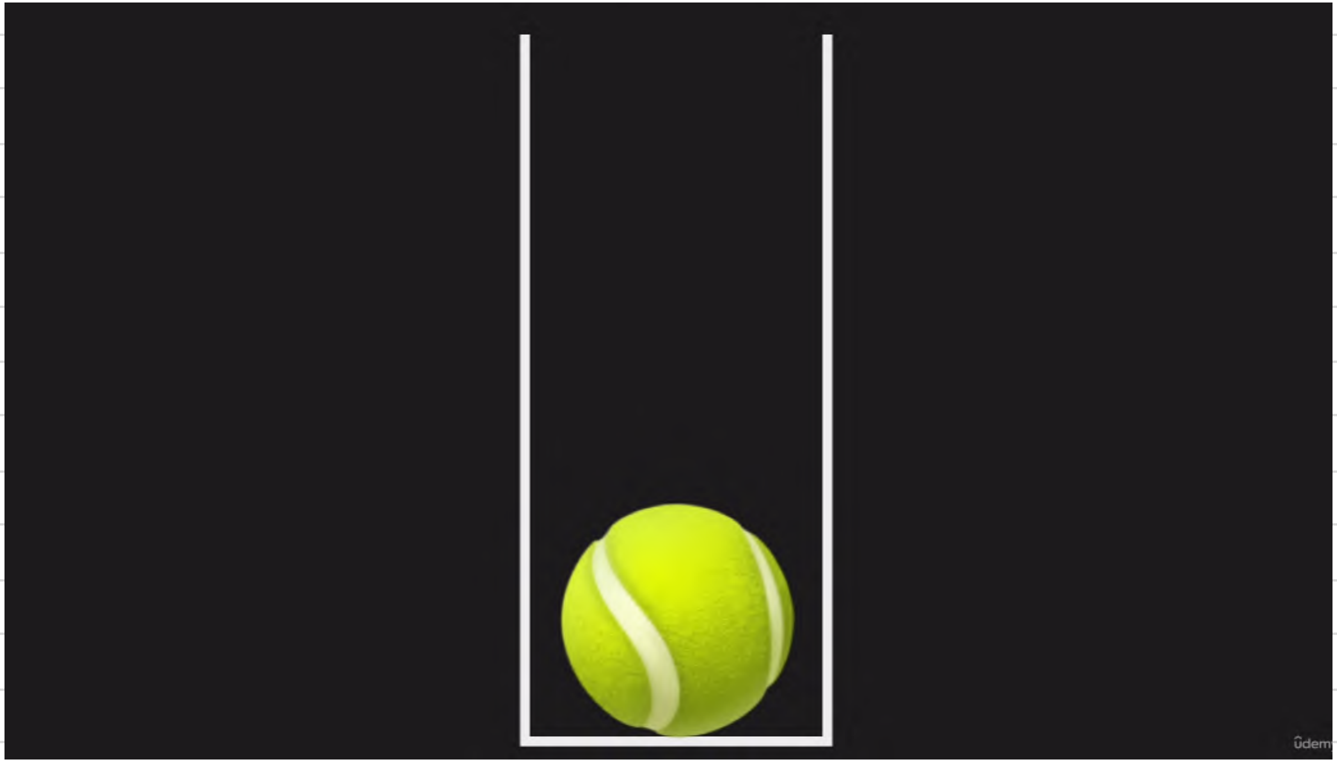
Struktur Data

Meet 07

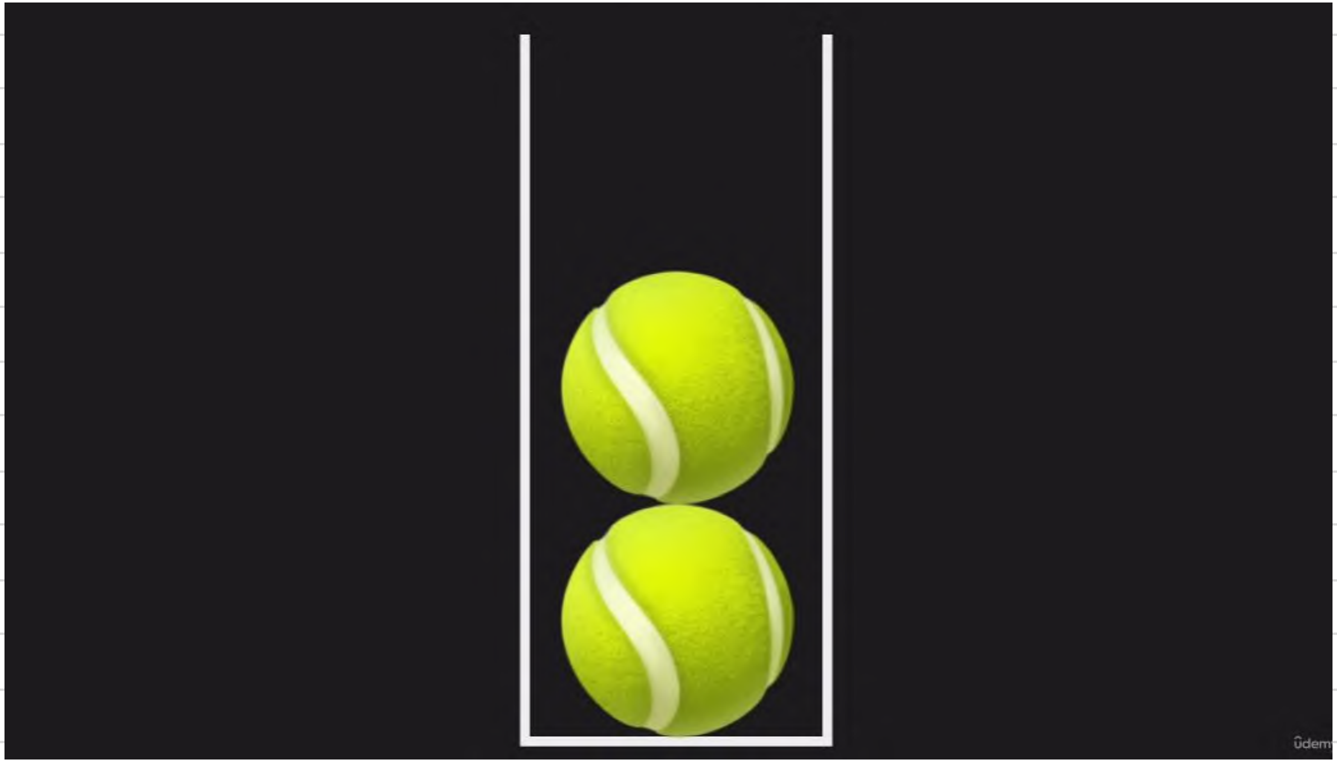
01

Stack Intro

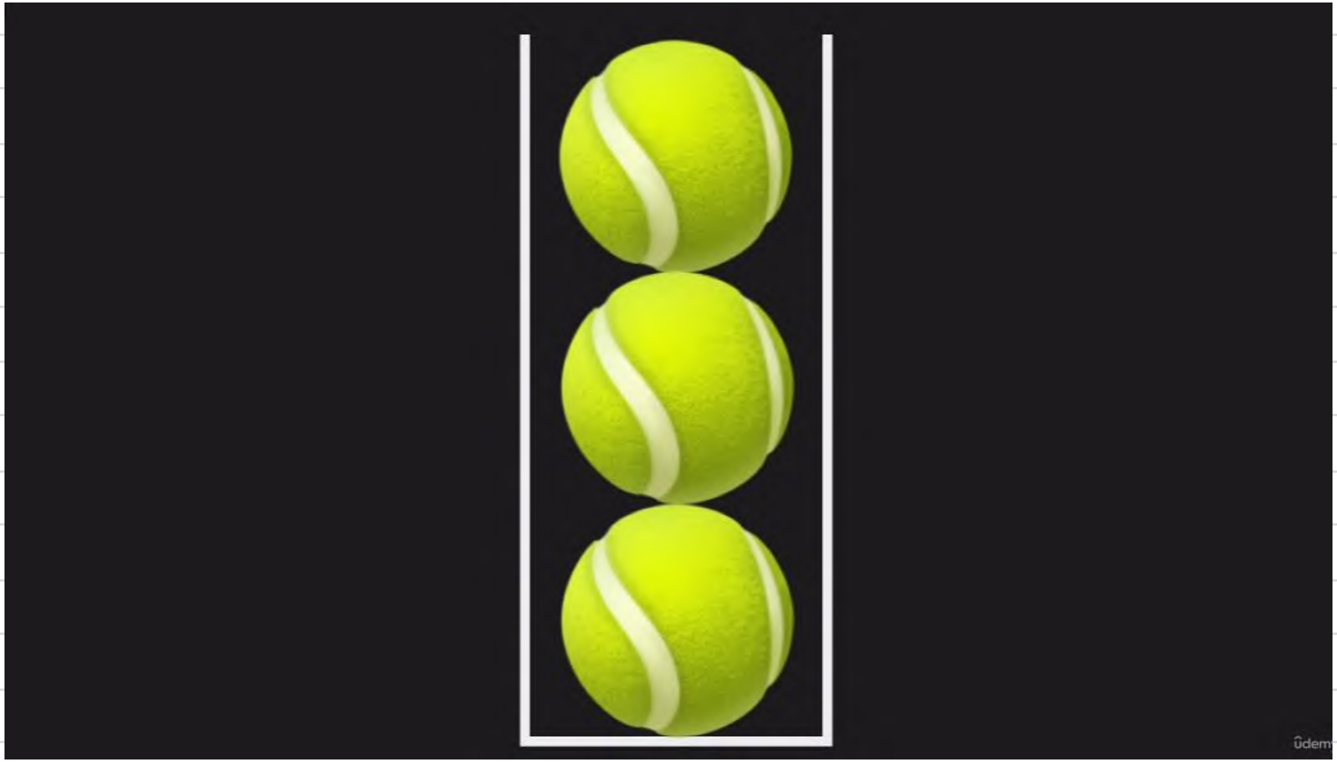
Stack



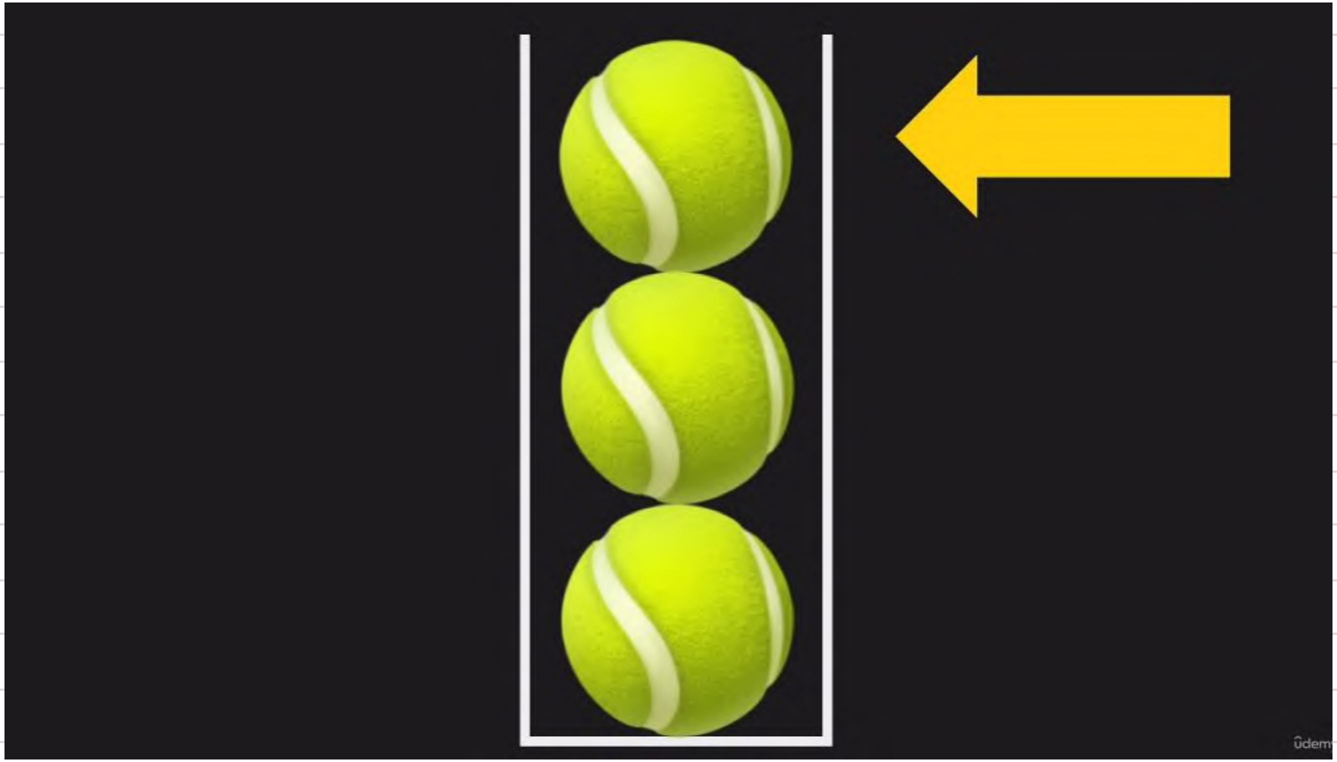
Stack



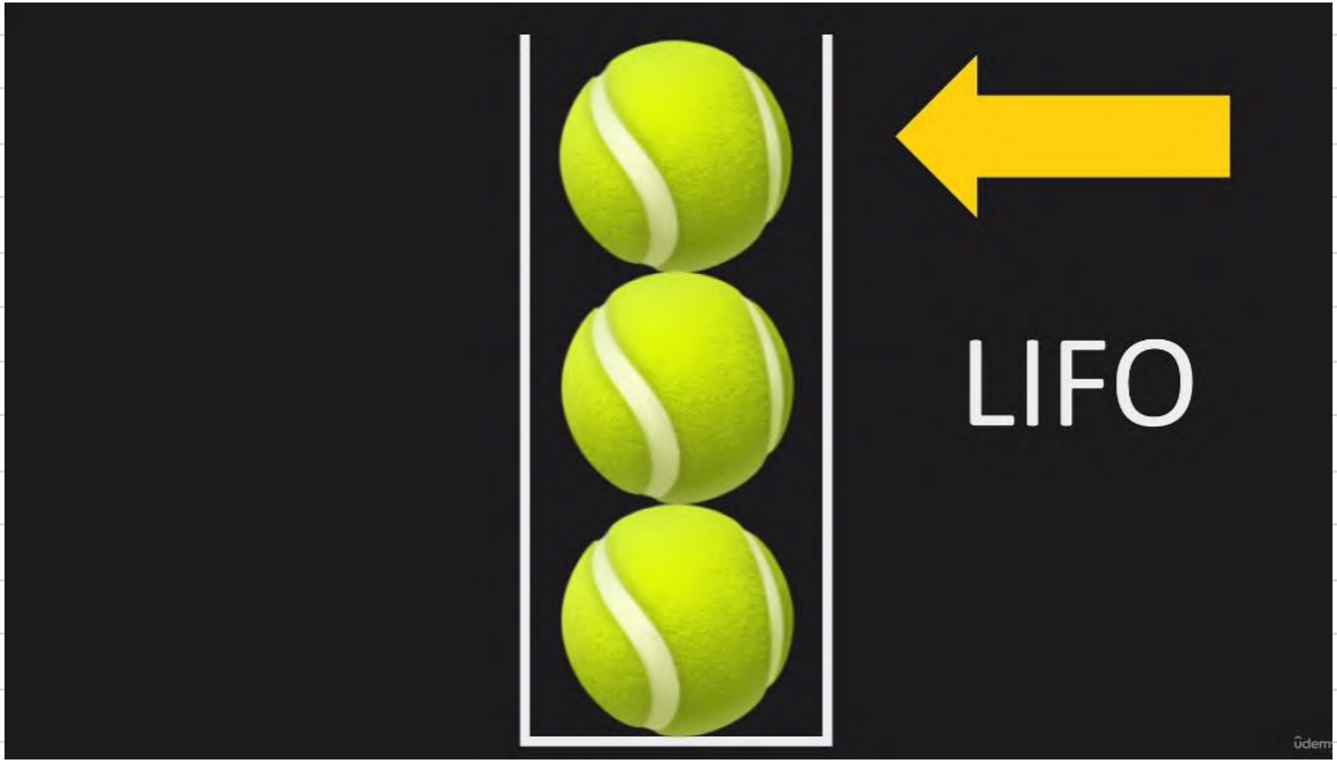
Stack



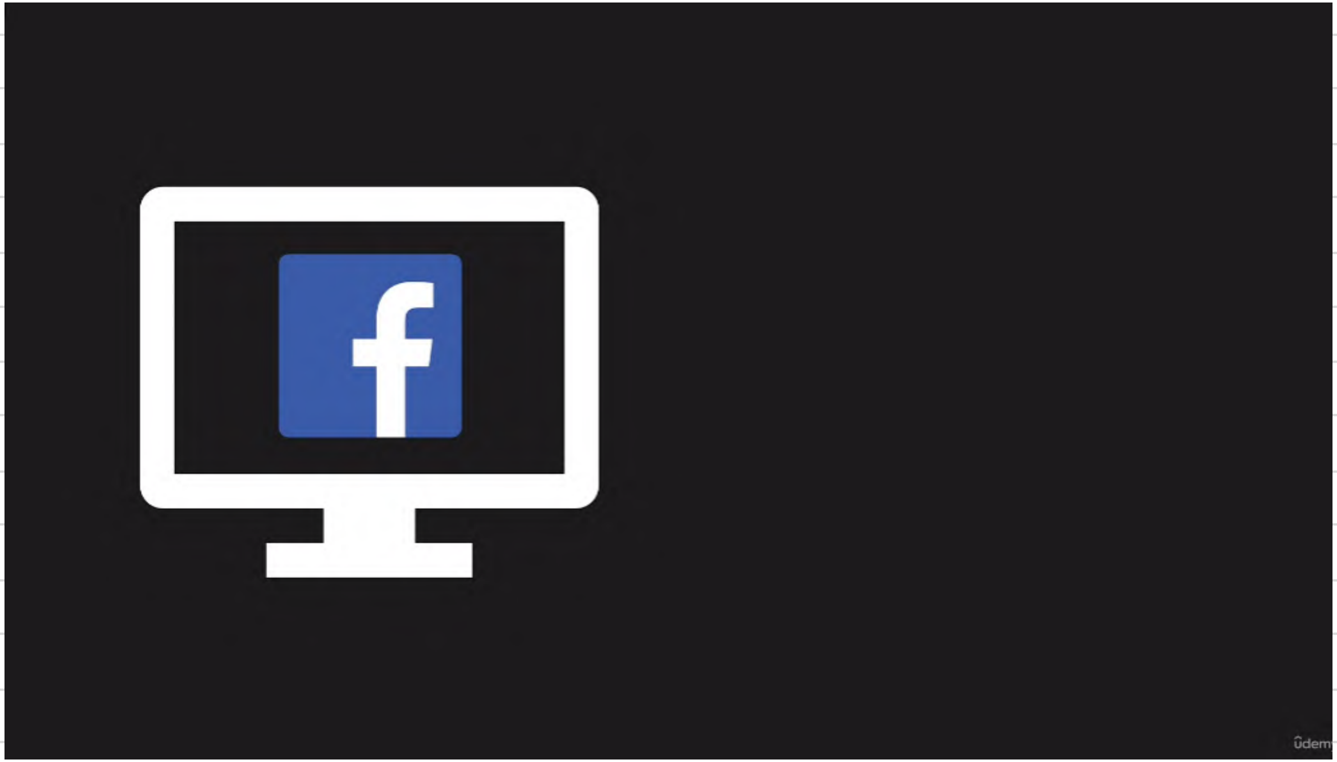
Stack



Stack



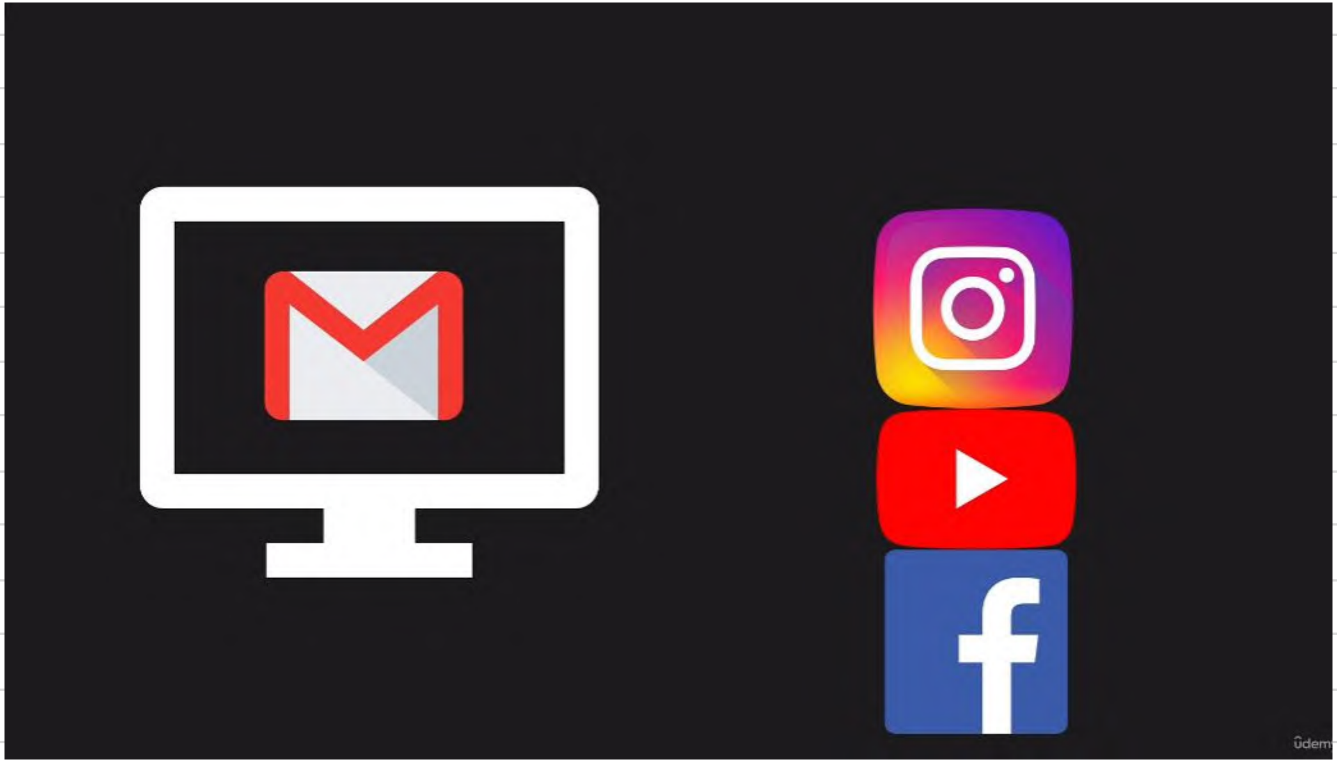
Stack



Stack

Stack

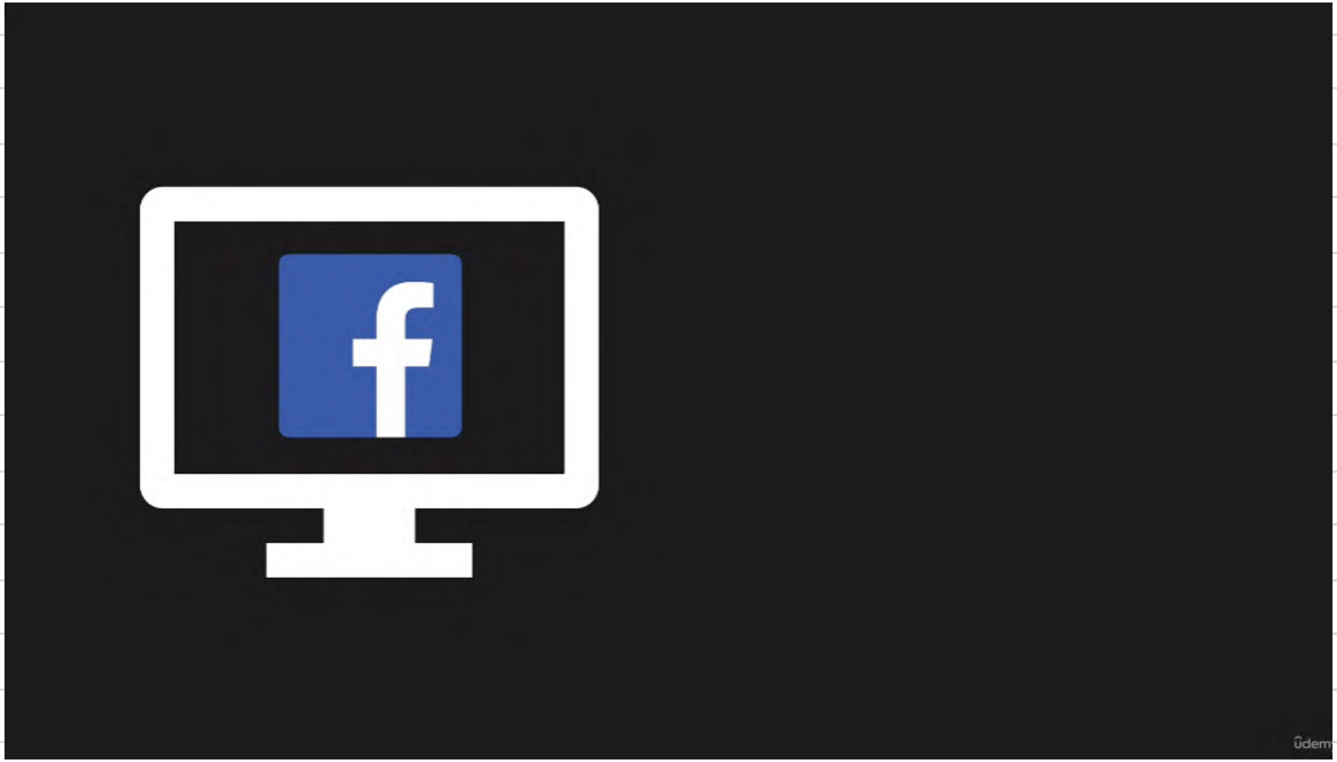
Stack



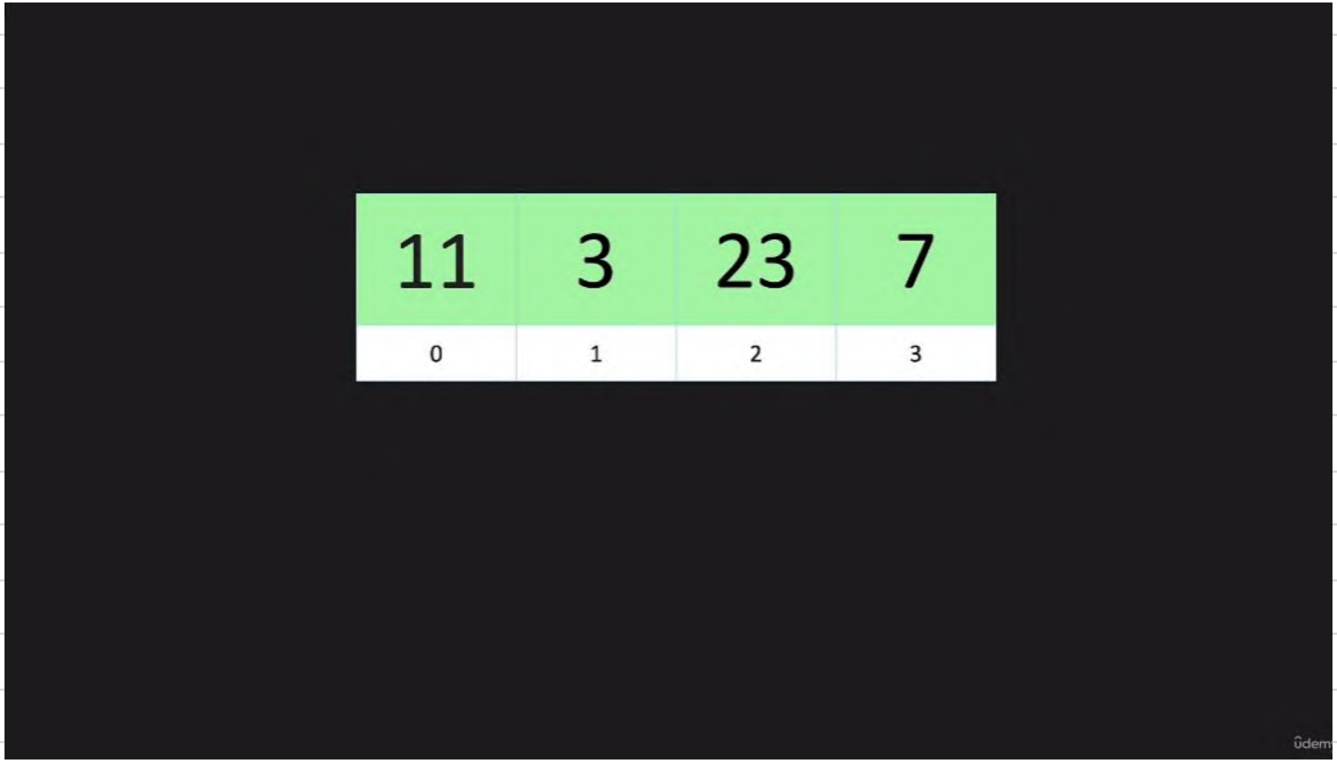
Stack

Stack

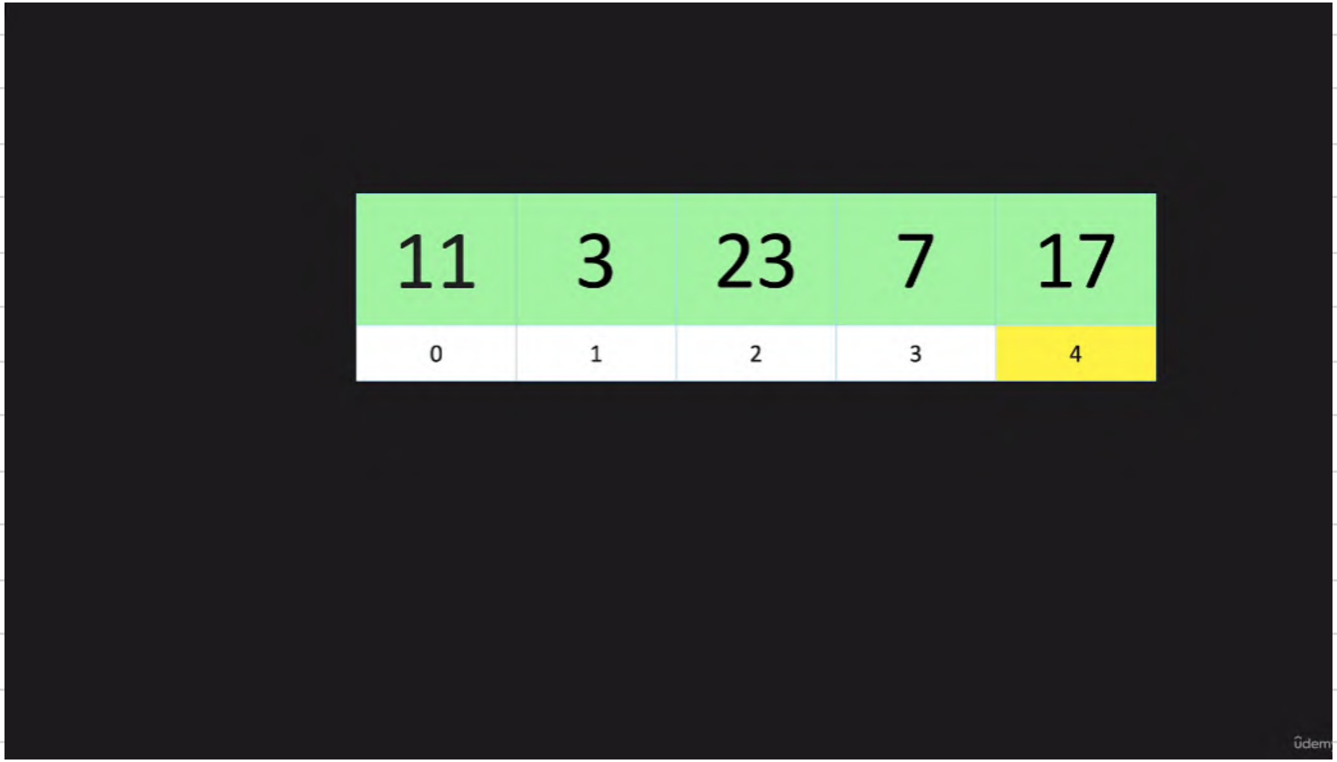
Stack



Stack



Stack



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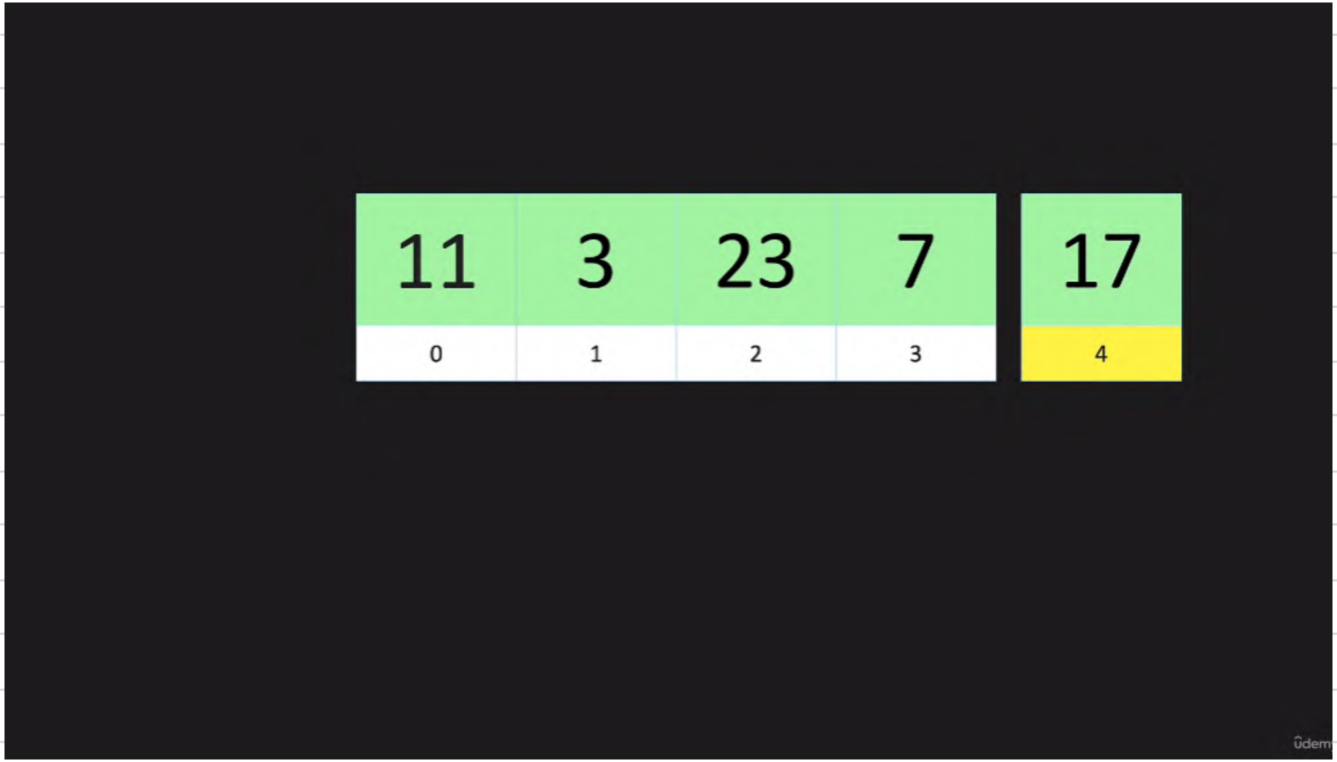

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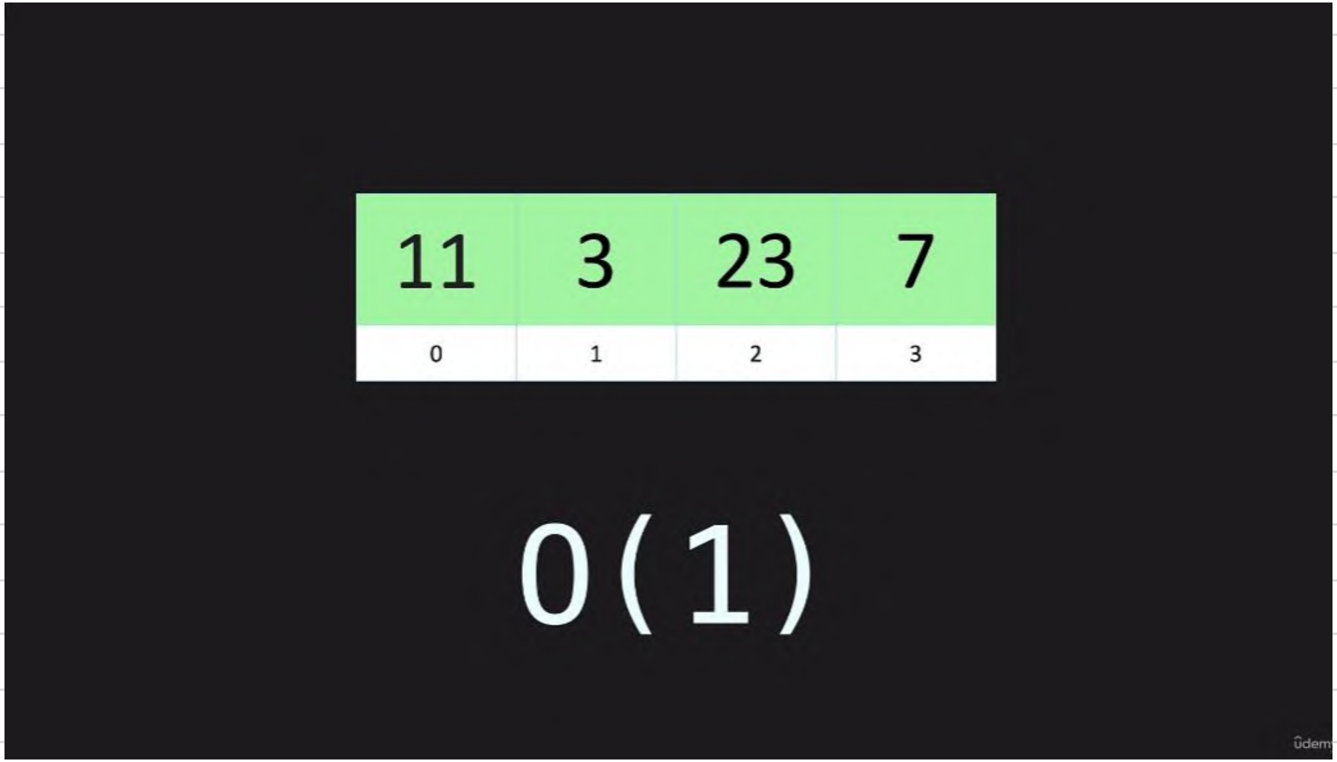

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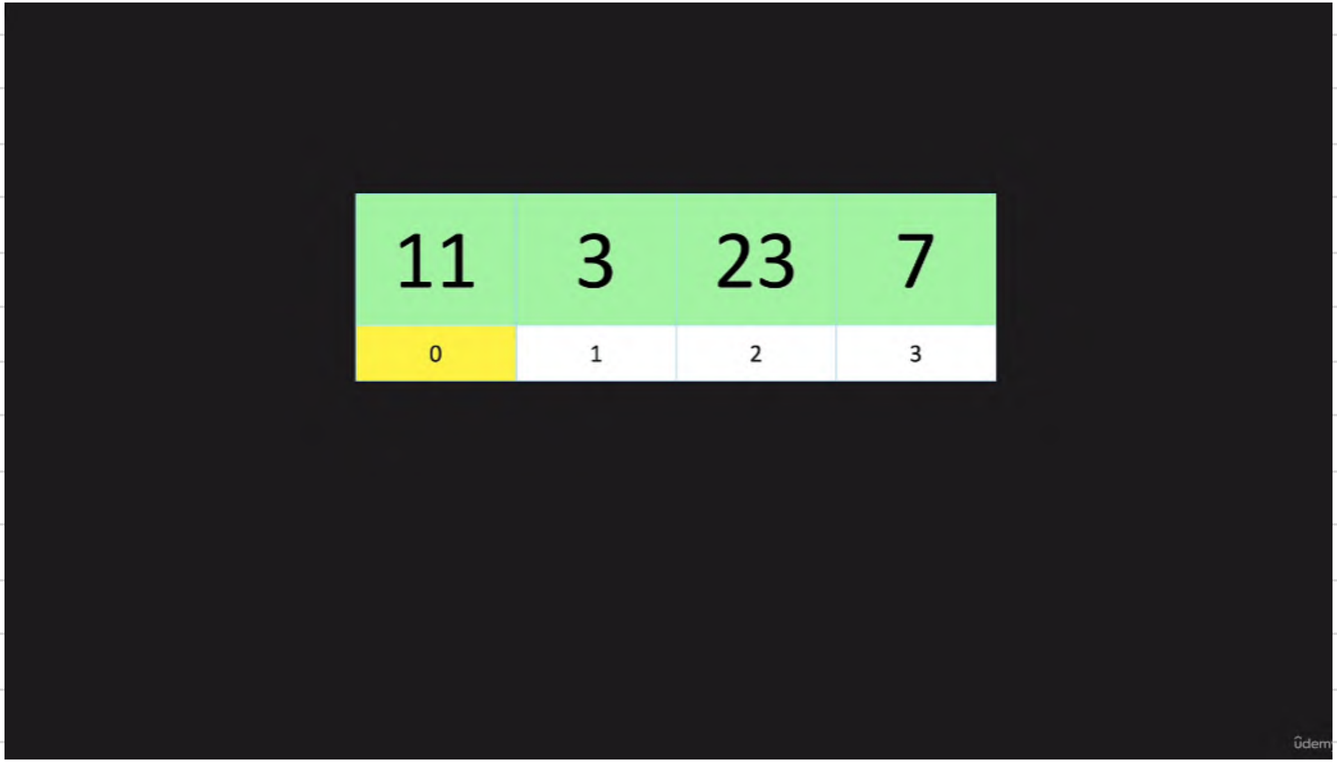

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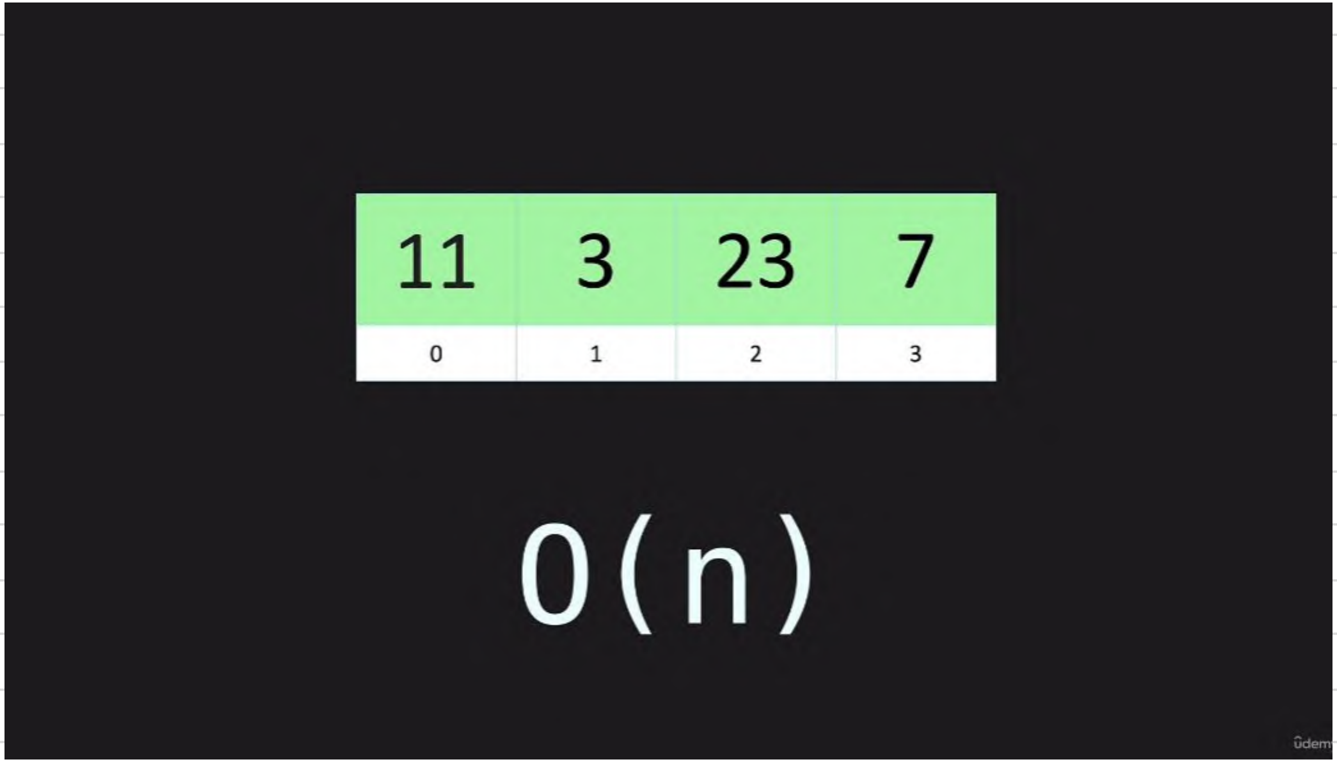

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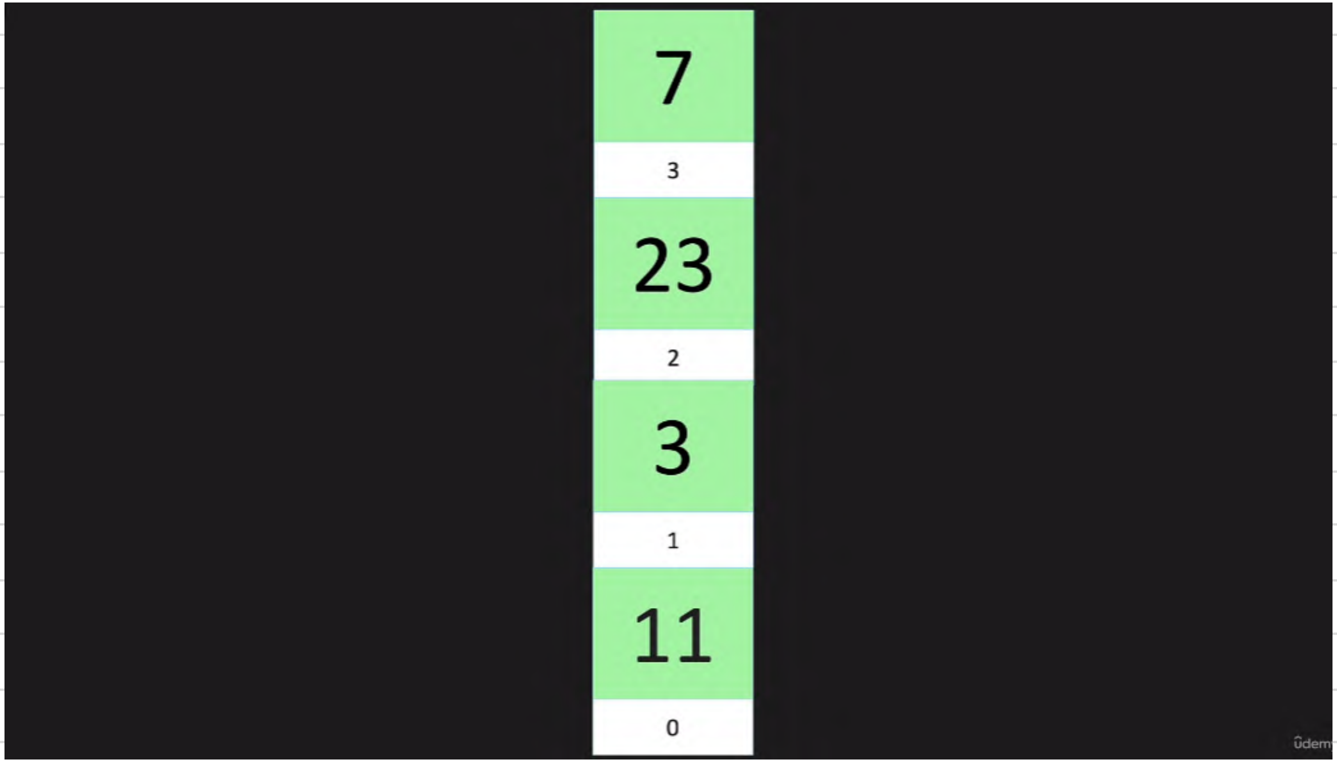
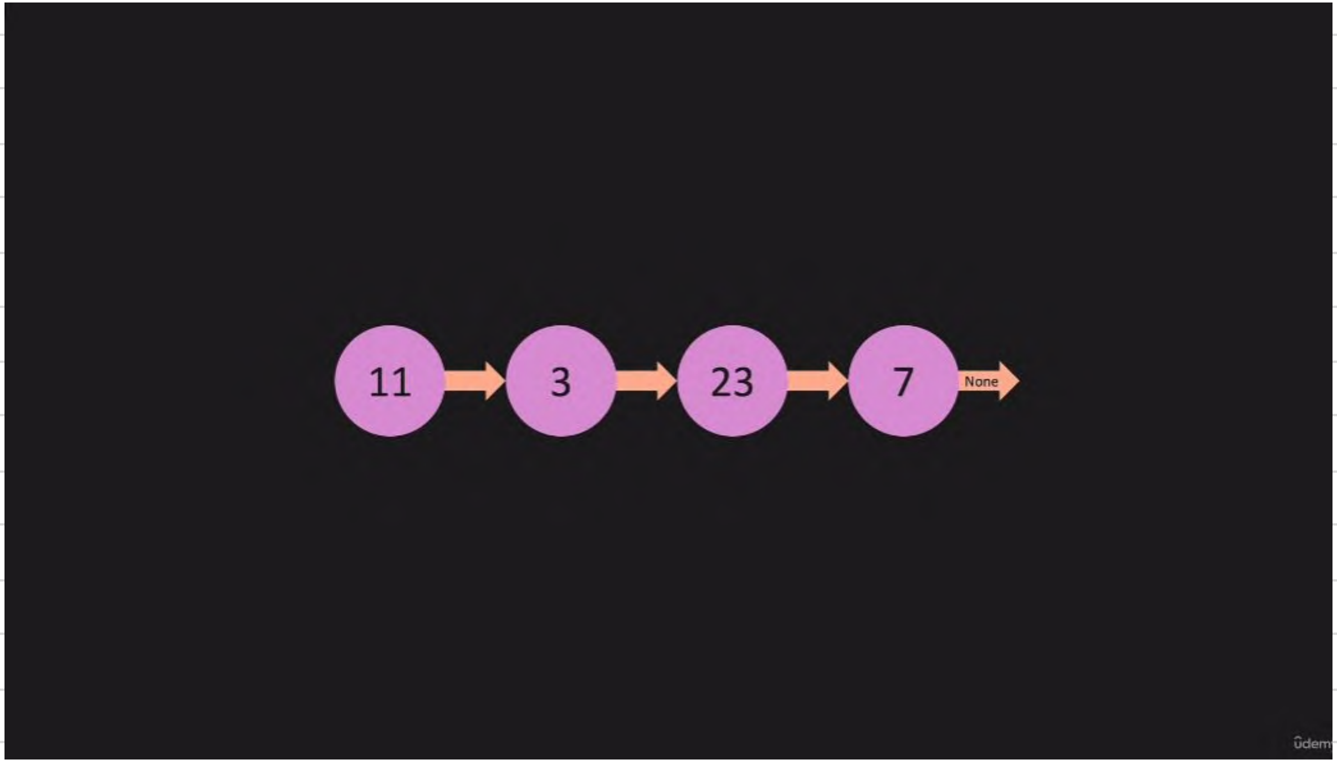


Stack



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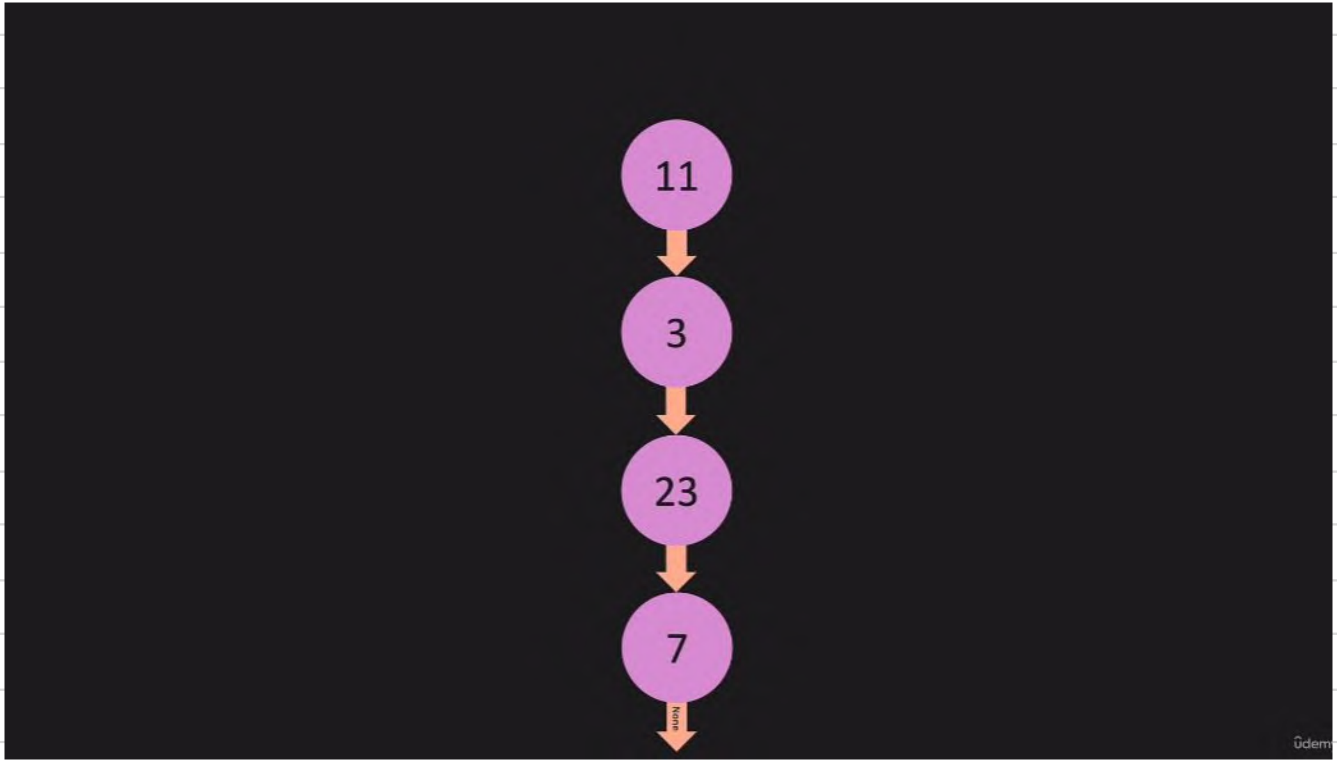

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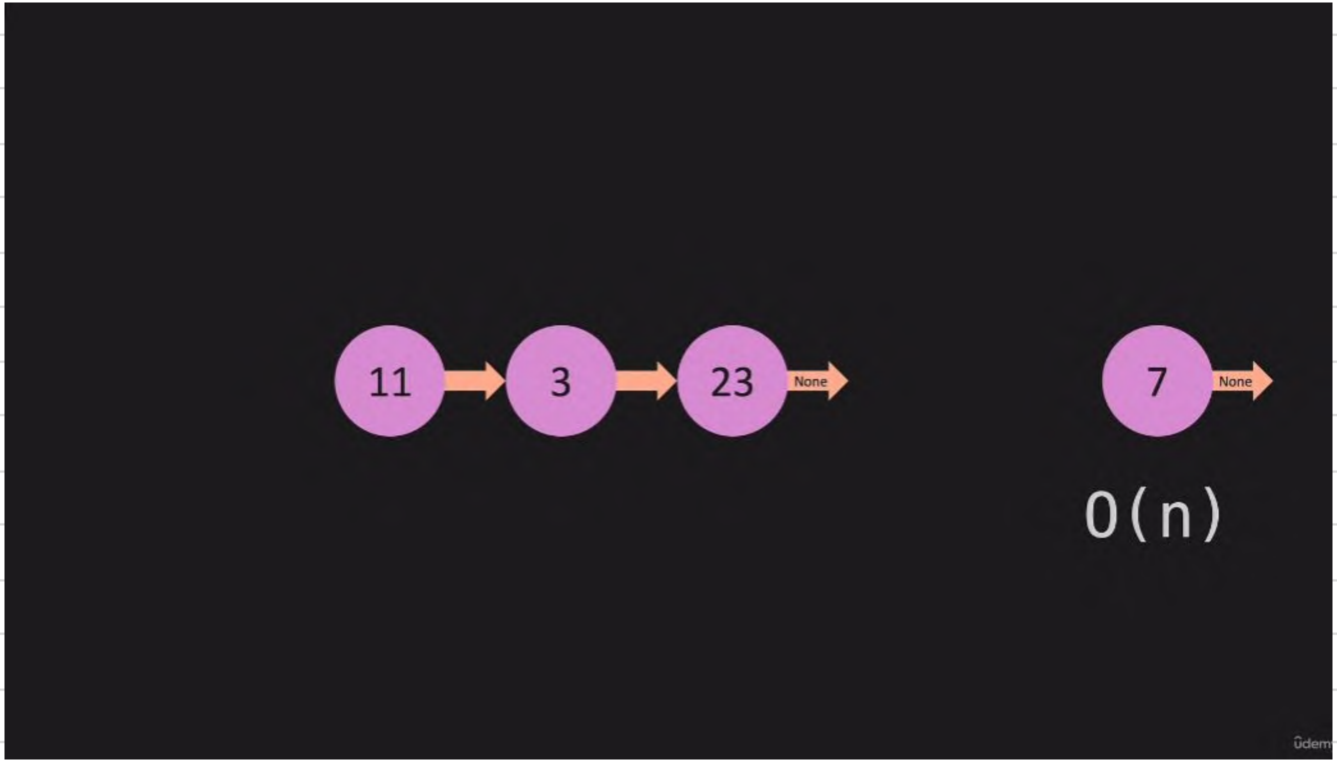

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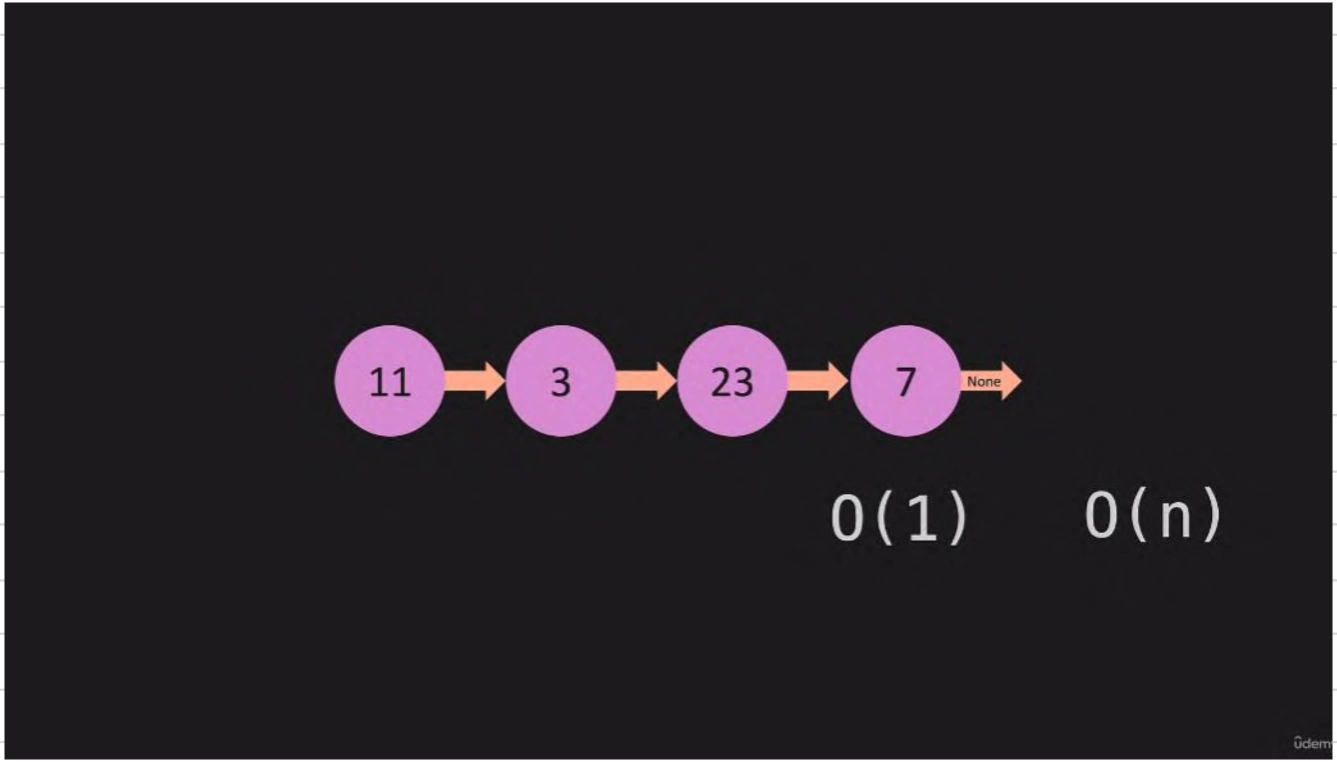

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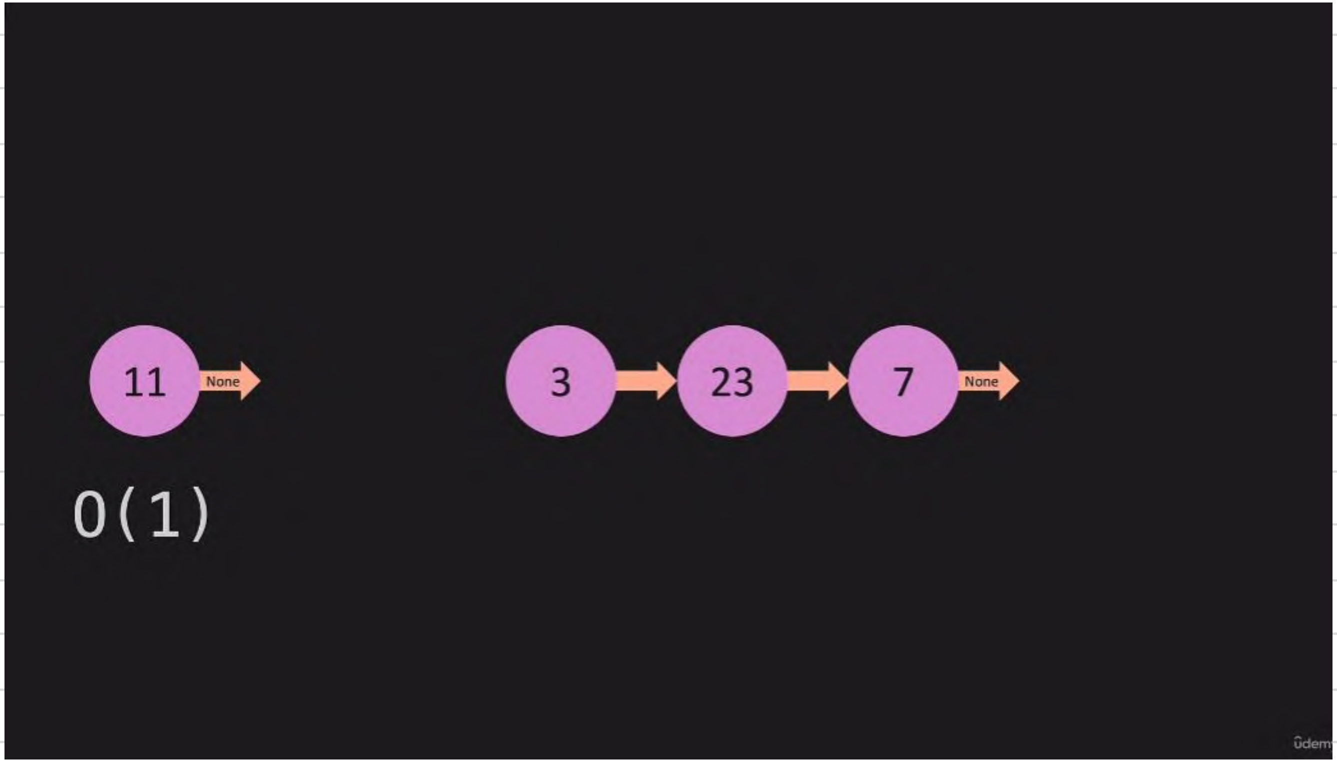

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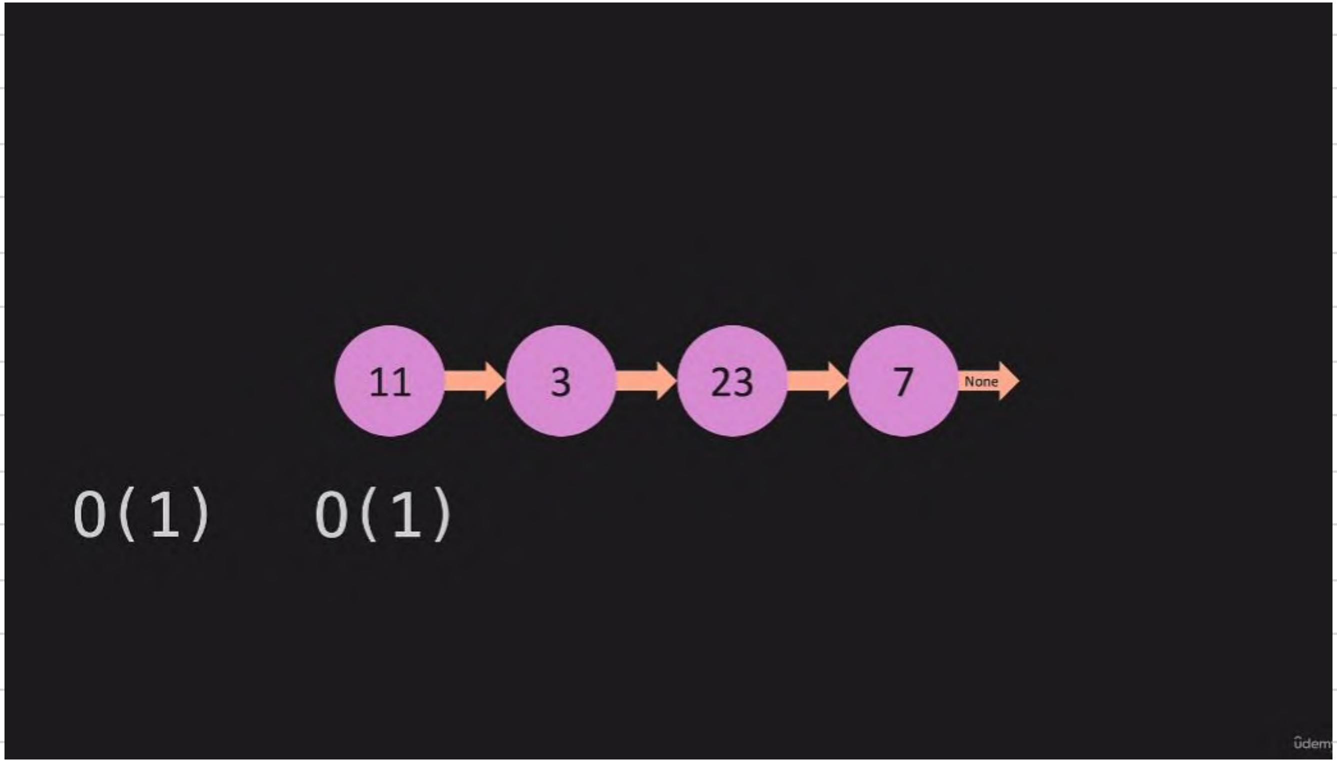

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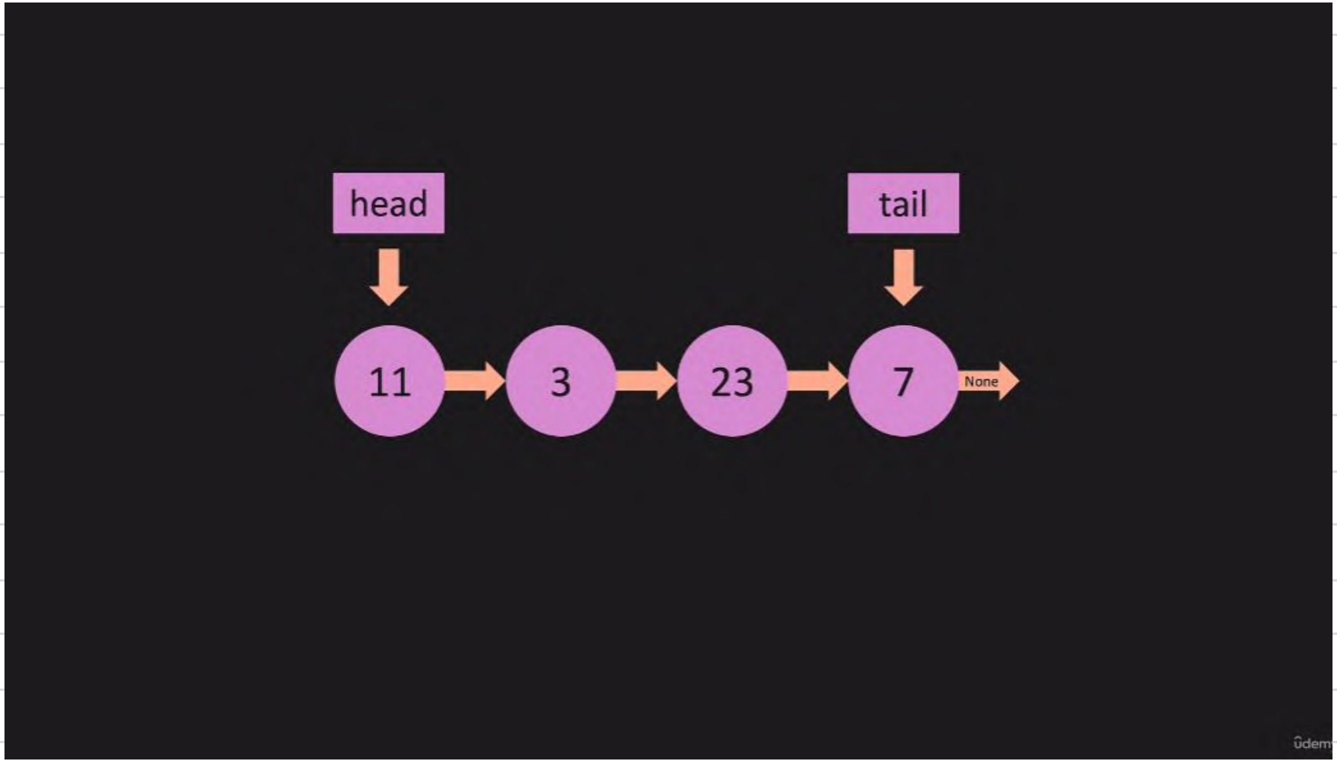

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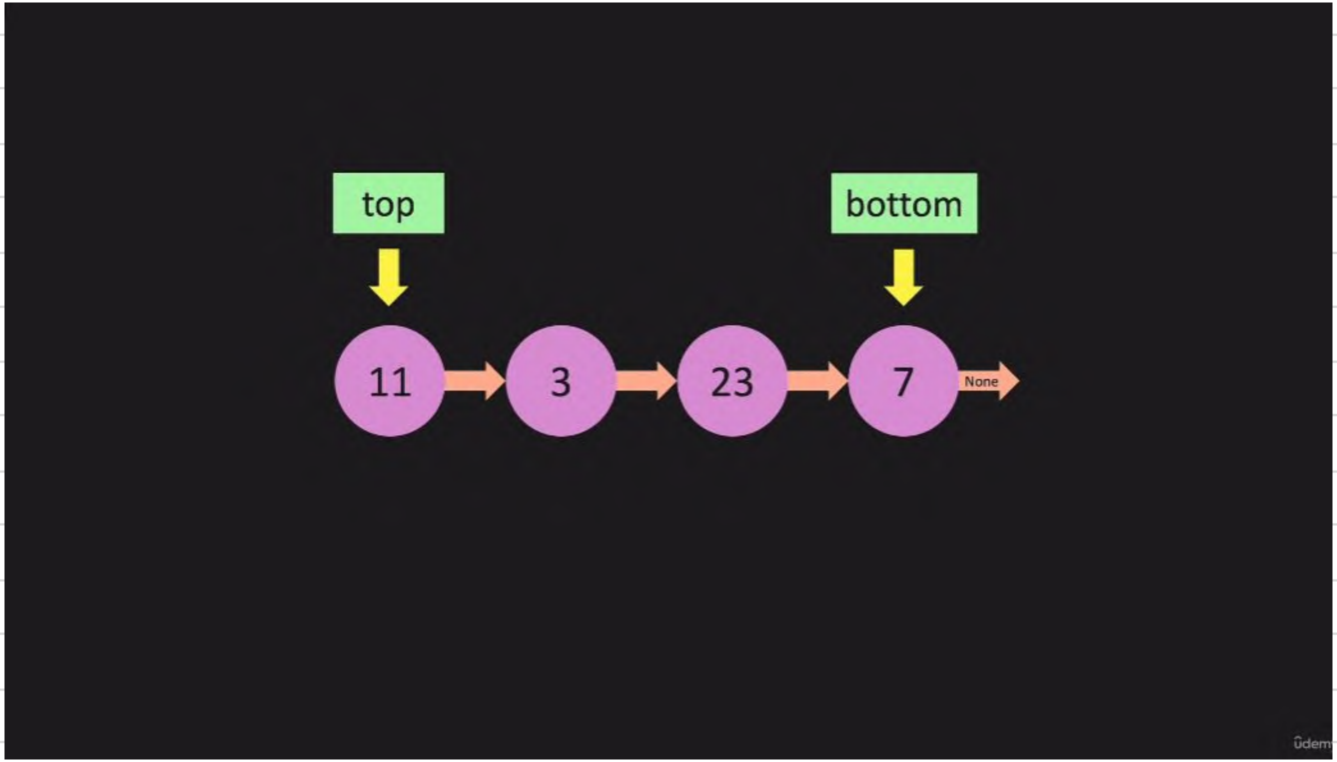
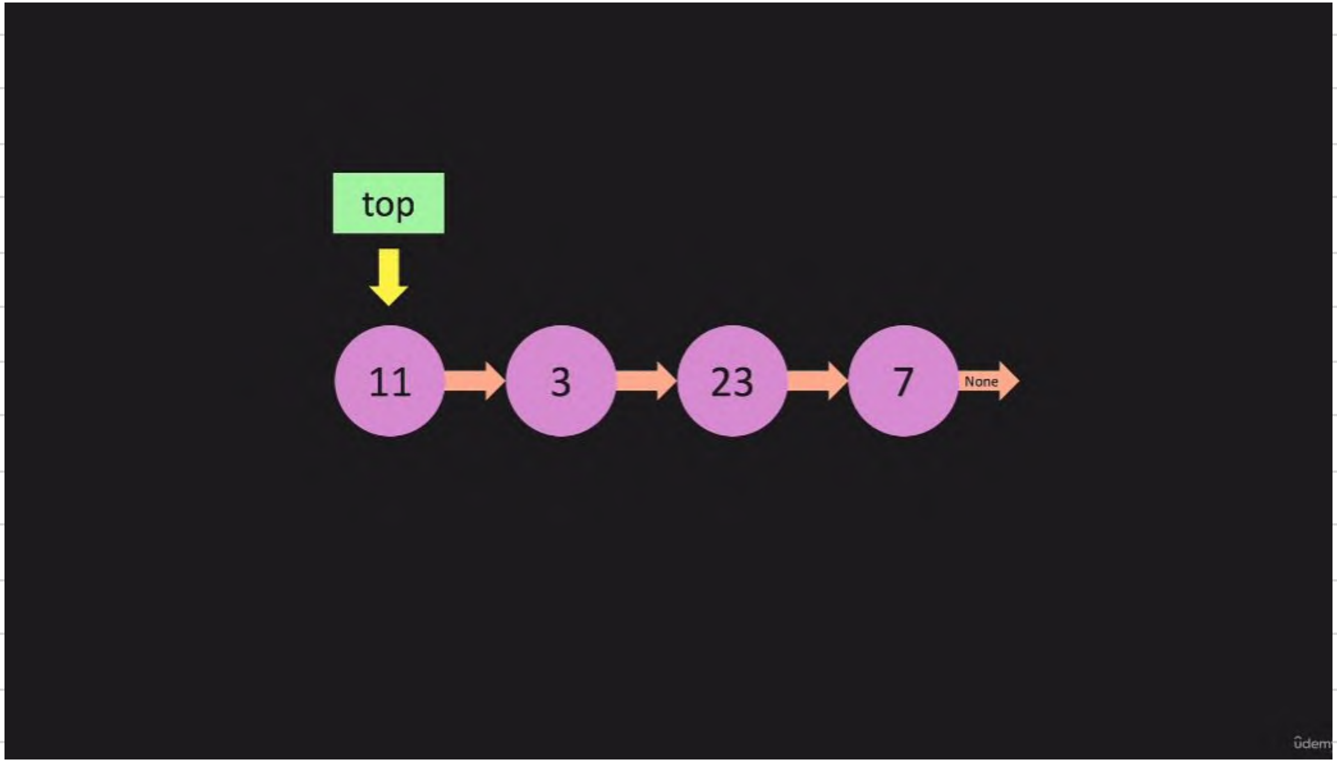
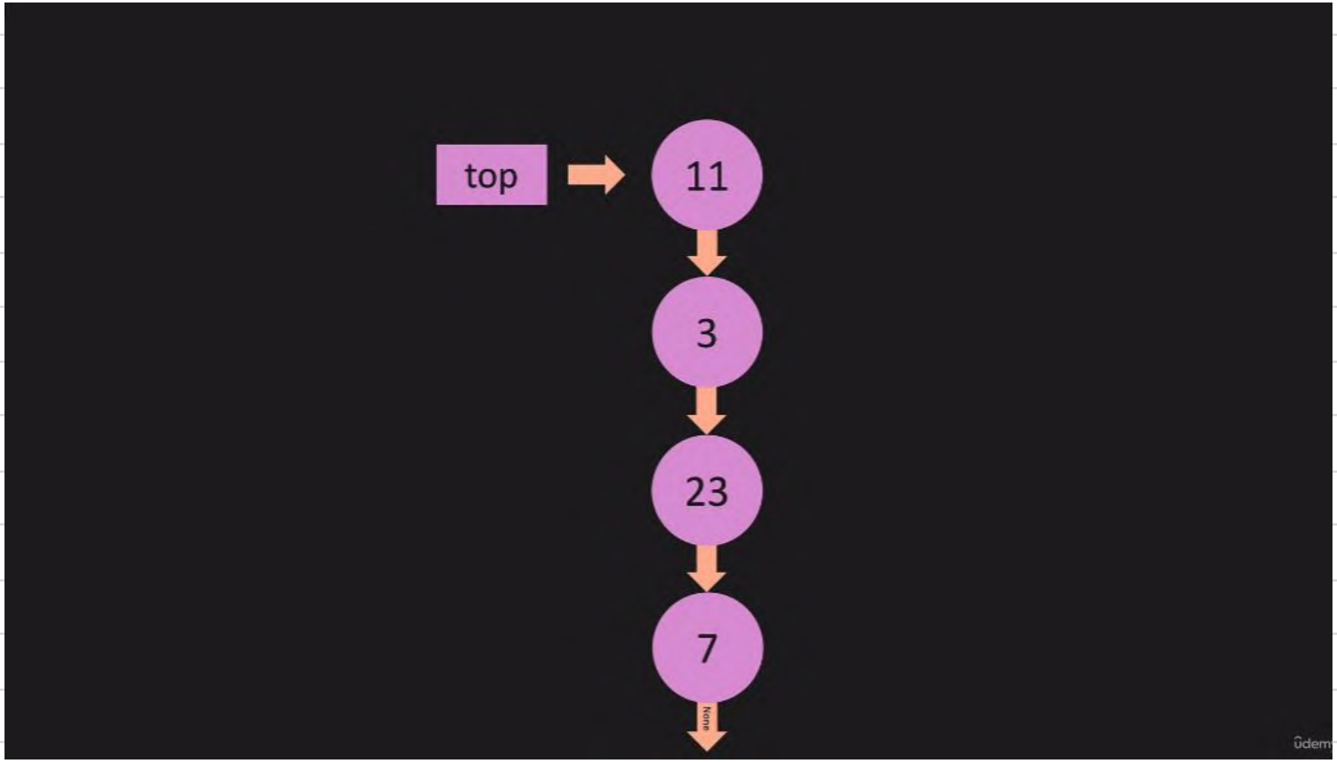


Stack



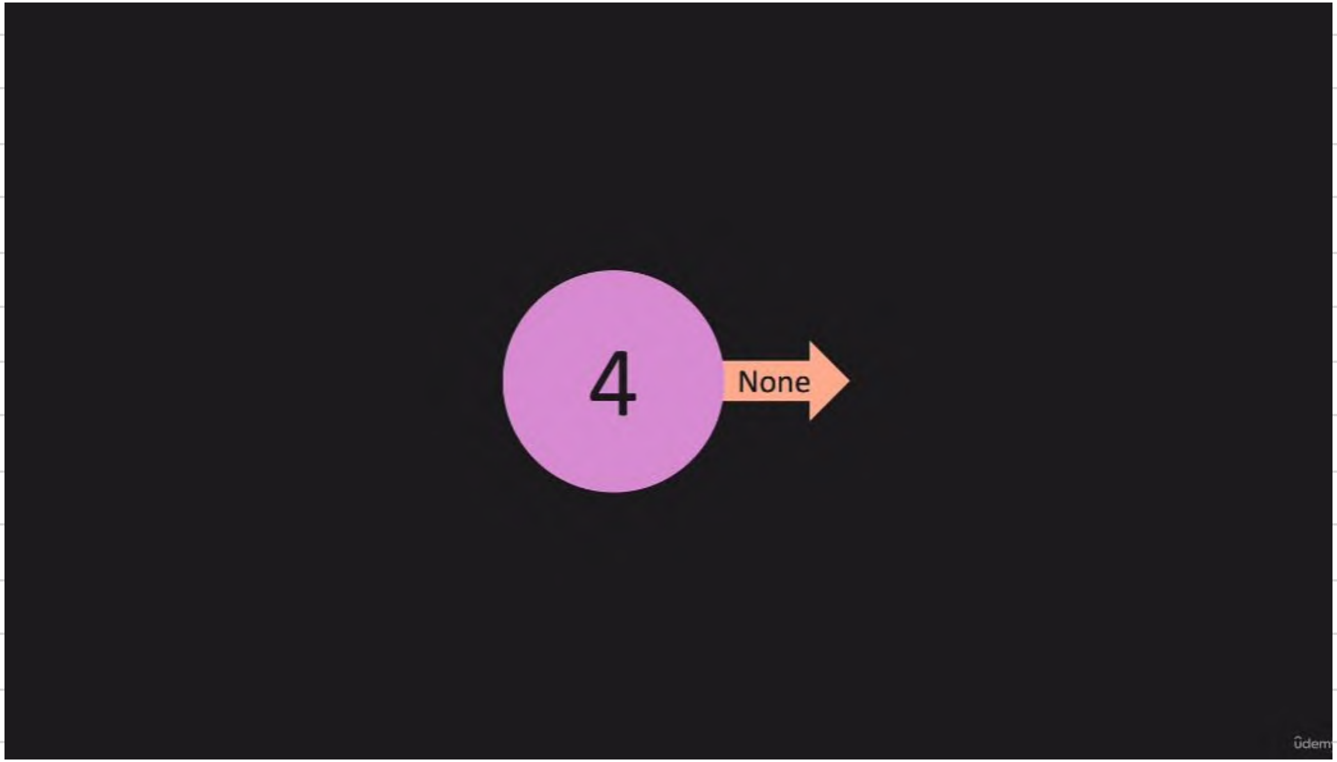
Stack



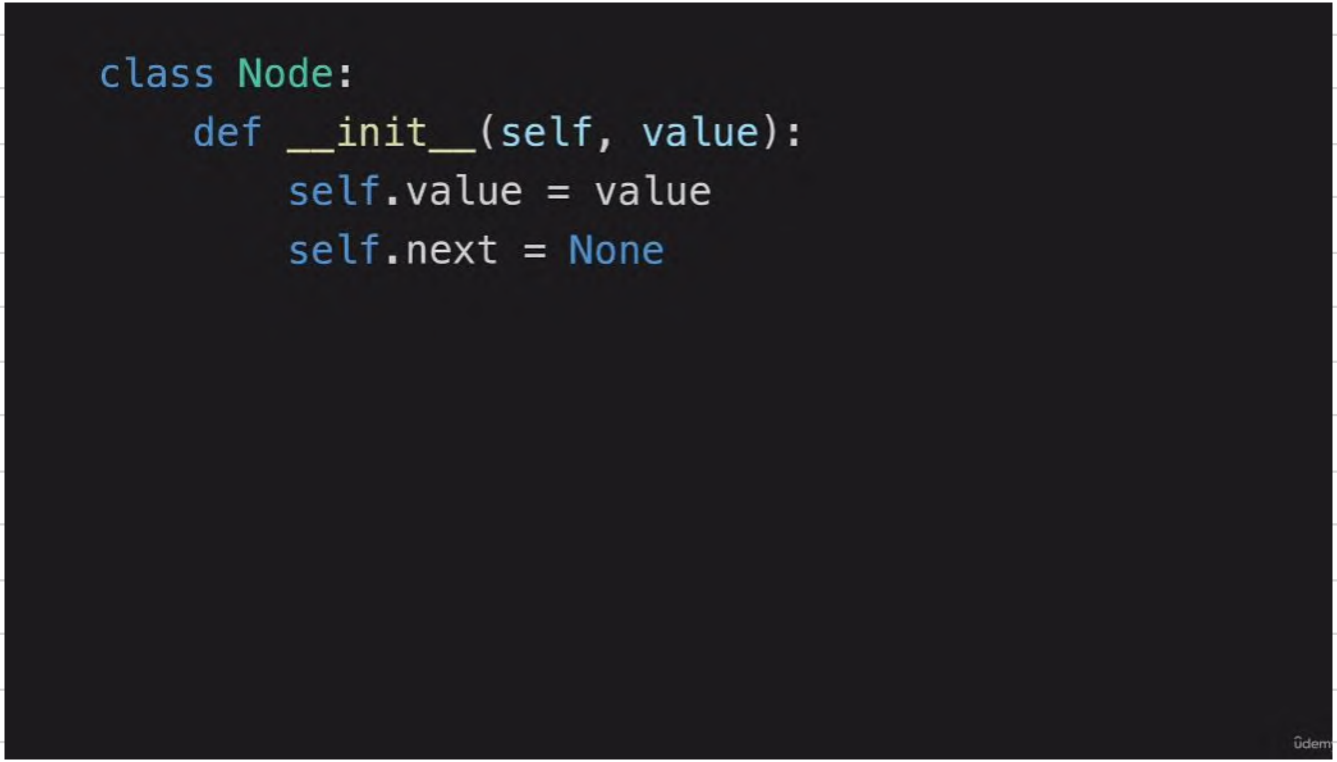
02

Stack Constructor

Stack : Constructor

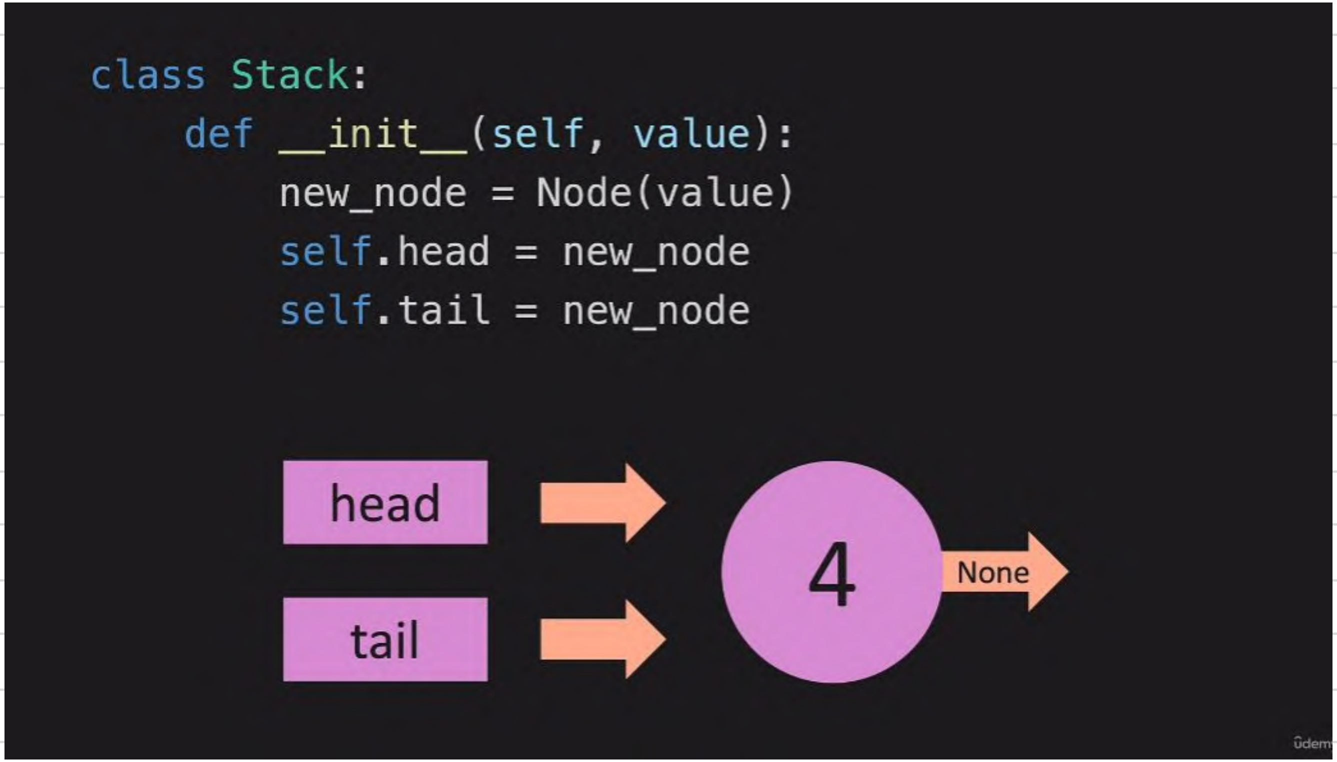


Stack : Constructor



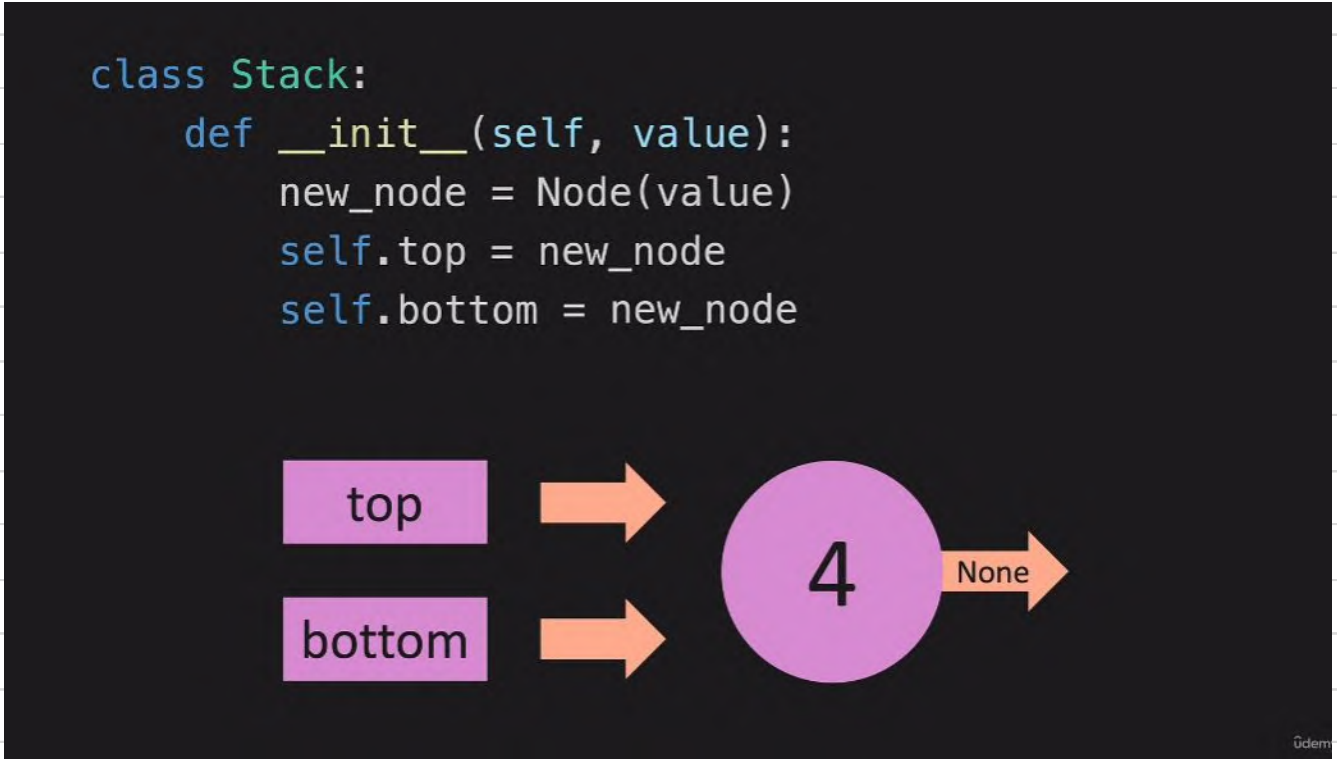
```python
class Node:
    def __init__(self, value):
        self.value = value
        self.next = None
```

Stack : Constructor



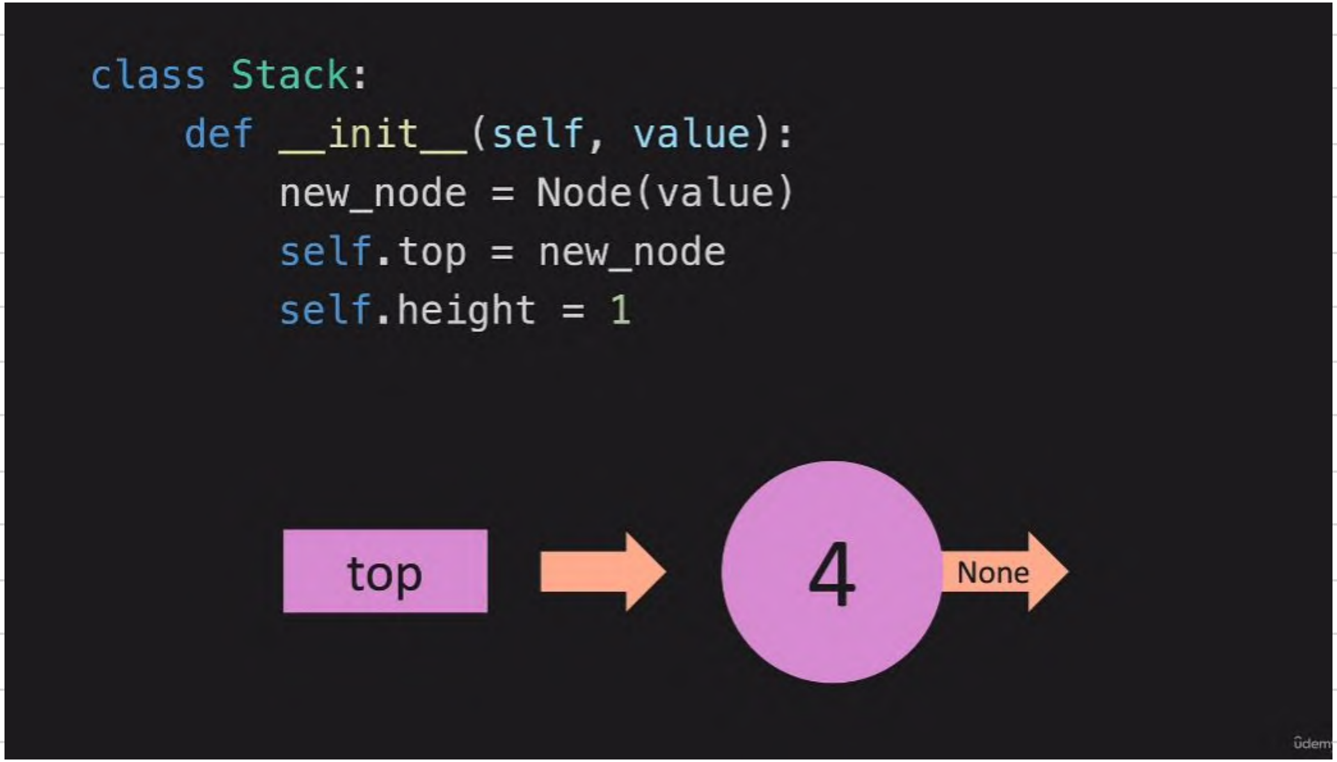
```
class Stack:
    def __init__(self, value):
        new_node = Node(value)
        self.head = new_node
        self.tail = new_node
```

Stack : Constructor



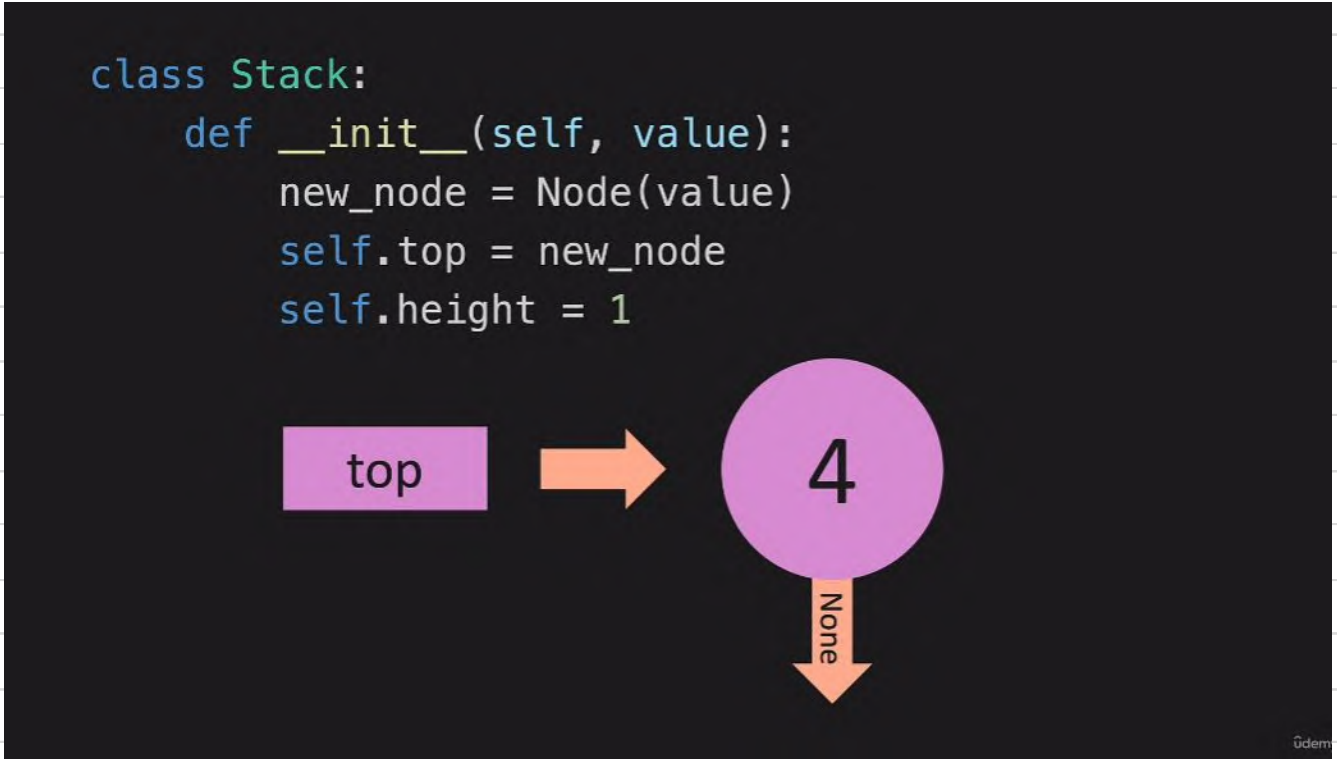
```
class Stack:
    def __init__(self, value):
        new_node = Node(value)
        self.top = new_node
        self.bottom = new_node
```

Stack : Constructor



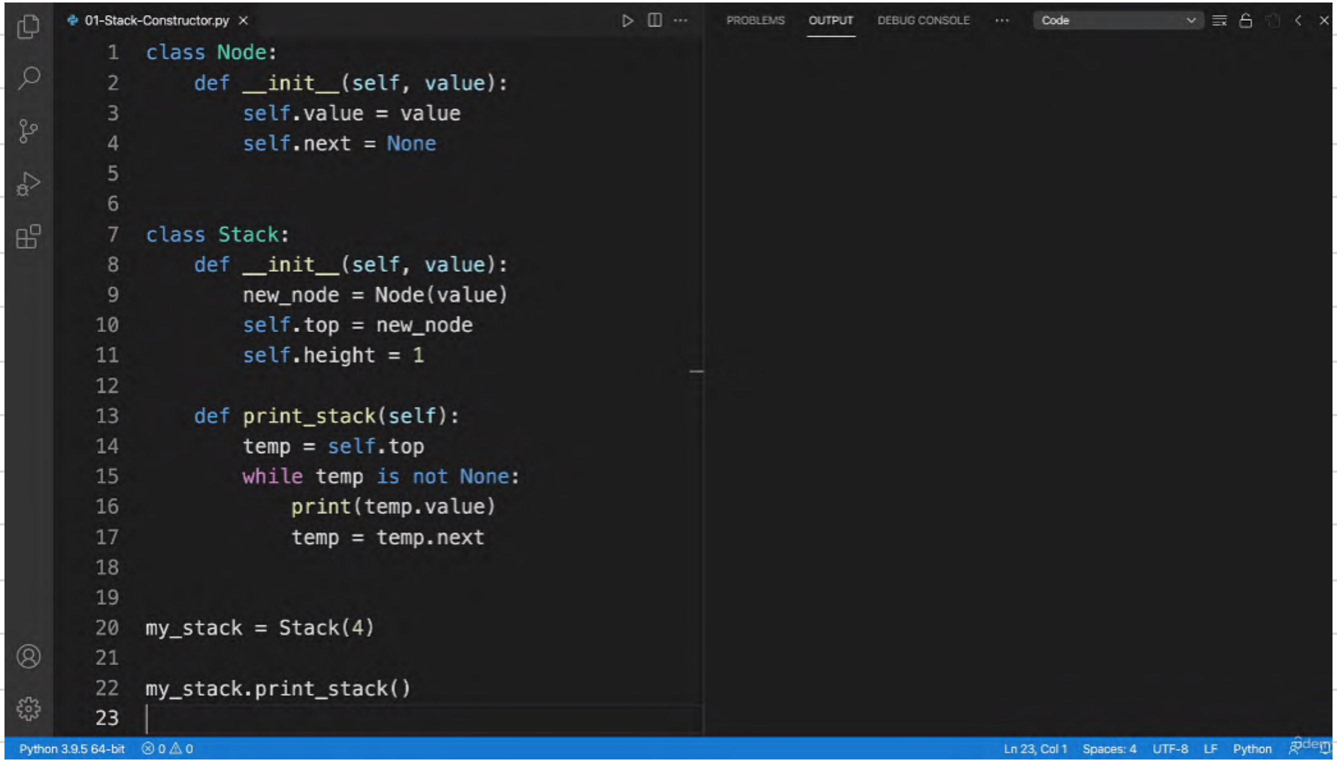
```
class Stack:
    def __init__(self, value):
        new_node = Node(value)
        self.top = new_node
        self.height = 1
```

Stack : Constructor



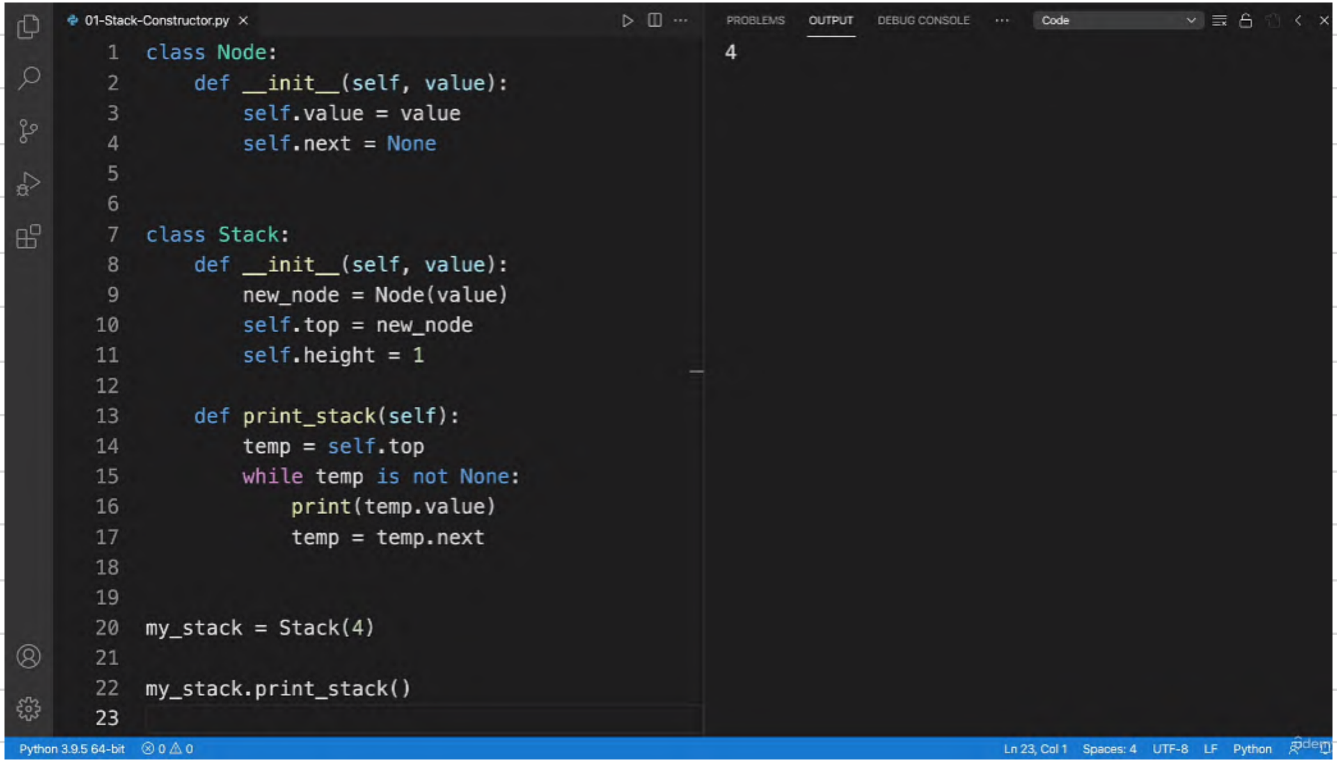
```
class Stack:
    def __init__(self, value):
        new_node = Node(value)
        self.top = new_node
        self.height = 1
```

Stack : Constructor


01-Stack-Constructor.py

```python
class Node:
    def __init__(self, value):
        self.value = value
        self.next = None


class Stack:
    def __init__(self, value):
        new_node = Node(value)
        self.top = new_node
        self.height = 1

    def print_stack(self):
        temp = self.top
        while temp is not None:
            print(temp.value)
            temp = temp.next


my_stack = Stack(4)

my_stack.print_stack()

```

Stack : Constructor



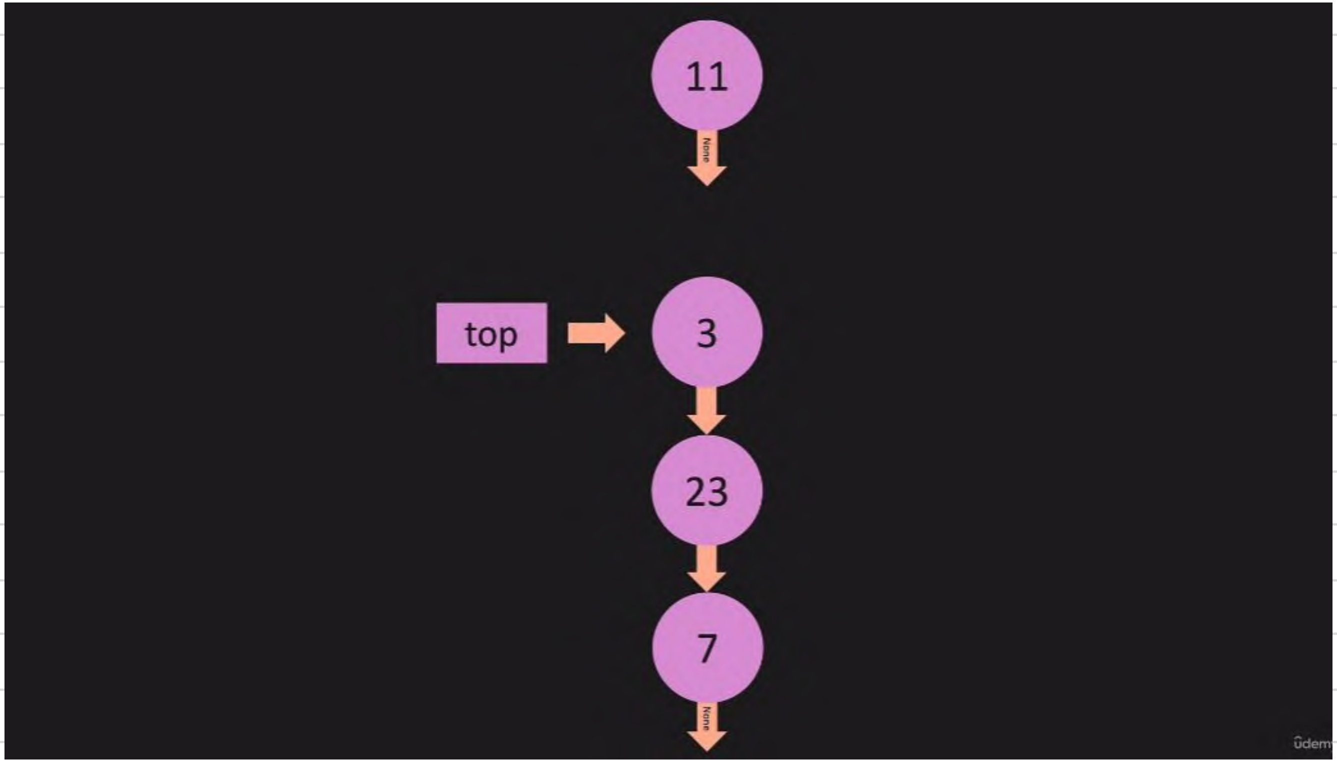
```python
class Node:
    def __init__(self, value):
        self.value = value
        self.next = None


class Stack:
    def __init__(self, value):
        new_node = Node(value)
        self.top = new_node
        self.height = 1

    def print_stack(self):
        temp = self.top
        while temp is not None:
            print(temp.value)
            temp = temp.next


my_stack = Stack(4)

my_stack.print_stack()

```

```
4
```

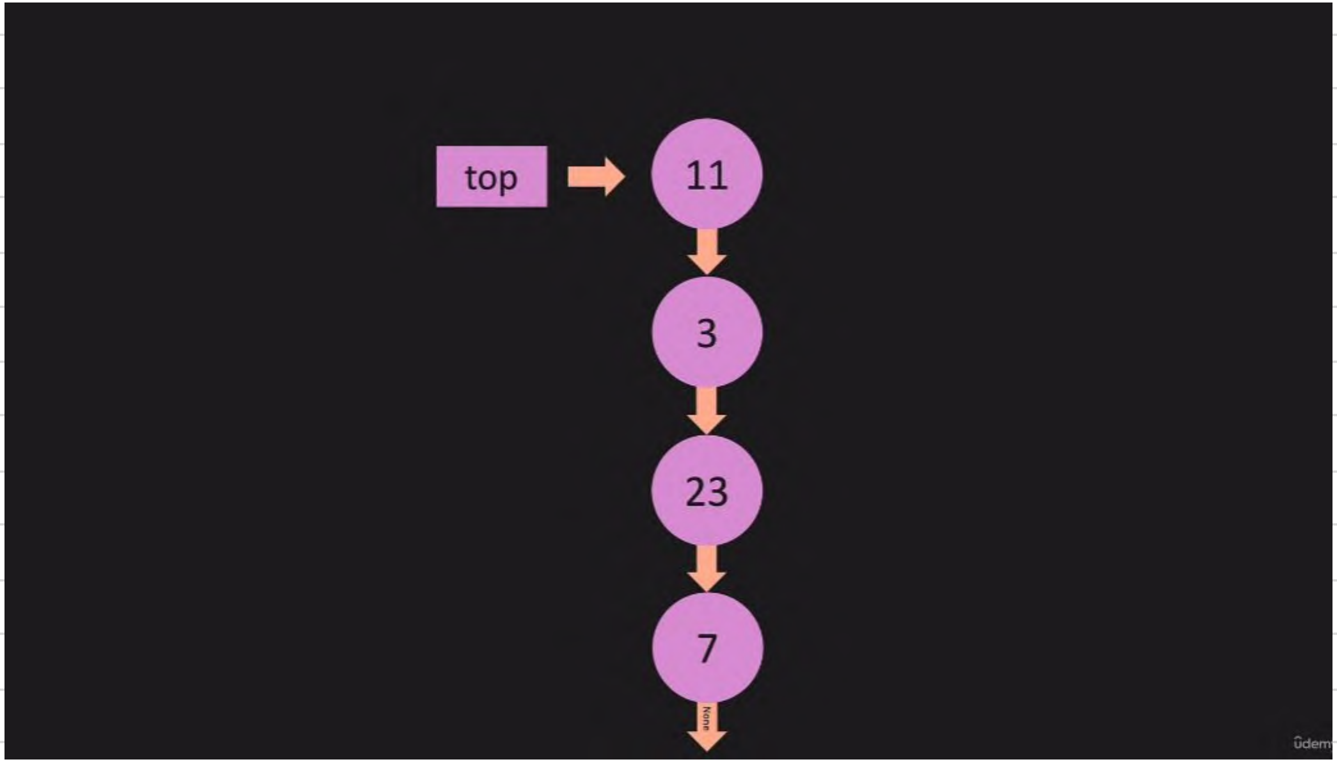
03

Stack Push

Stack : Push

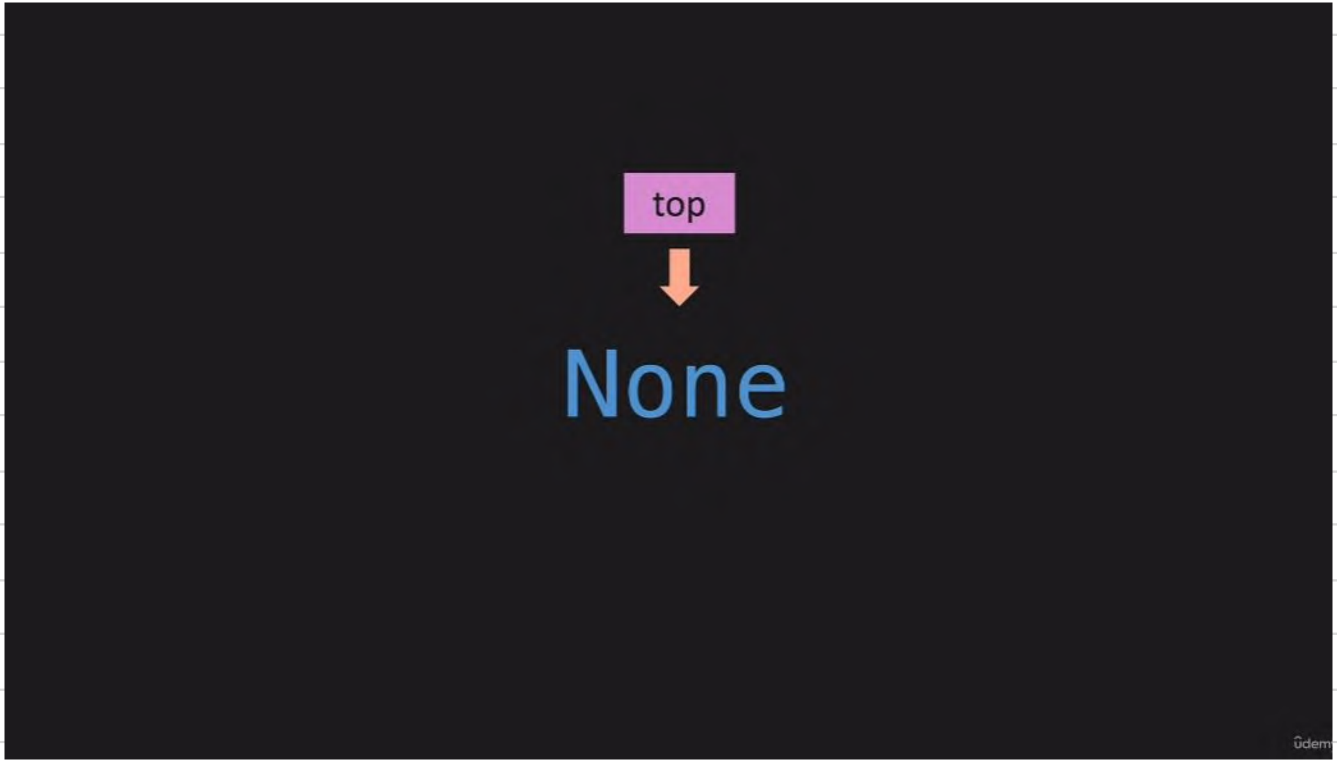


Stack : Push

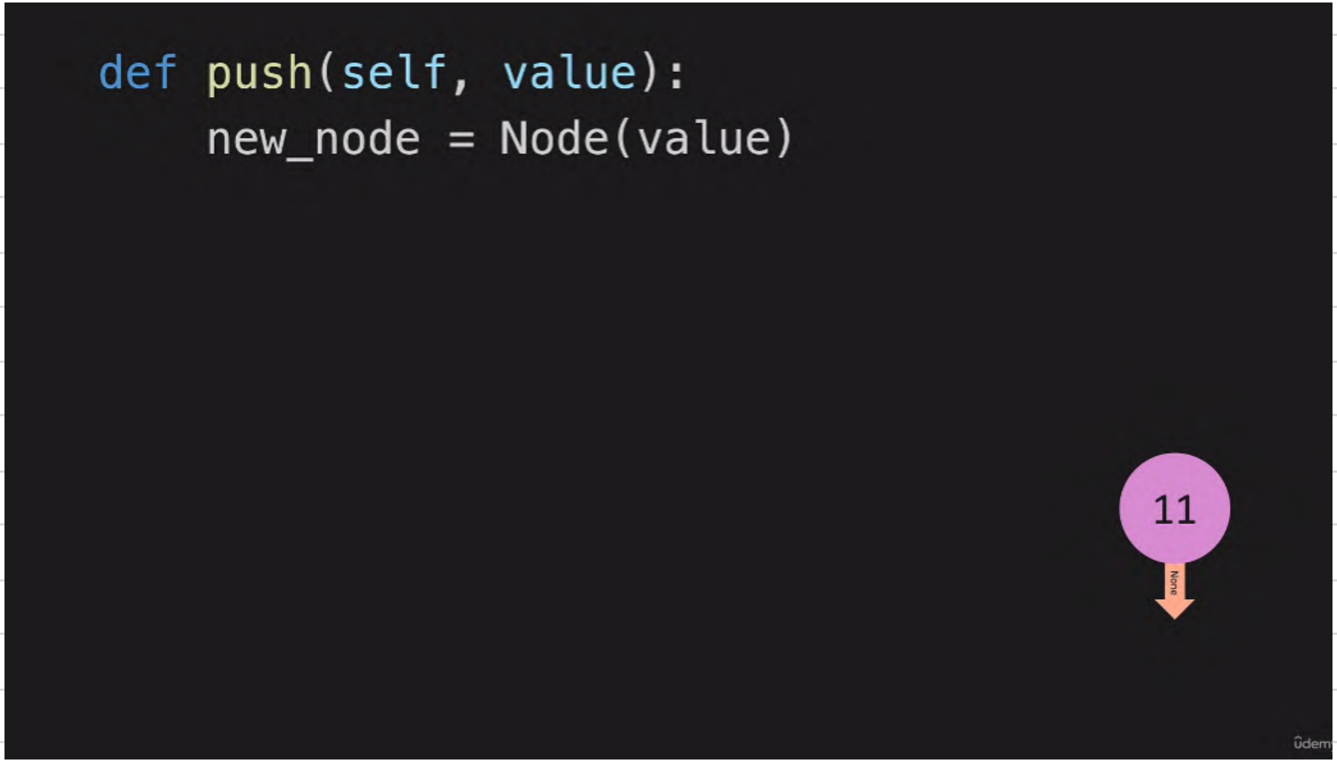


Edge Condition #1

Stack : Push

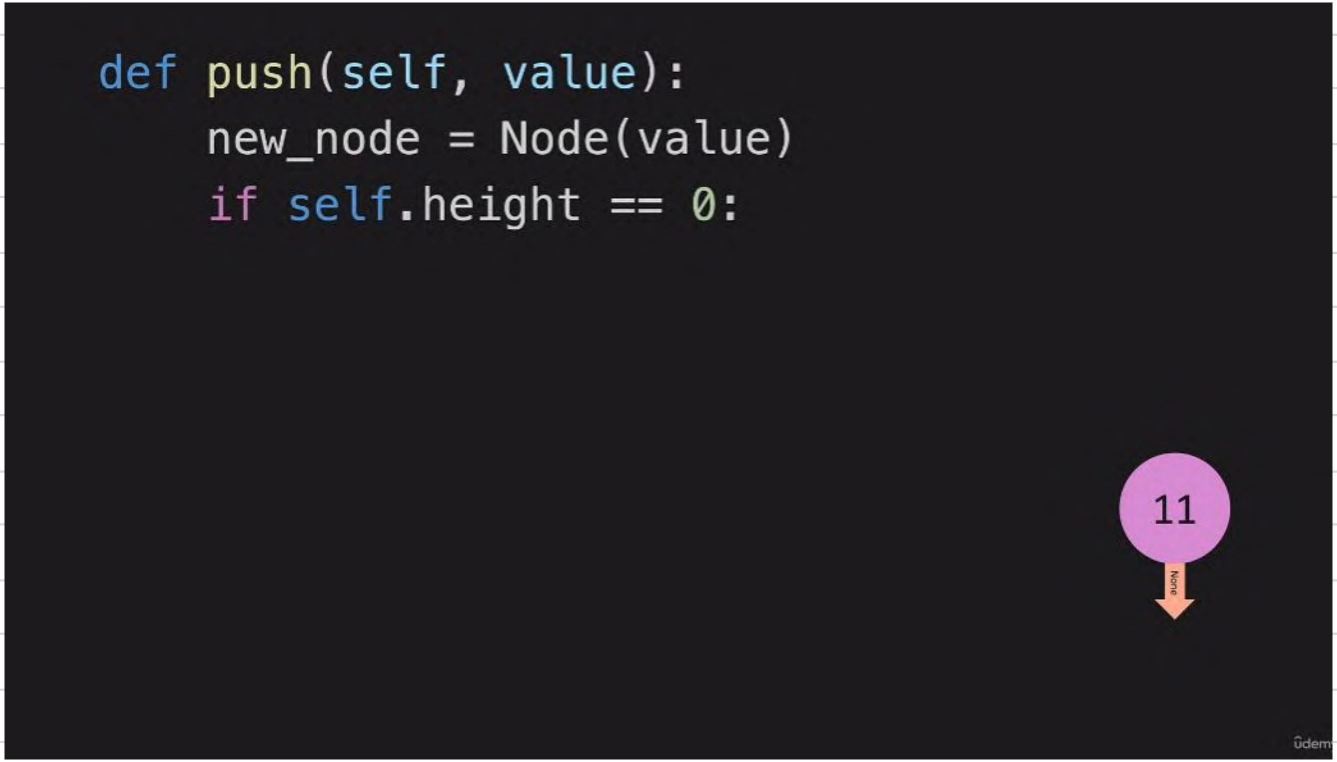


Stack : Push Code



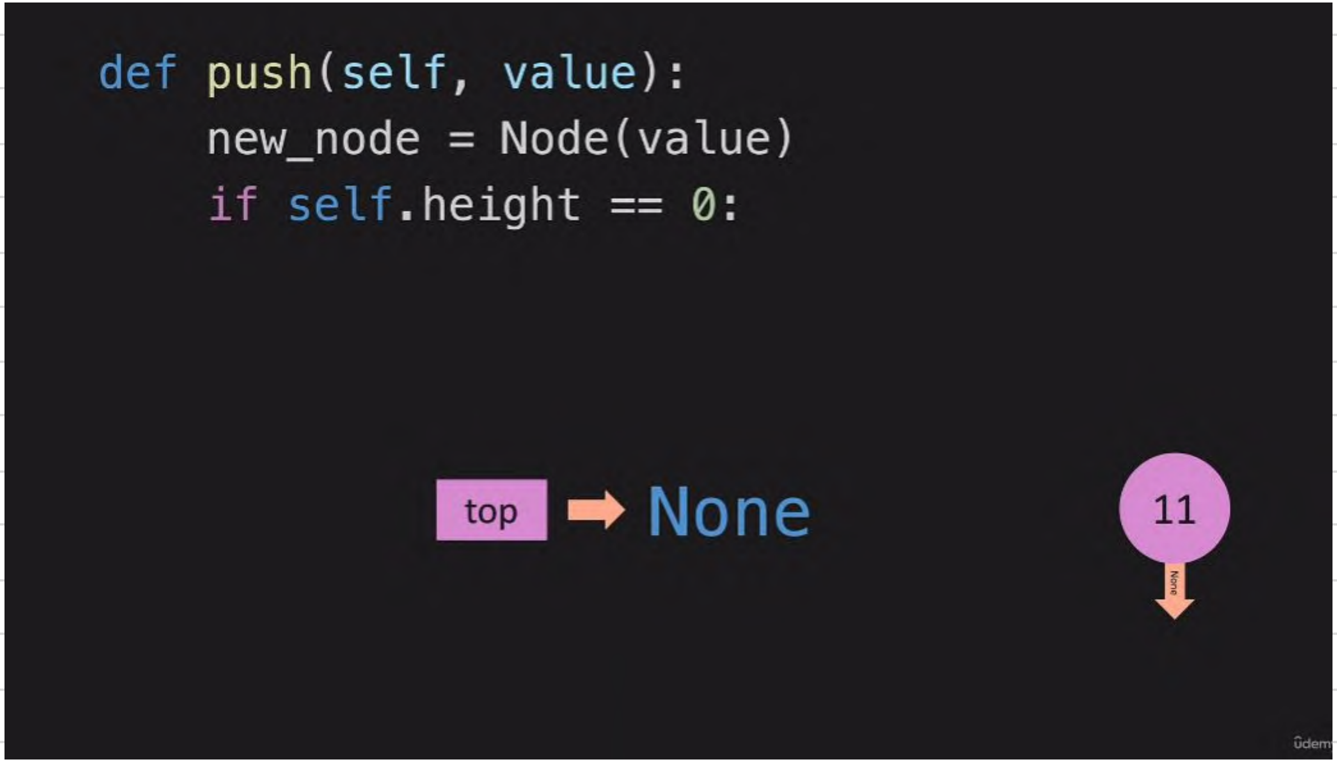
```
def push(self, value):
    new_node = Node(value)
```

Stack : Push Code



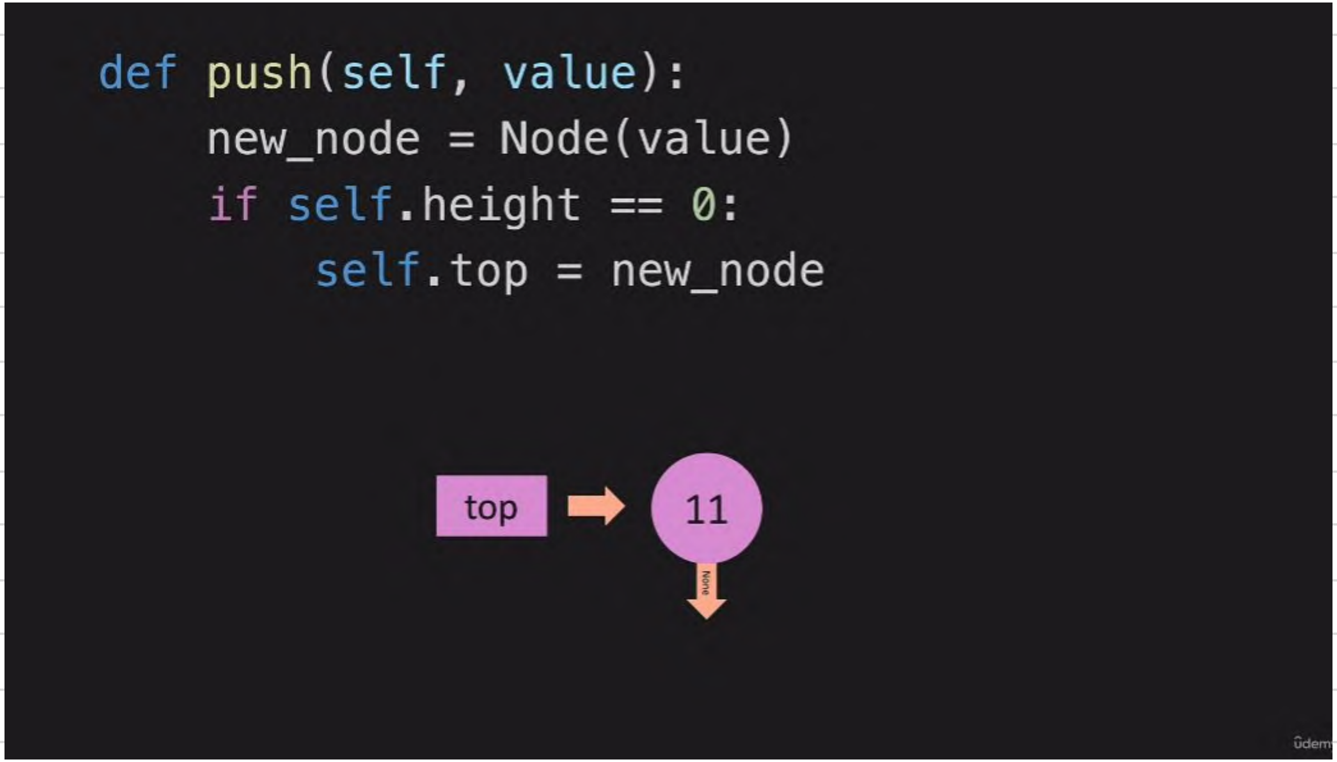
```
def push(self, value):
    new_node = Node(value)
    if self.height == 0:
```

Stack : Push Code



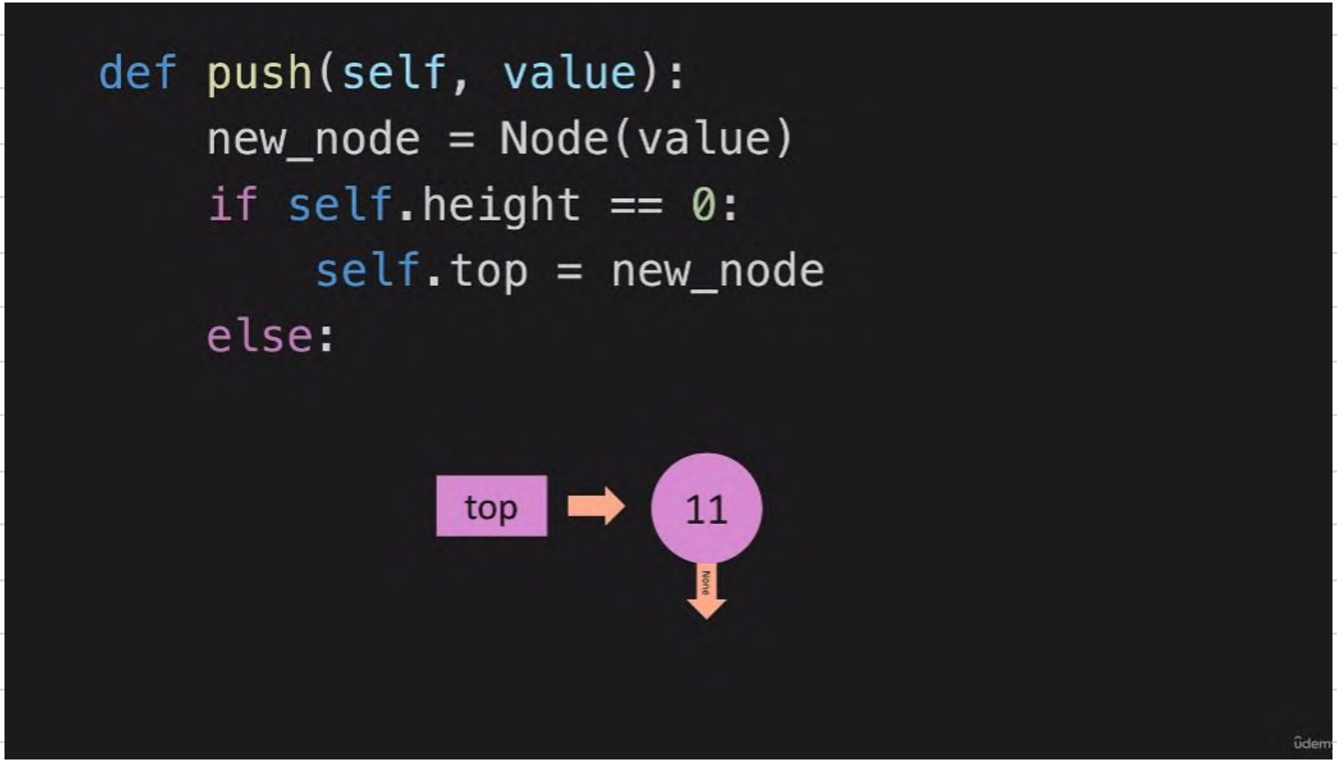
```
def push(self, value):
    new_node = Node(value)
    if self.height == 0:
```

Stack : Push Code



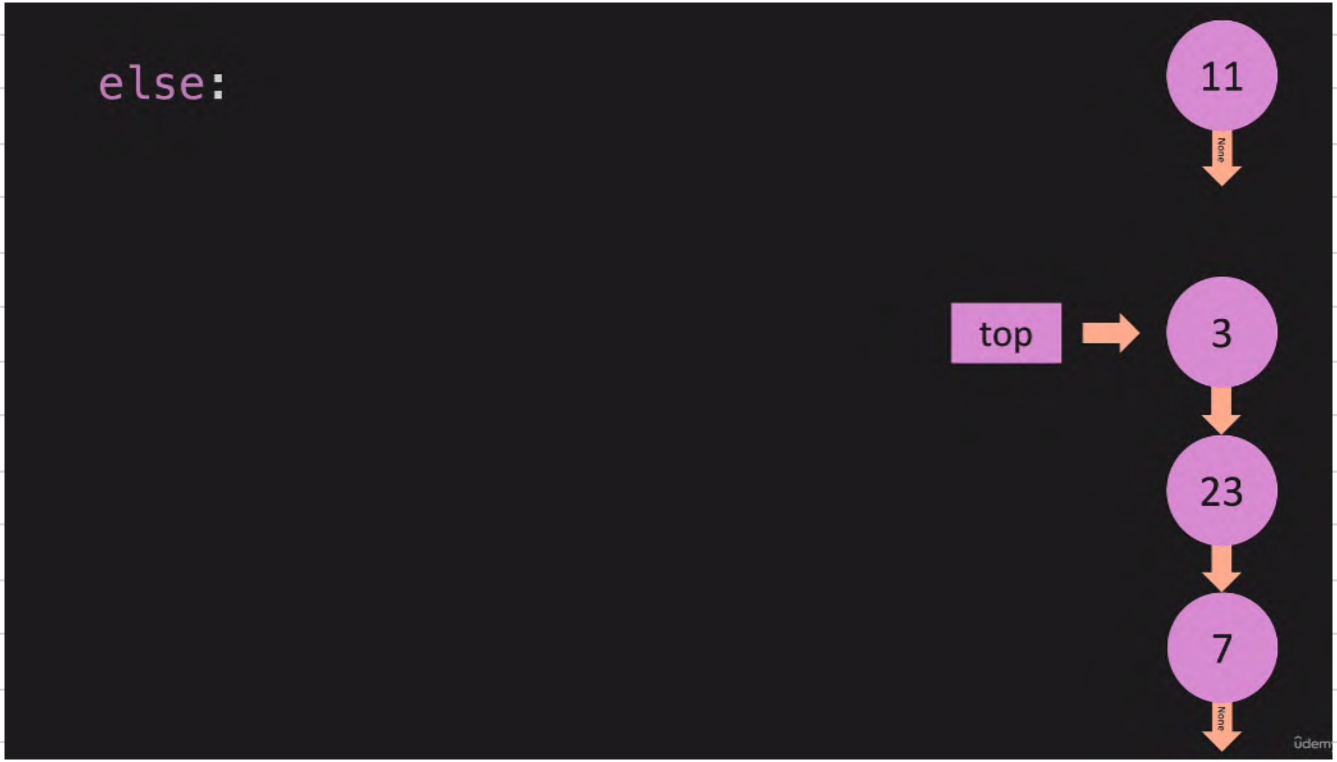
```
def push(self, value):
    new_node = Node(value)
    if self.height == 0:
        self.top = new_node
```

Stack : Push Code



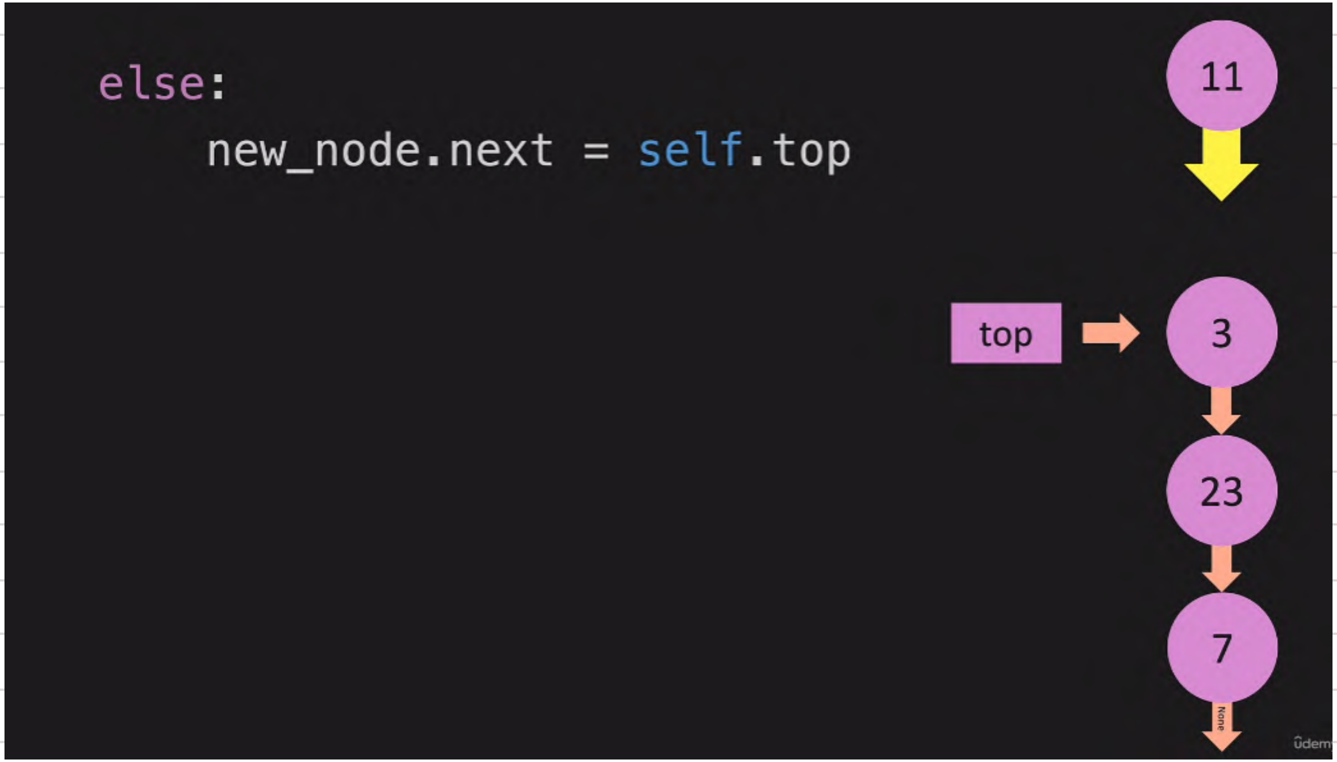
```
def push(self, value):
    new_node = Node(value)
    if self.height == 0:
        self.top = new_node
    else:
```

Stack : Push Code



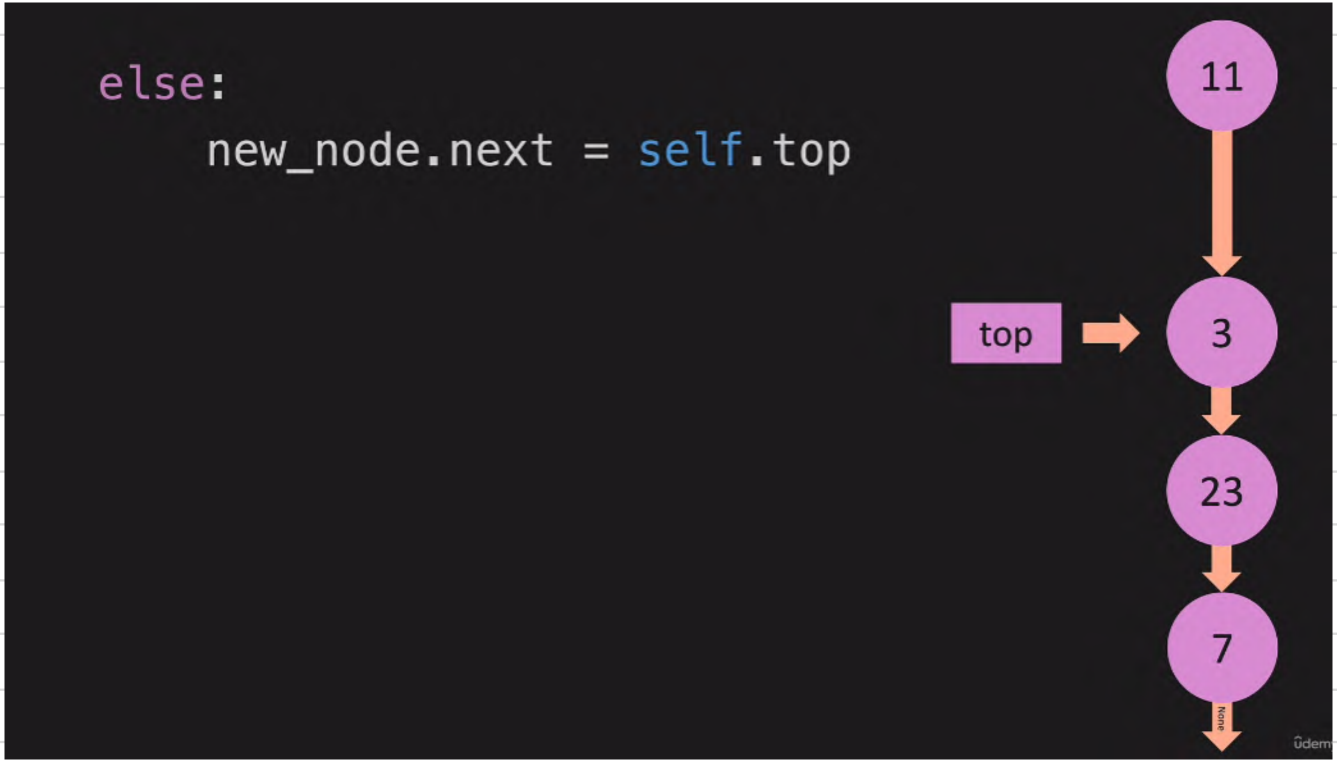
```
else:
```

Stack : Push Code



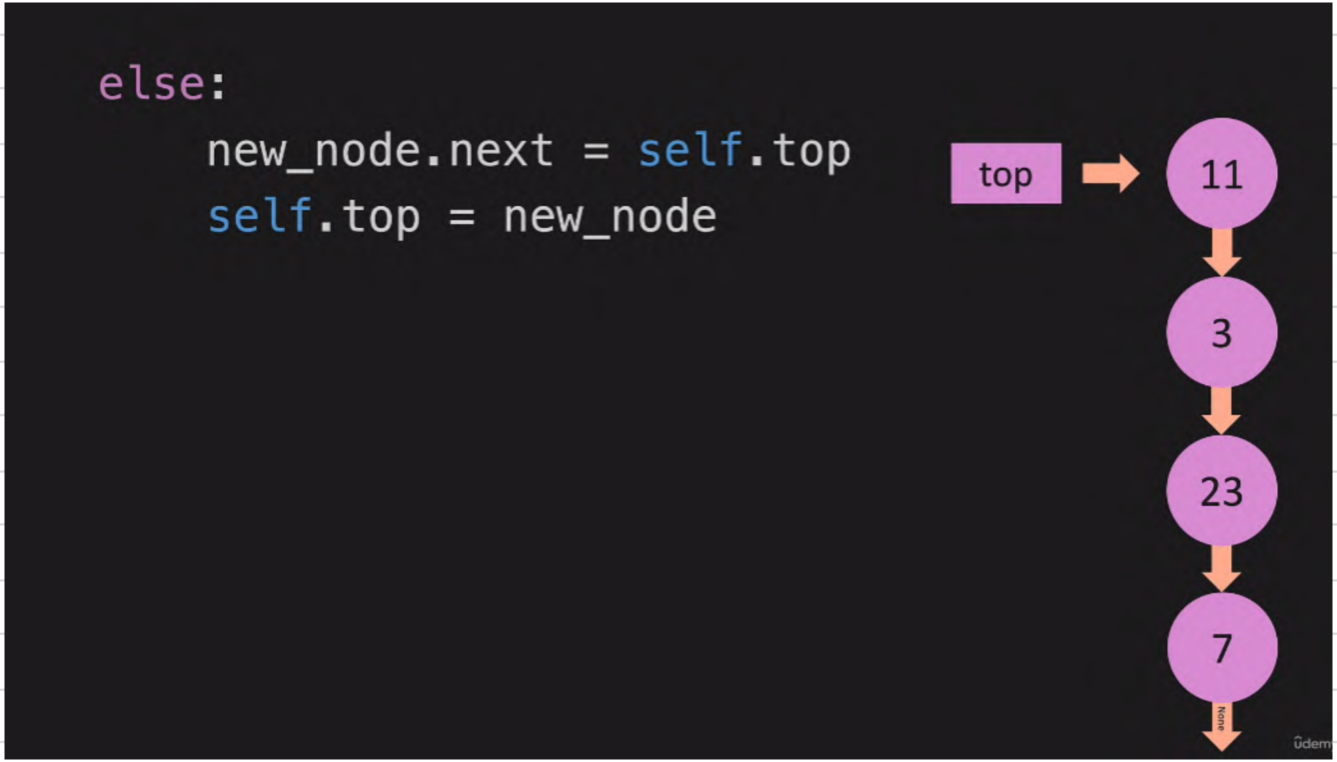
```
else:
    new_node.next = self.top
```

Stack : Push Code



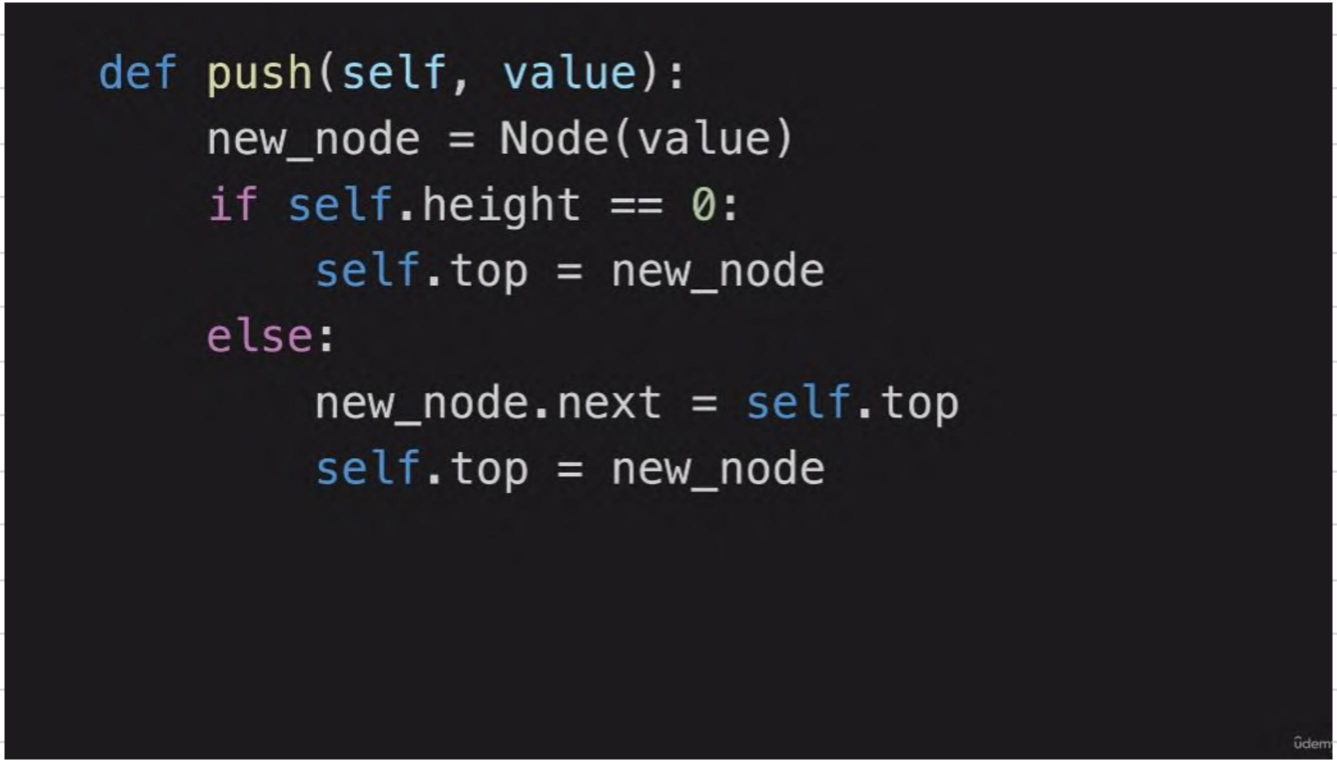
```python
else:
    new_node.next = self.top
```

Stack : Push Code



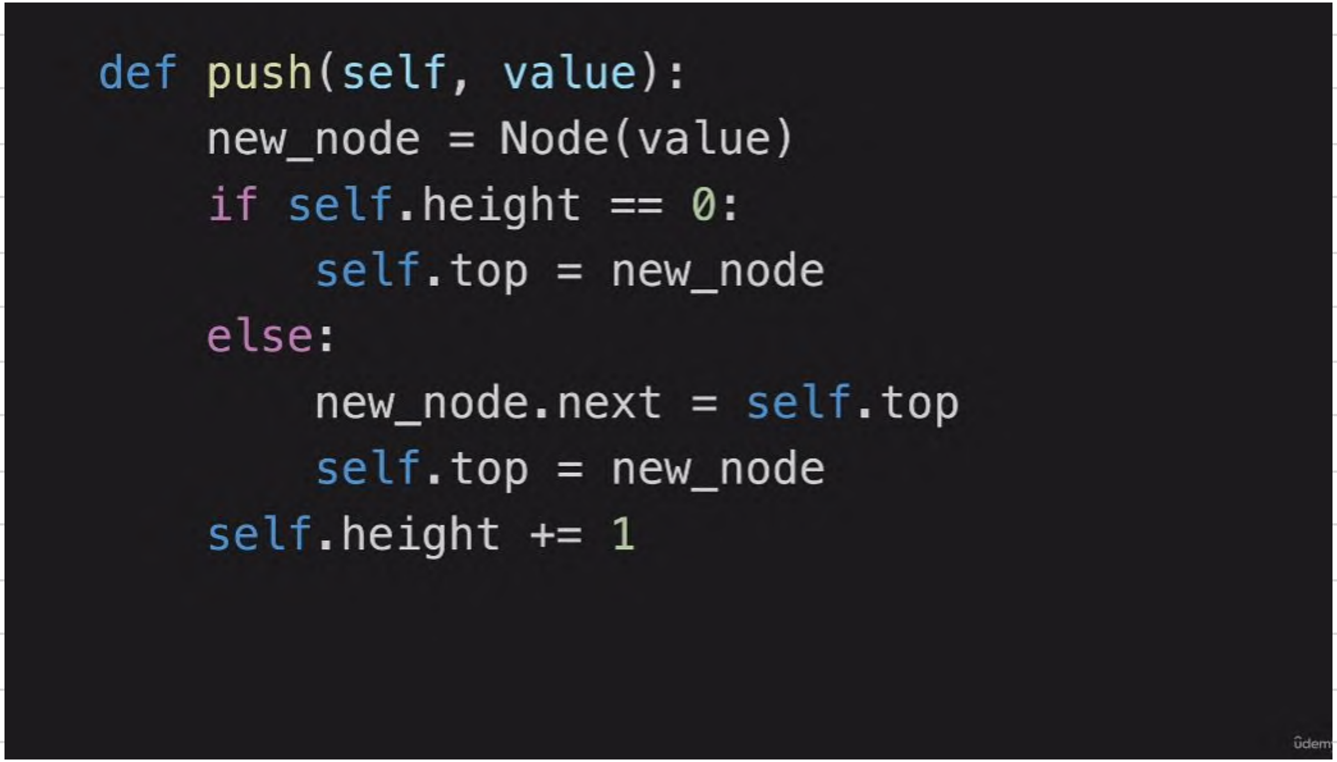
```
else:
    new_node.next = self.top
    self.top = new_node
```

Stack : Push Code



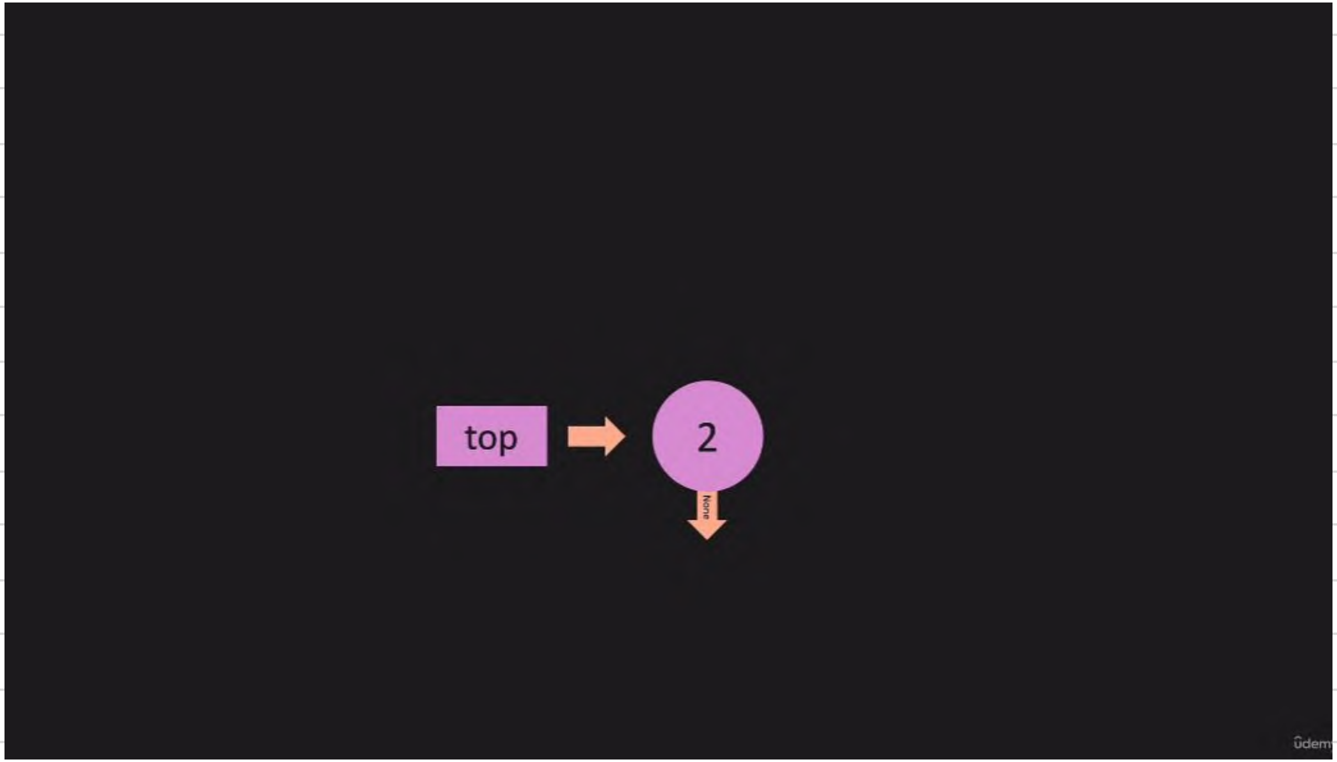
```
def push(self, value):
    new_node = Node(value)
    if self.height == 0:
        self.top = new_node
    else:
        new_node.next = self.top
        self.top = new_node
```

Stack : Push Code

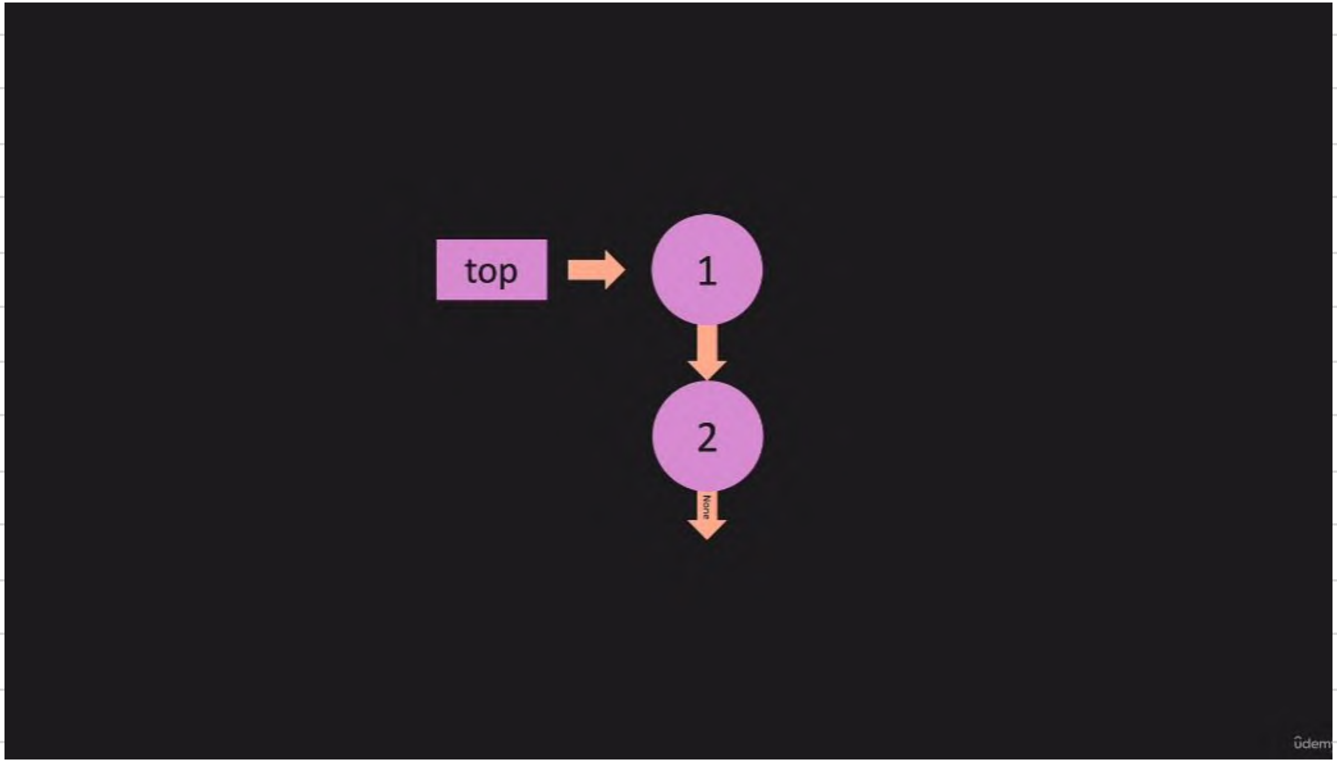


```
def push(self, value):
    new_node = Node(value)
    if self.height == 0:
        self.top = new_node
    else:
        new_node.next = self.top
        self.top = new_node
    self.height += 1
```

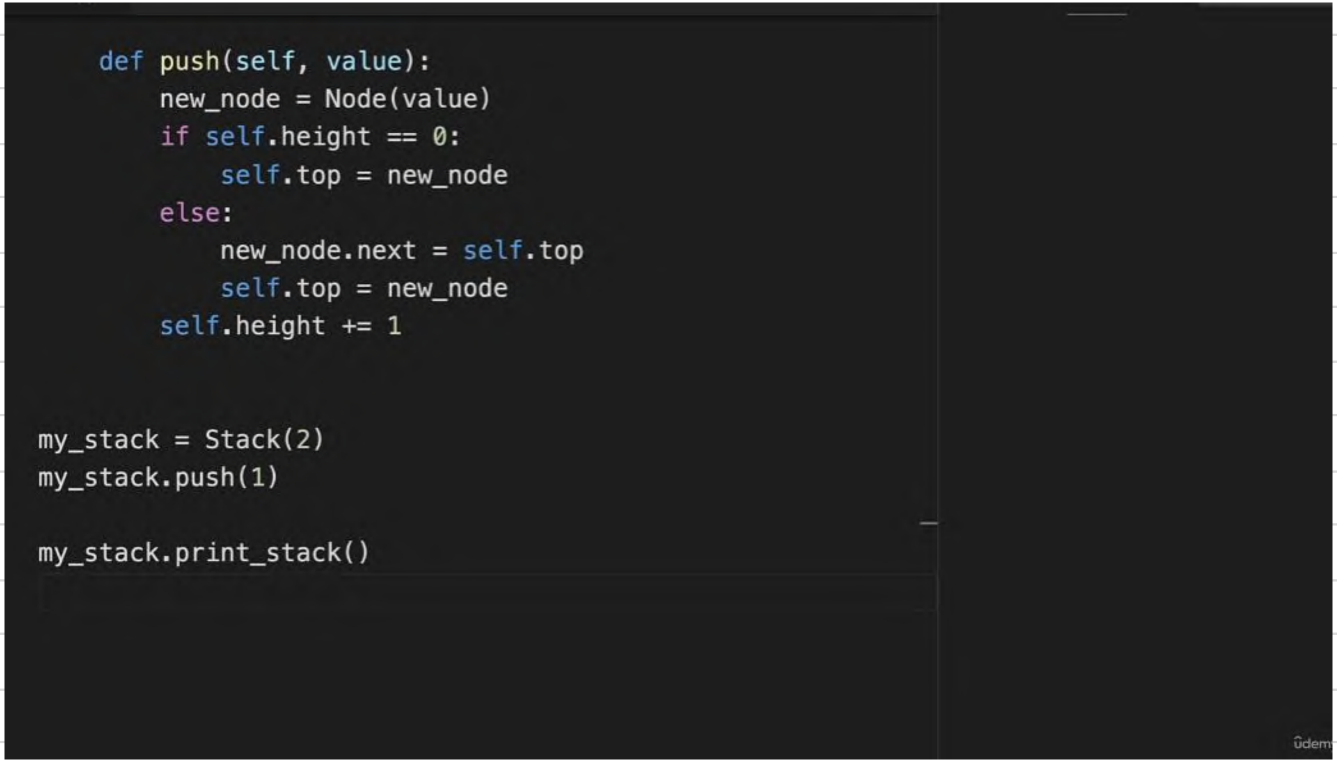
Stack : Push Skenario Percobaan



Stack : Push Skenario Percobaan

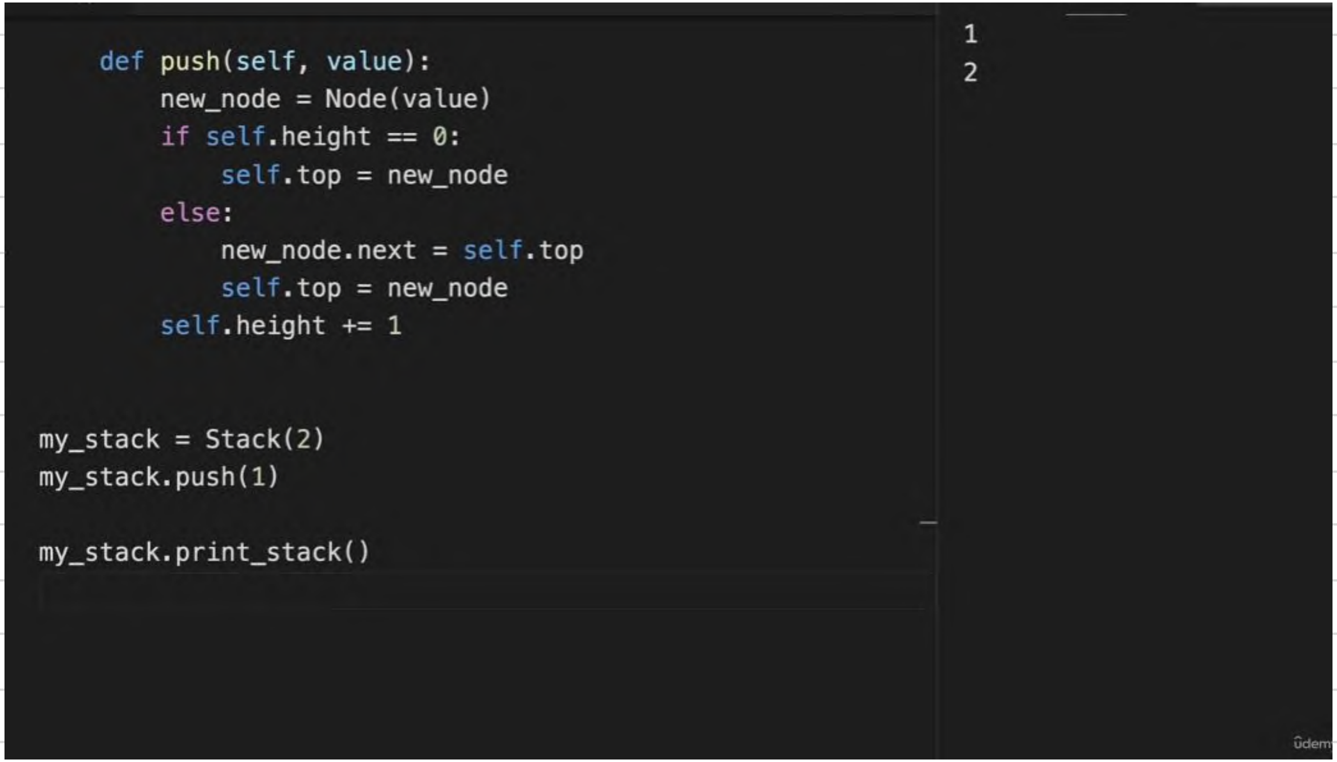


Stack : Push Skenario Percobaan



```
    def push(self, value):
        new_node = Node(value)
        if self.height == 0:
            self.top = new_node
        else:
            new_node.next = self.top
            self.top = new_node
        self.height += 1


my_stack = Stack(2)
my_stack.push(1)

my_stack.print_stack()
```

Stack : Push Skenario Percobaan



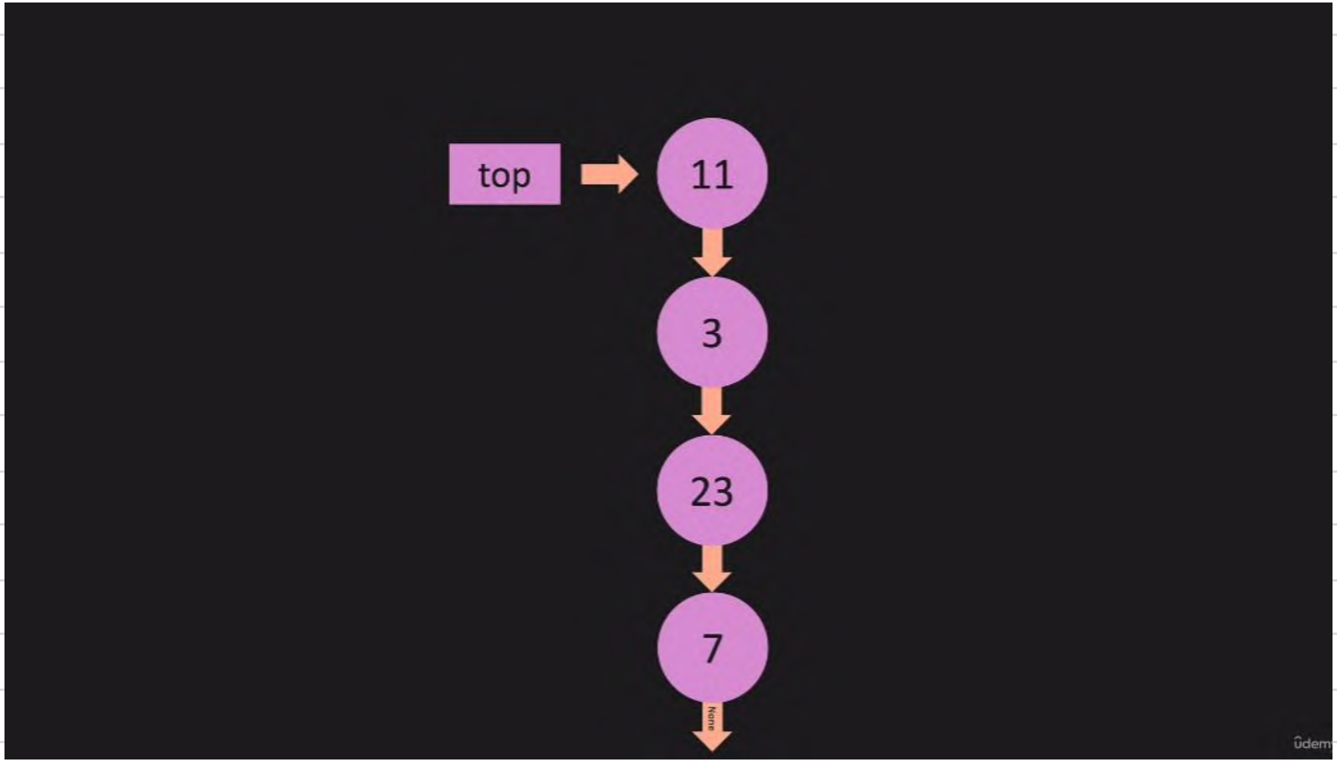
```
    def push(self, value):
        new_node = Node(value)
        if self.height == 0:
            self.top = new_node
        else:
            new_node.next = self.top
            self.top = new_node
        self.height += 1


my_stack = Stack(2)
my_stack.push(1)

my_stack.print_stack()
```

```
1
2
```

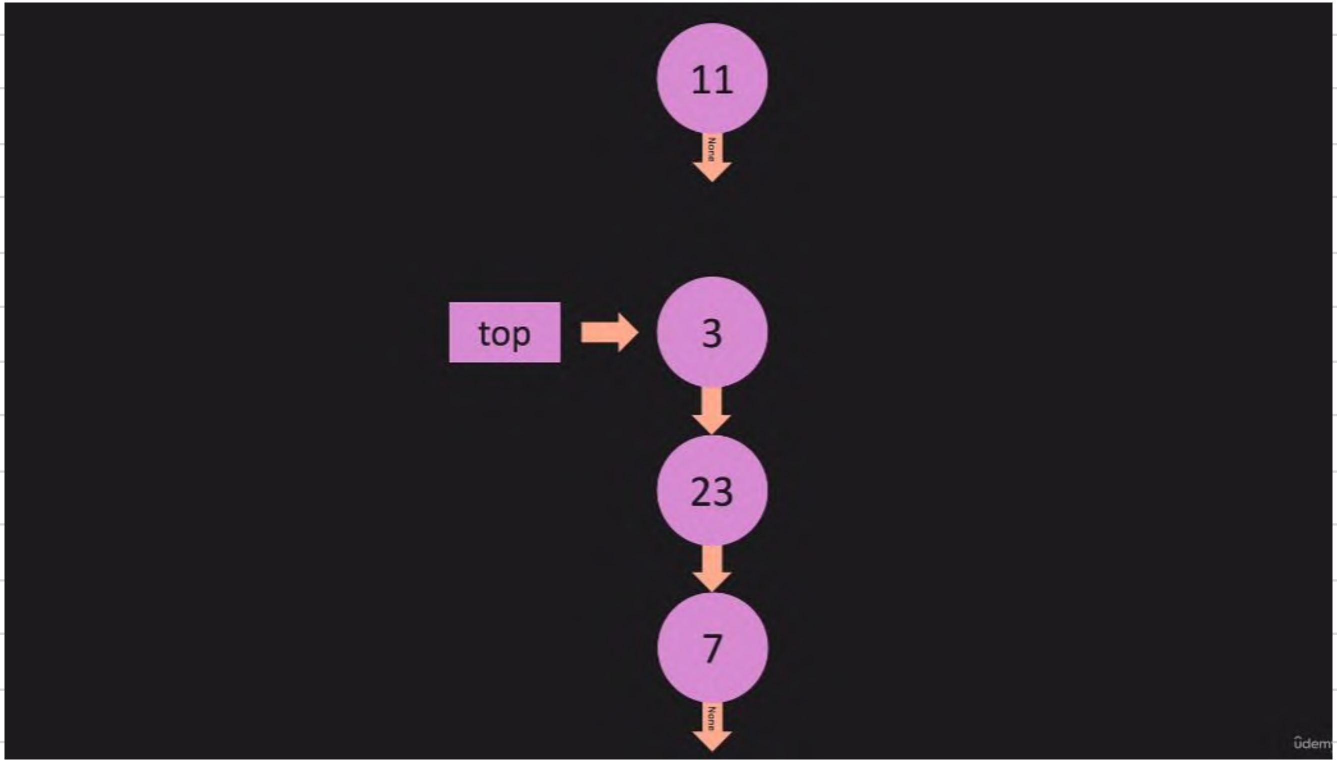
04

Stack Pop

Stack : Pop

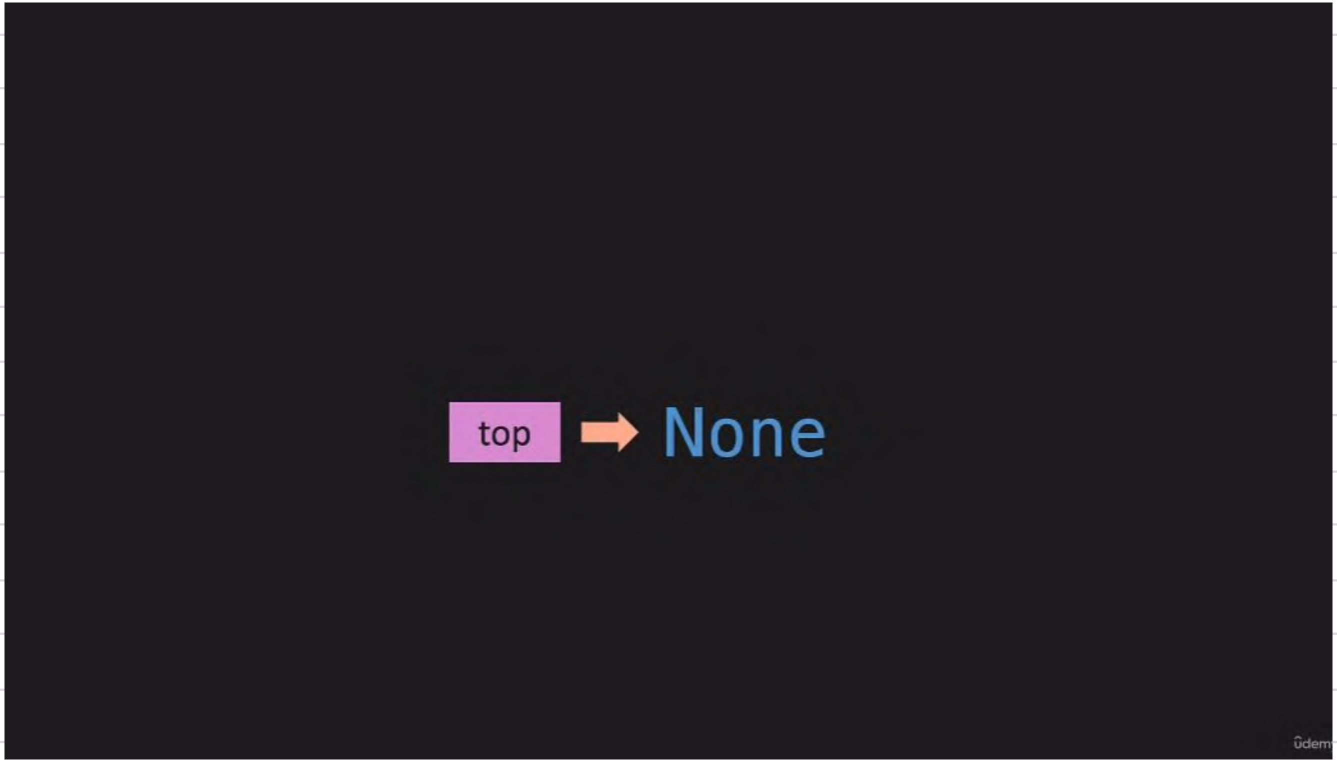


Stack : Pop

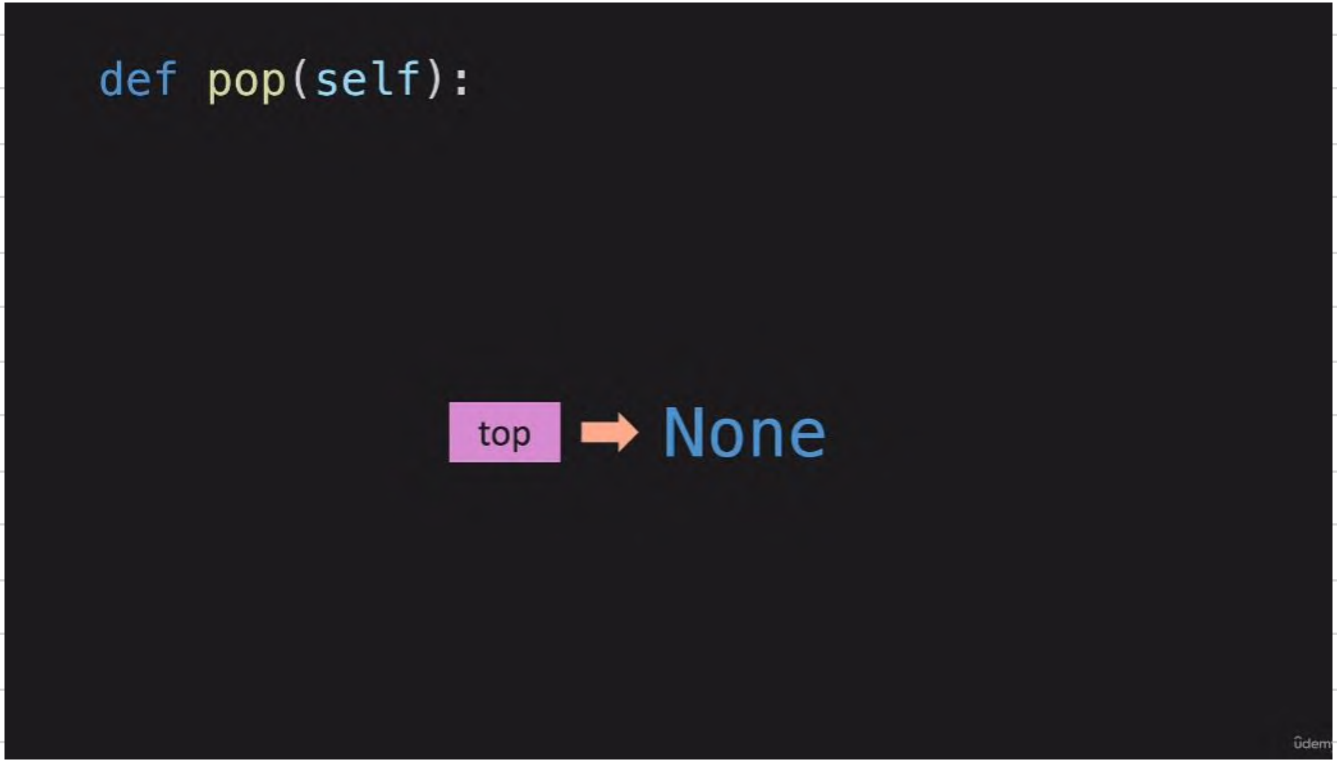


Edge Condition #1

Stack : Pop

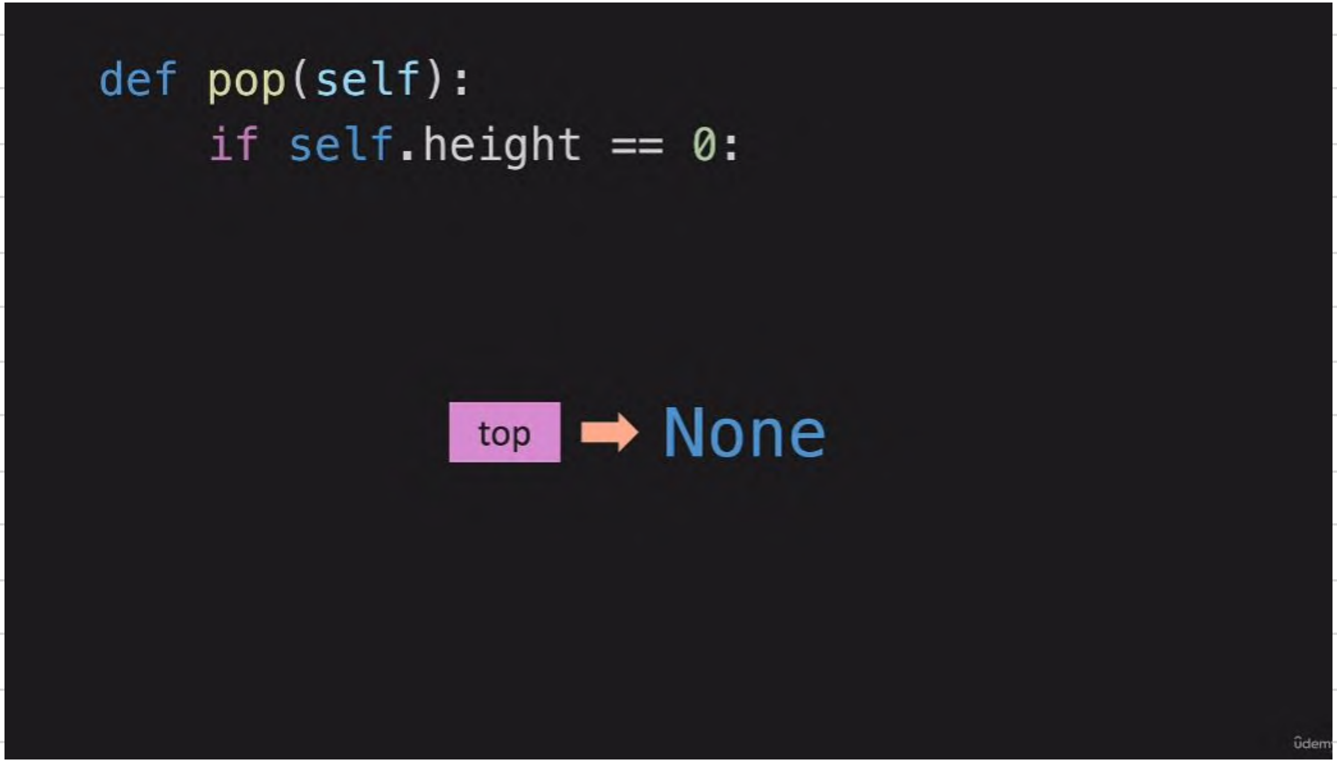


Stack : Pop Code



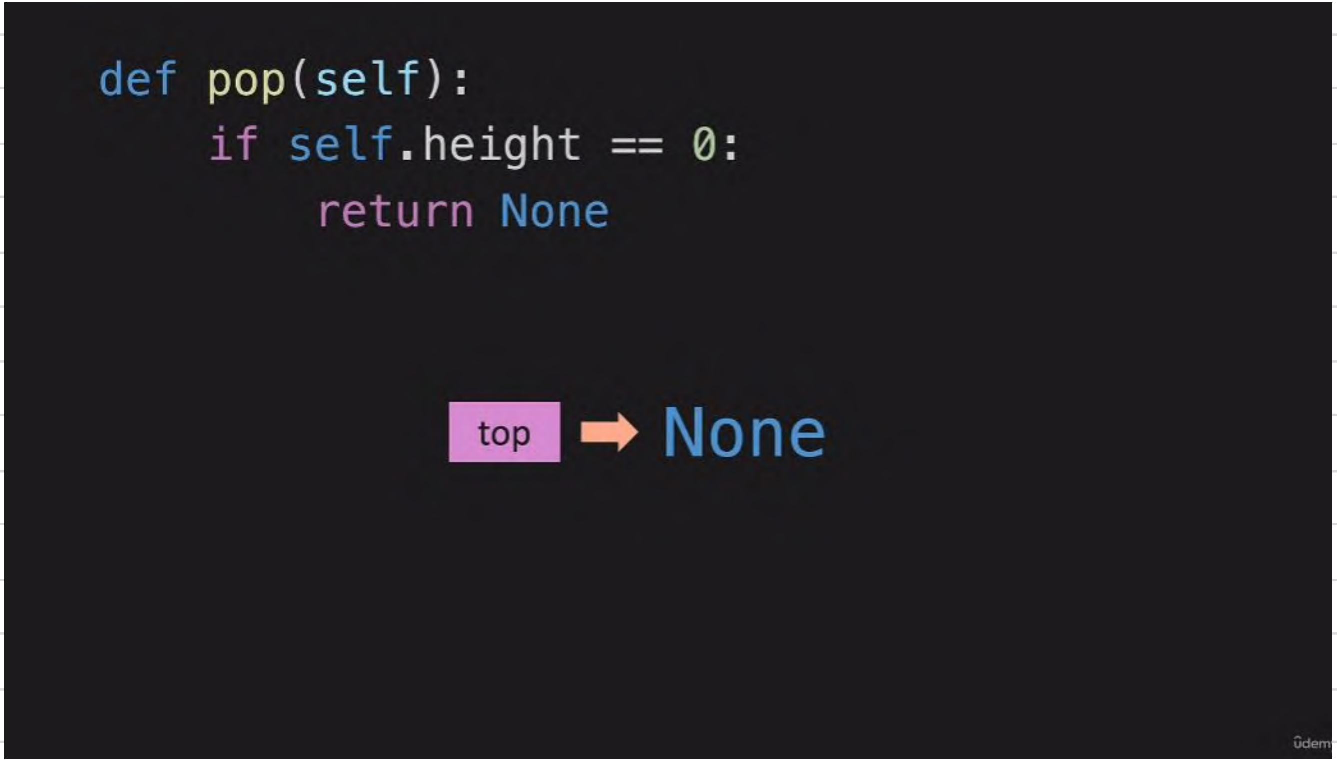
```
def pop(self):
```

Stack : Pop Code



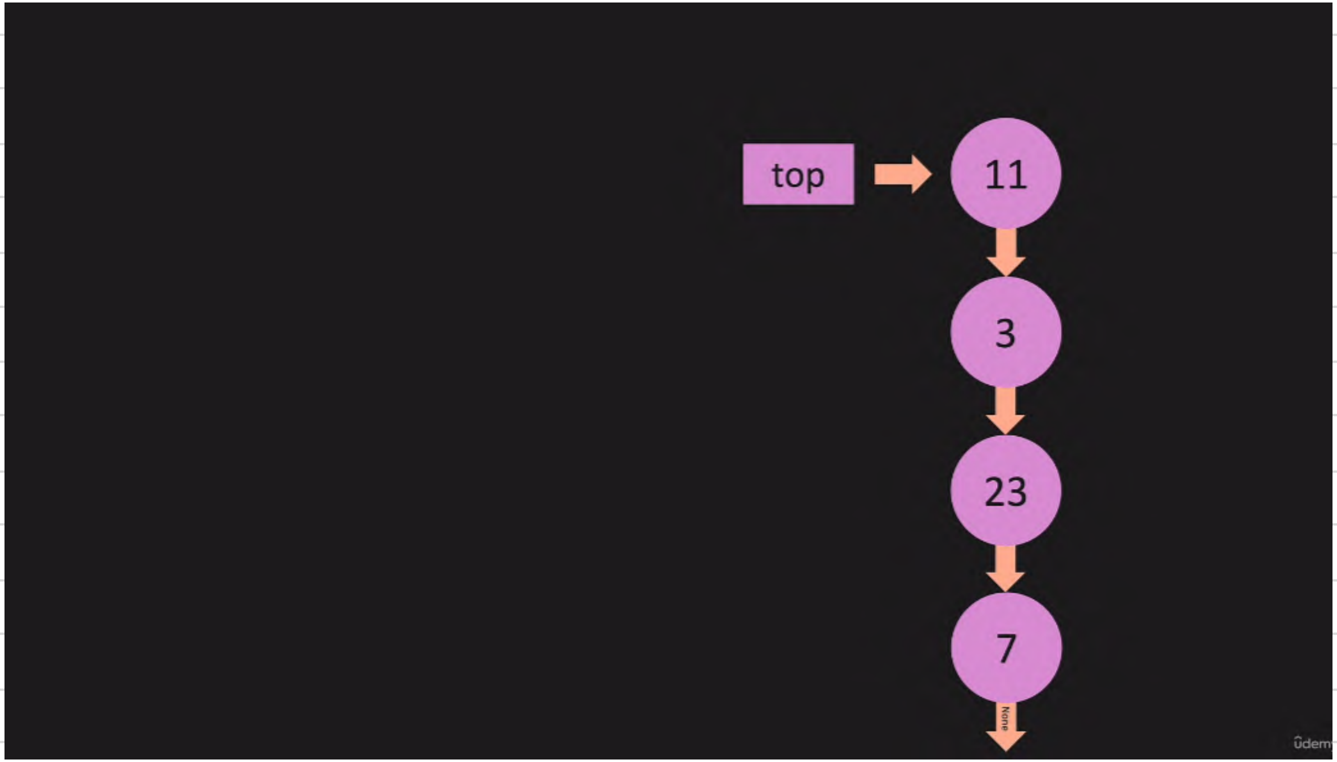
```
def pop(self):
    if self.height == 0:
```

Stack : Pop Code

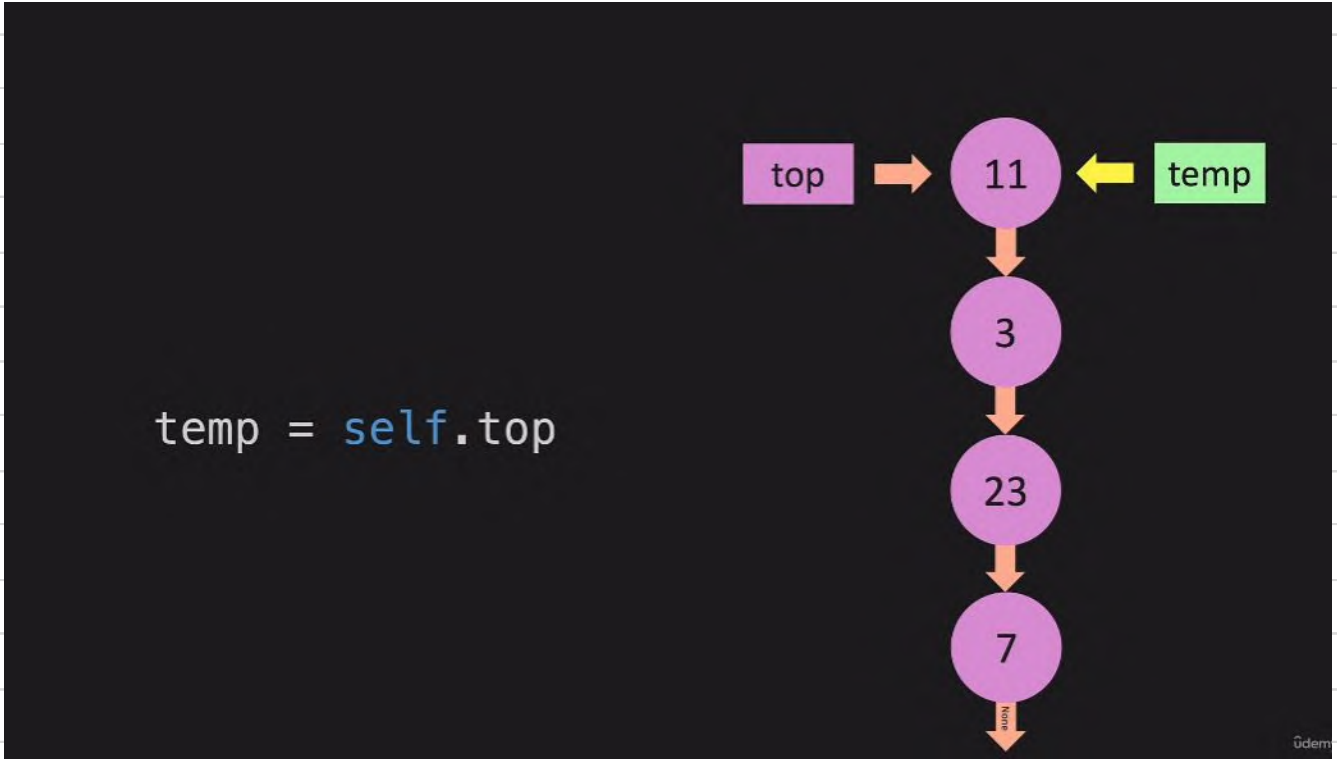


```
def pop(self):
    if self.height == 0:
        return None
```

Stack : Pop Code

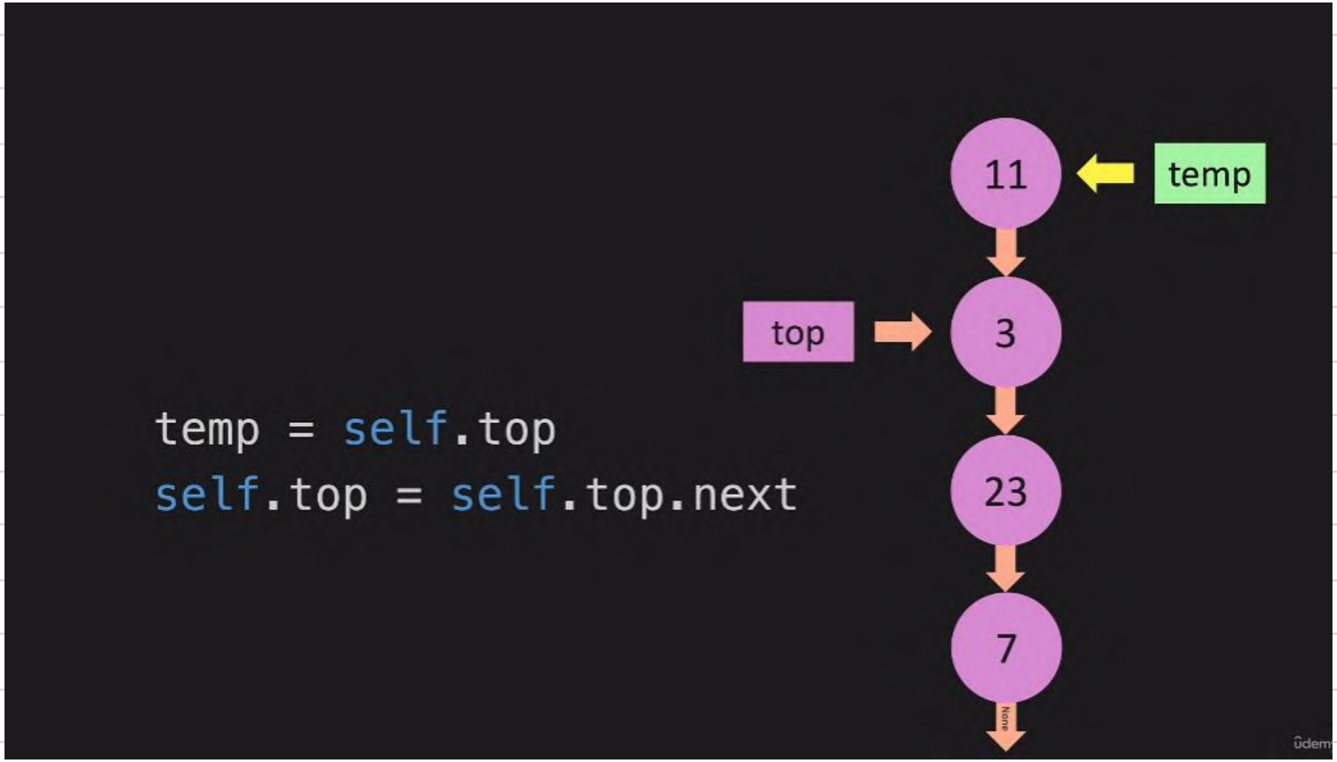


Stack : Pop Code



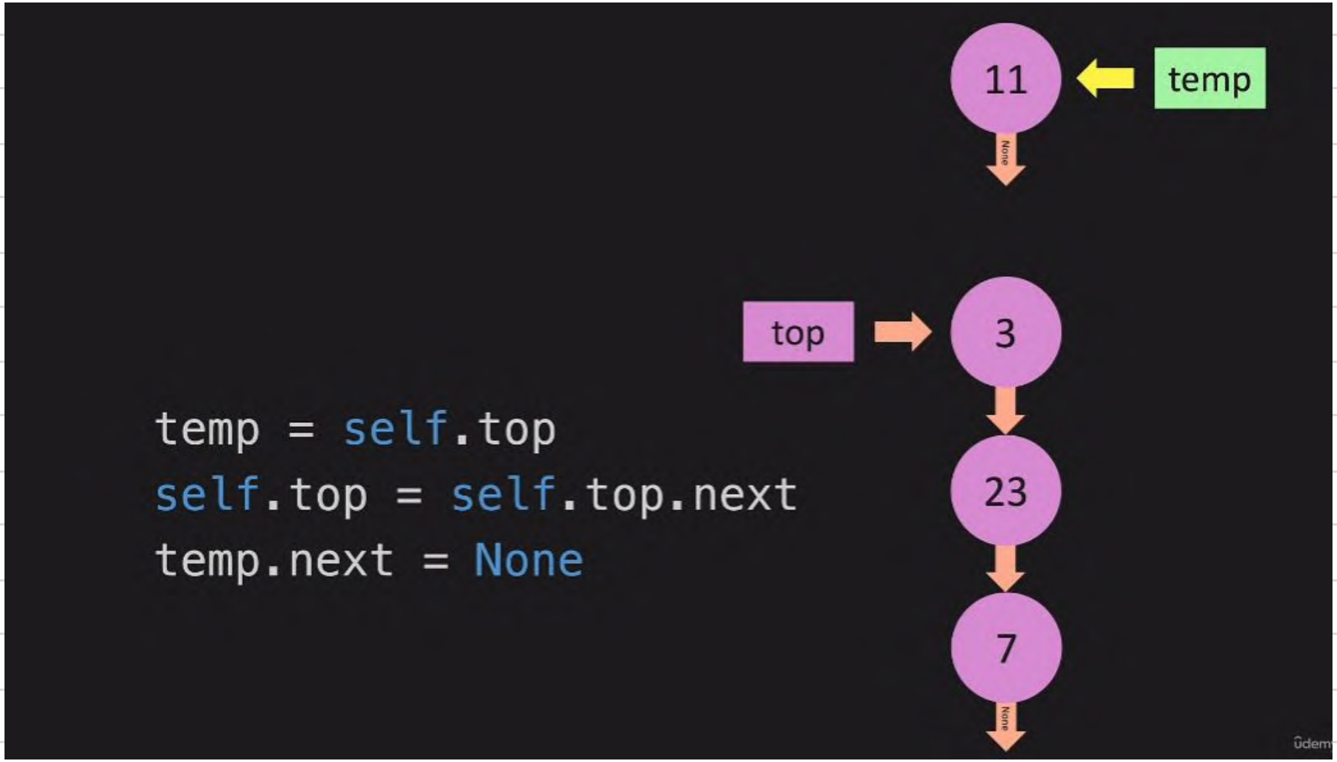
```
temp = self.top
```

Stack : Pop Code



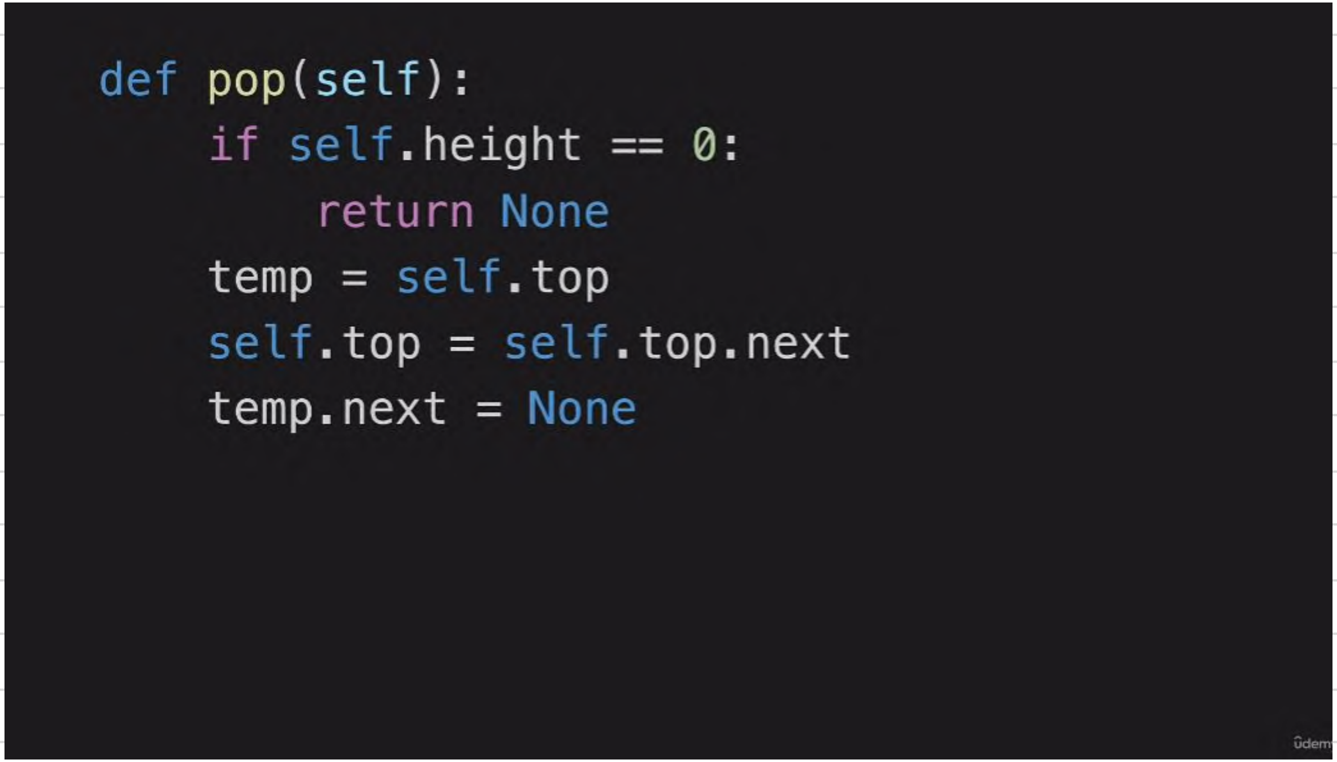
```
temp = self.top
self.top = self.top.next
```

Stack : Pop Code



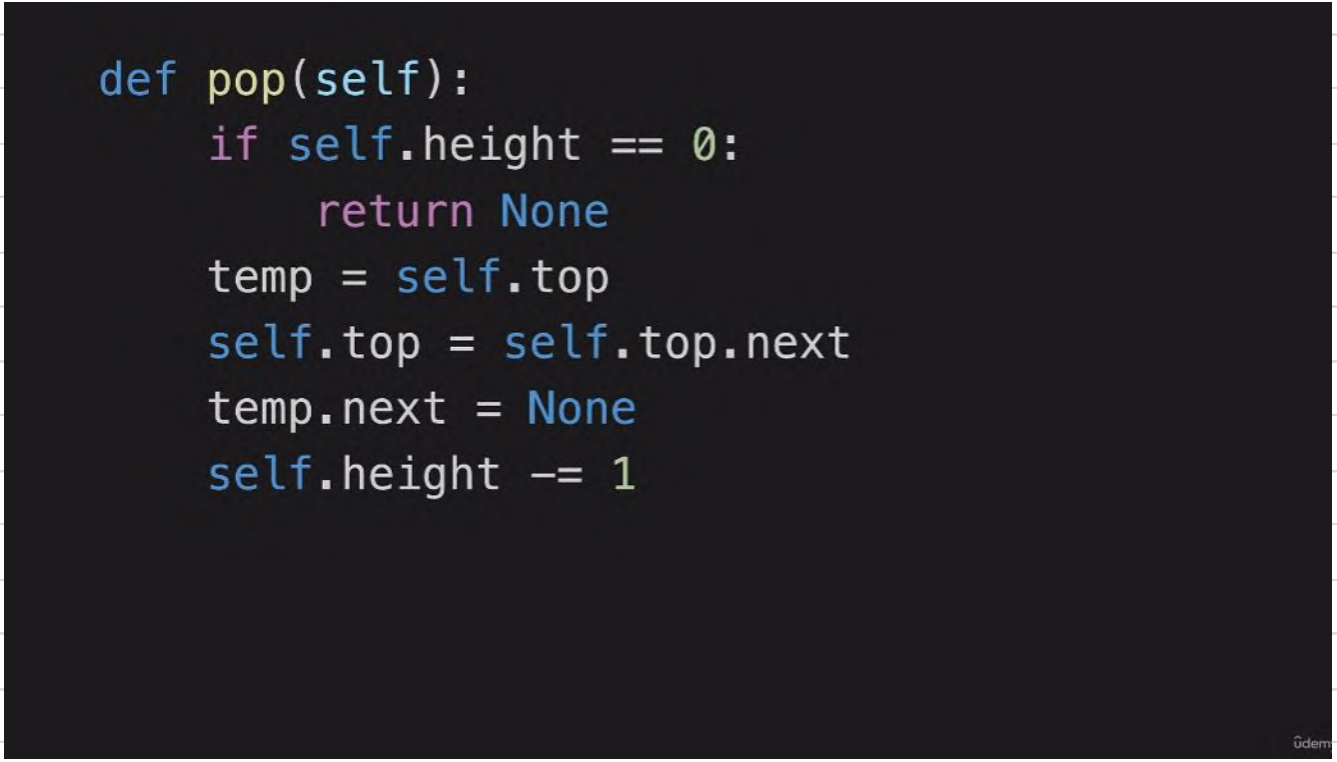
```
temp = self.top
self.top = self.top.next
temp.next = None
```

Stack : Pop Code



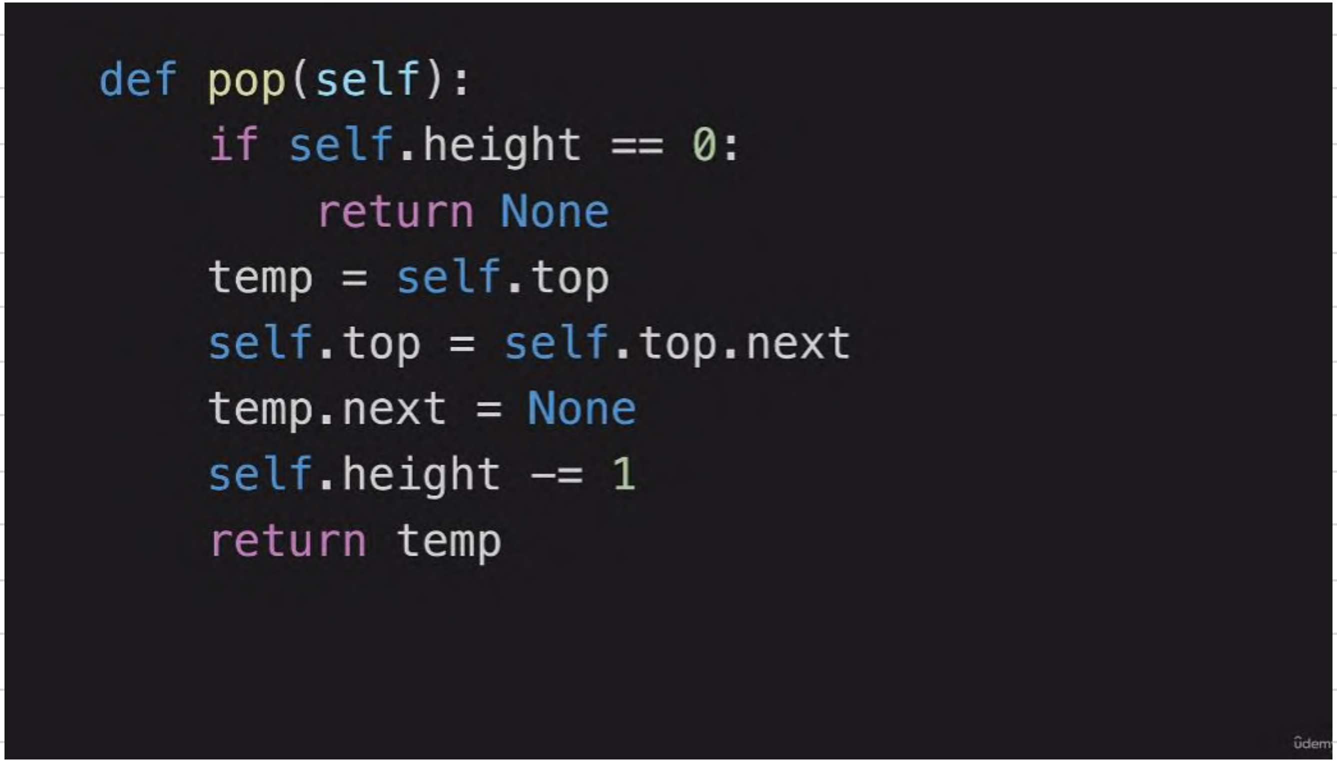
```
def pop(self):
    if self.height == 0:
        return None
    temp = self.top
    self.top = self.top.next
    temp.next = None
```

Stack : Pop Code



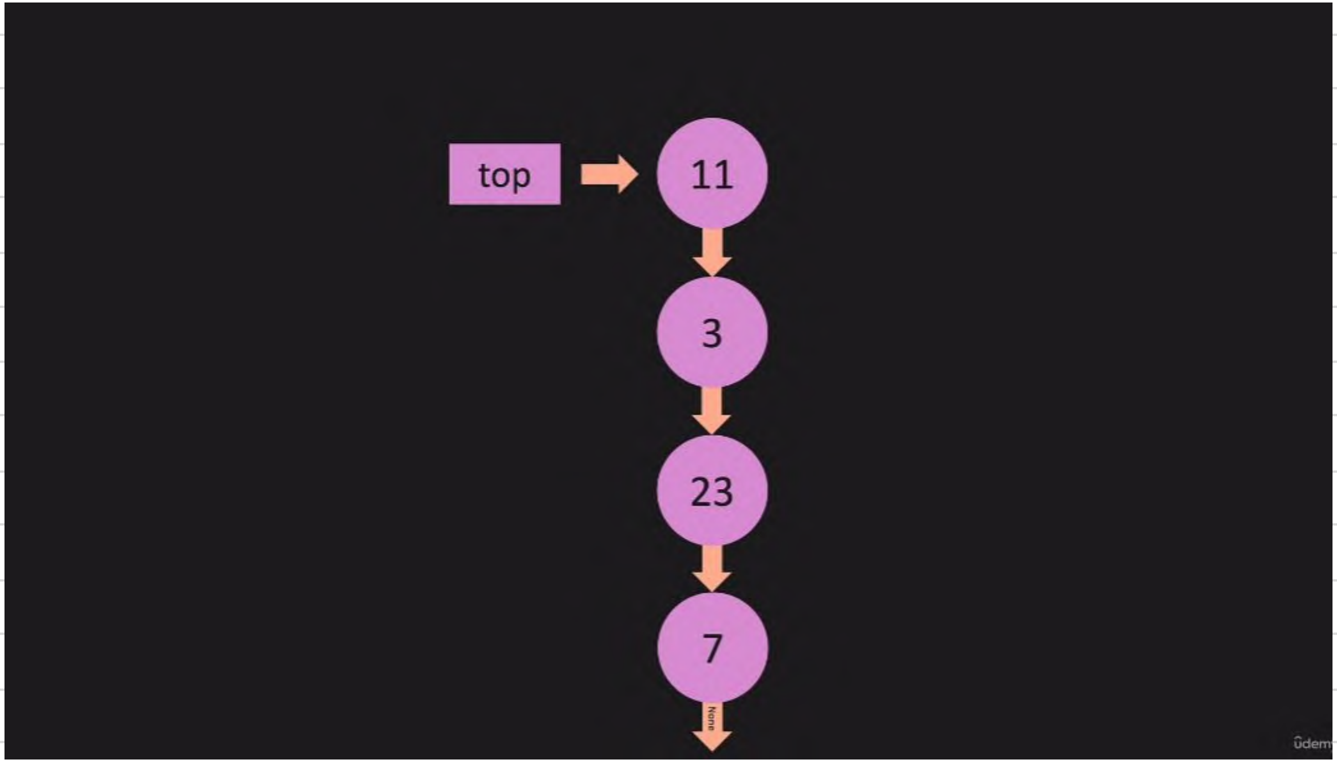
```
def pop(self):
    if self.height == 0:
        return None
    temp = self.top
    self.top = self.top.next
    temp.next = None
    self.height -= 1
```

Stack : Pop Code

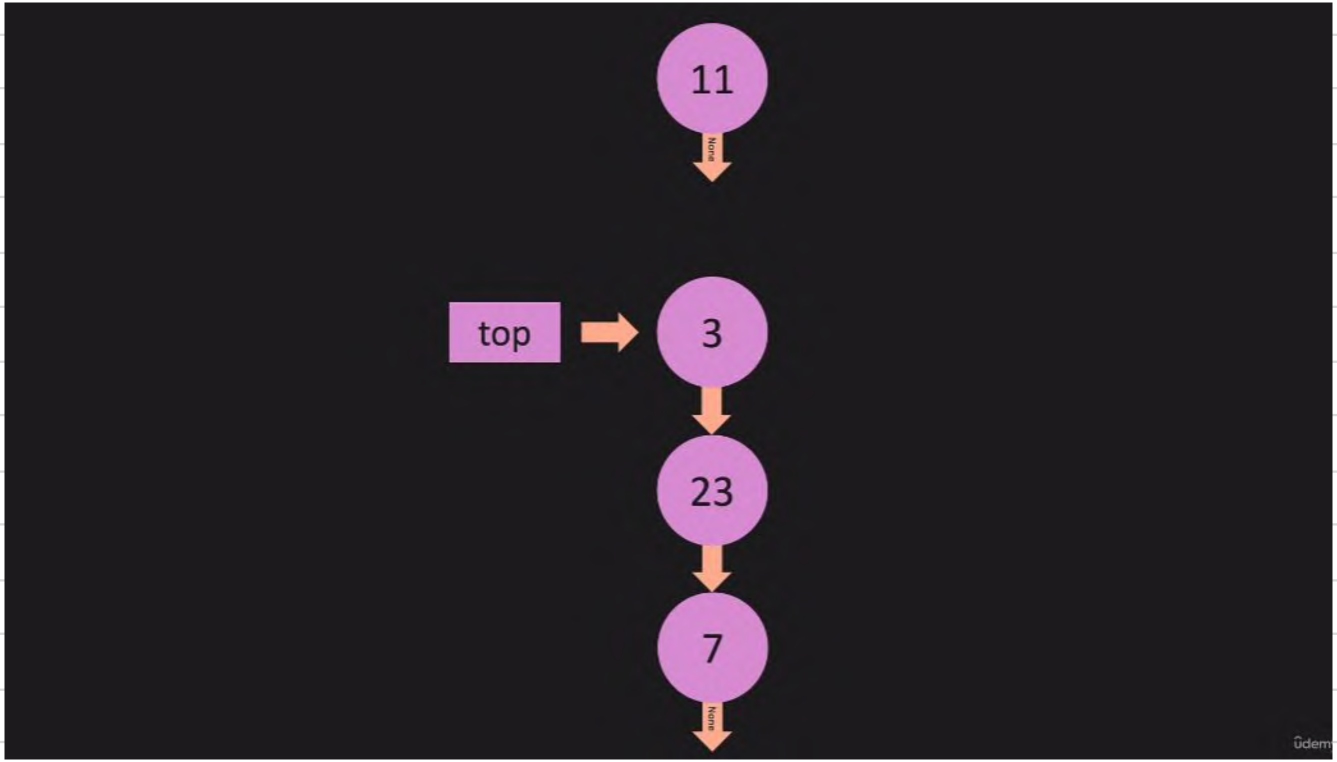


```
def pop(self):
    if self.height == 0:
        return None
    temp = self.top
    self.top = self.top.next
    temp.next = None
    self.height -= 1
    return temp
```

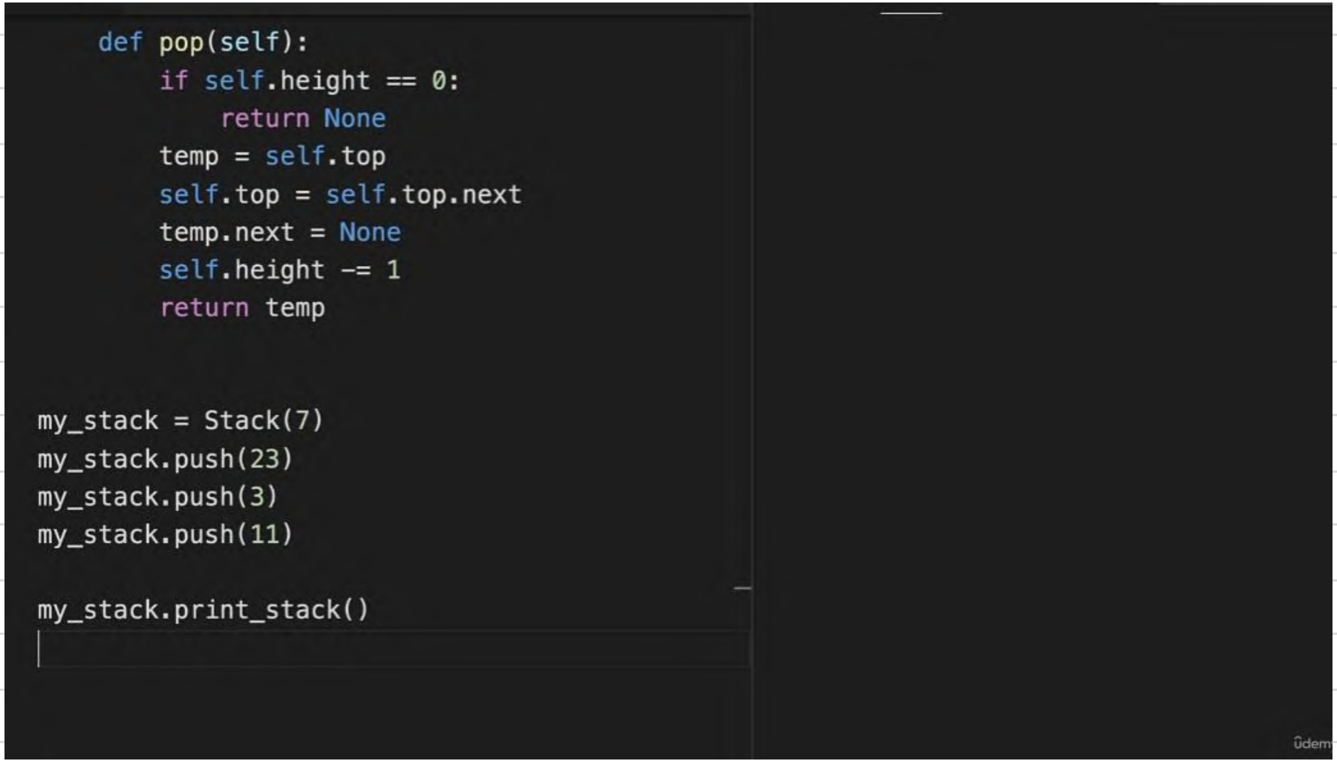
Stack : Pop Skenario Percobaan



Stack : Pop Skenario Percobaan

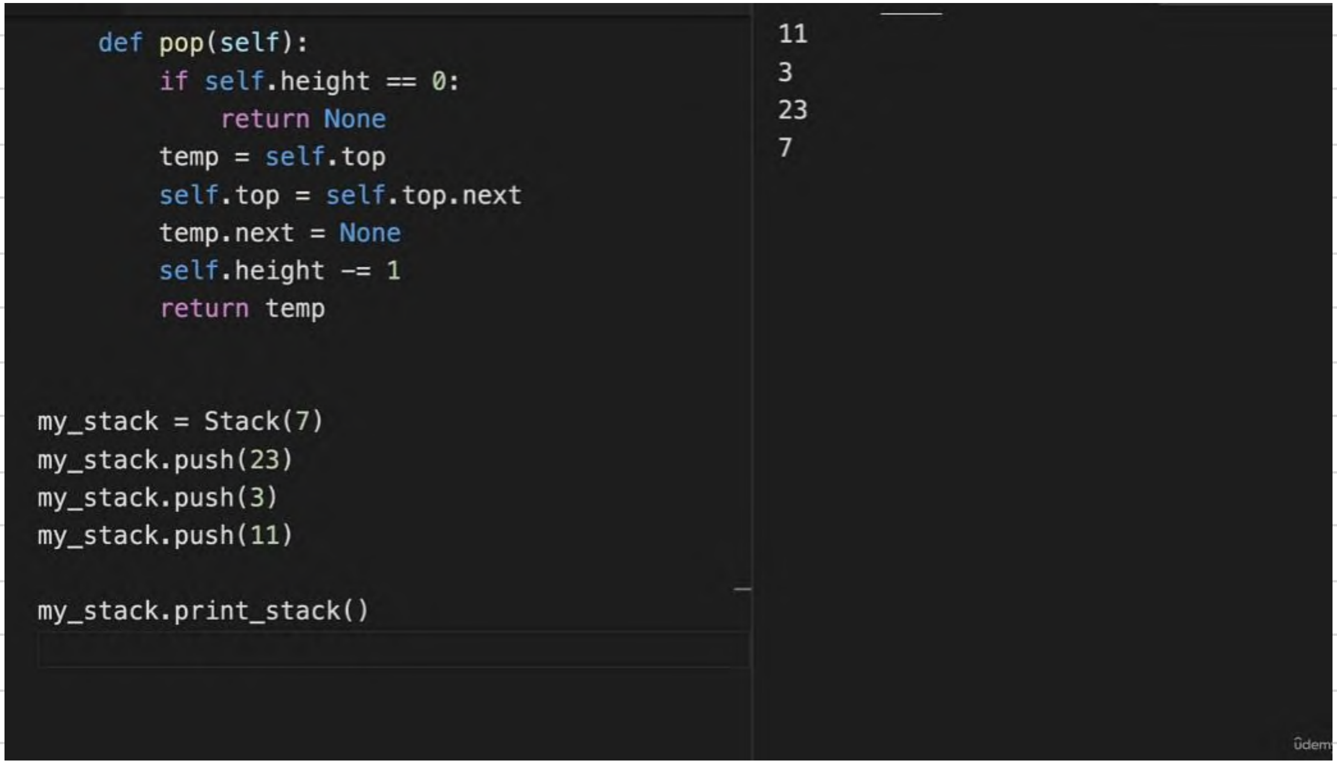


Stack : Pop Skenario Percobaan



```
    def pop(self):
        if self.height == 0:
            return None
        temp = self.top
        self.top = self.top.next
        temp.next = None
        self.height -= 1
        return temp


my_stack = Stack(7)
my_stack.push(23)
my_stack.push(3)
my_stack.push(11)

my_stack.print_stack()
```

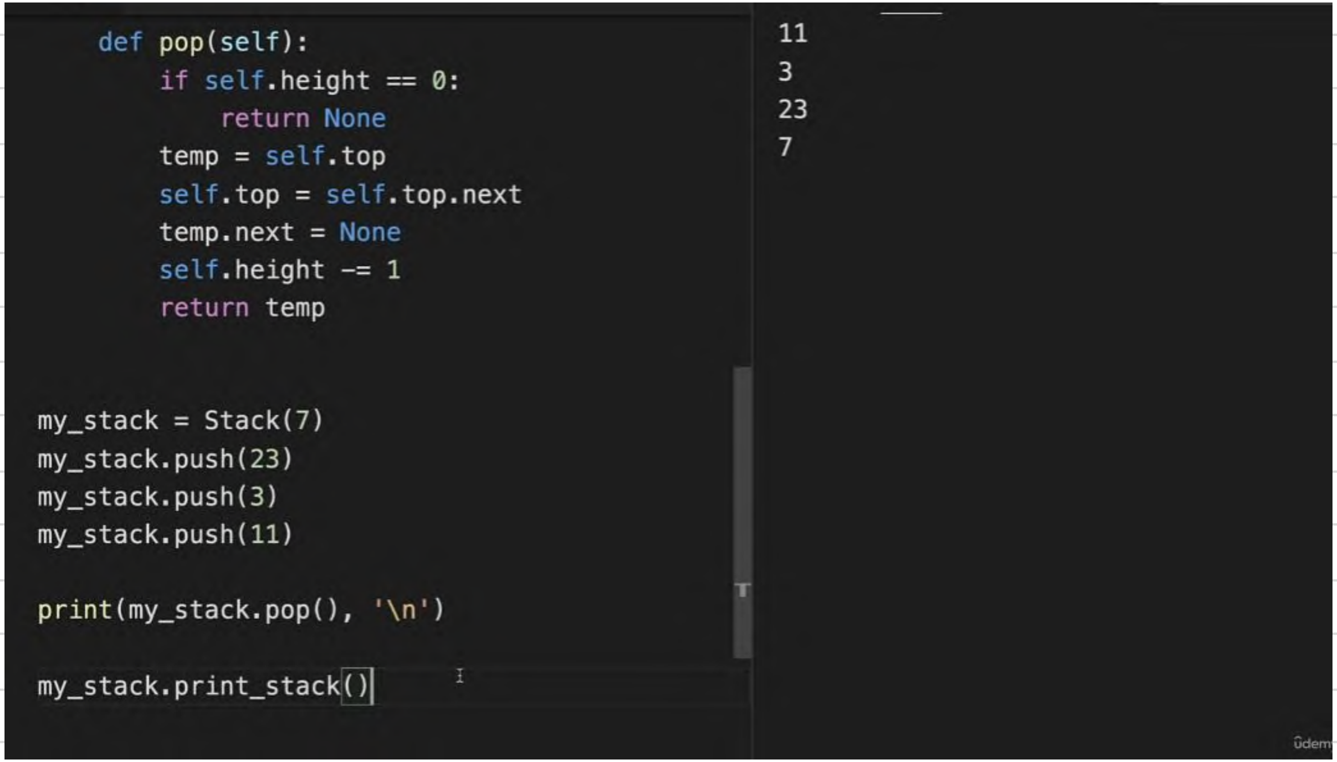
Stack : Pop Skenario Percobaan



```
    def pop(self):
        if self.height == 0:
            return None
        temp = self.top
        self.top = self.top.next
        temp.next = None
        self.height -= 1
        return temp


my_stack = Stack(7)
my_stack.push(23)
my_stack.push(3)
my_stack.push(11)

my_stack.print_stack()
```

```
11
3
23
7
```

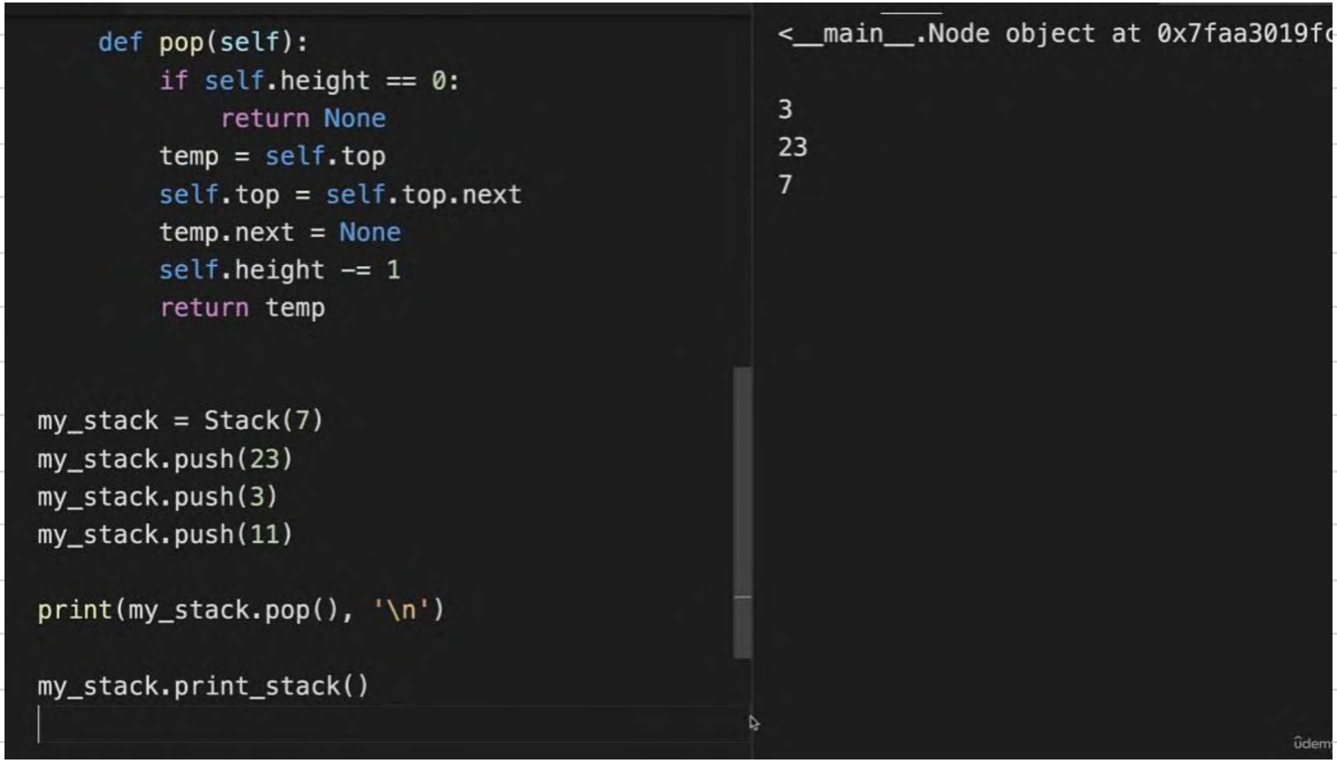
Stack : Pop Skenario Percobaan



```
    def pop(self):
        if self.height == 0:
            return None
        temp = self.top
        self.top = self.top.next
        temp.next = None
        self.height -= 1
        return temp


my_stack = Stack(7)
my_stack.push(23)
my_stack.push(3)
my_stack.push(11)

print(my_stack.pop(), '\n')

my_stack.print_stack()
```

```
11
3
23
7
```

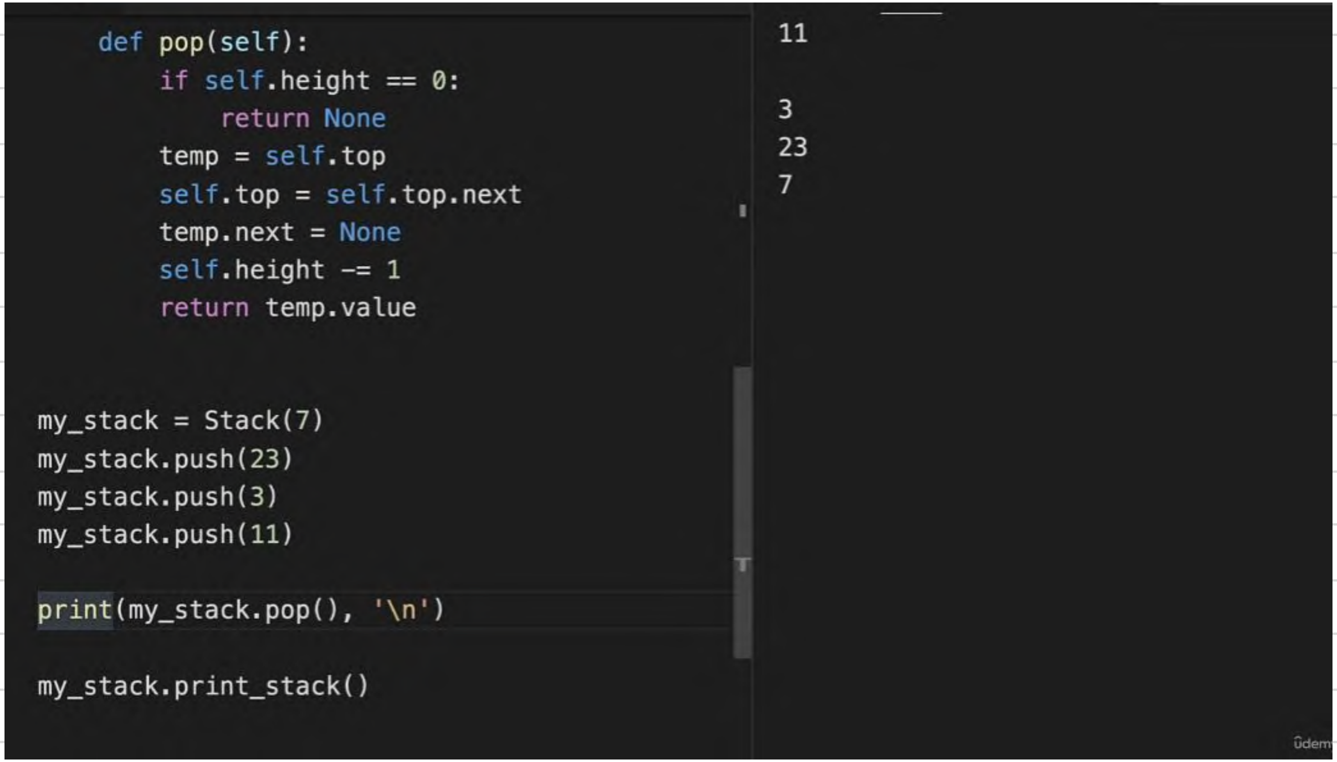
Stack : Pop Skenario Percobaan



```
    def pop(self):
        if self.height == 0:
            return None
        temp = self.top
        self.top = self.top.next
        temp.next = None
        self.height -= 1
        return temp


my_stack = Stack(7)
my_stack.push(23)
my_stack.push(3)
my_stack.push(11)

print(my_stack.pop(), '\n')

my_stack.print_stack()
```

```
<__main__.Node object at 0x7faa3019f

3
23
7
```

Stack : Pop Skenario Percobaan



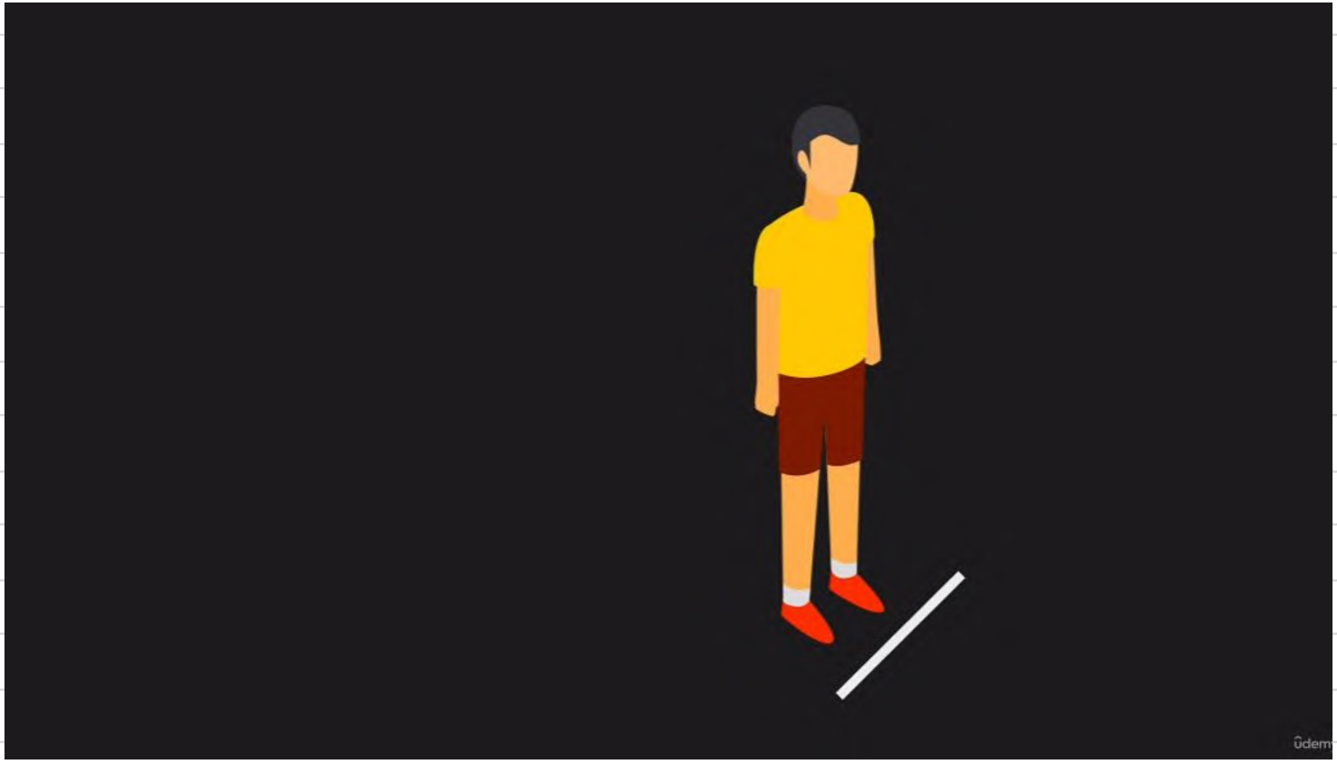
```
    def pop(self):
        if self.height == 0:
            return None
        temp = self.top
        self.top = self.top.next
        temp.next = None
        self.height -= 1
        return temp.value


my_stack = Stack(7)
my_stack.push(23)
my_stack.push(3)
my_stack.push(11)

print(my_stack.pop(), '\n')

my_stack.print_stack()
```

```
11

3
23
7
```

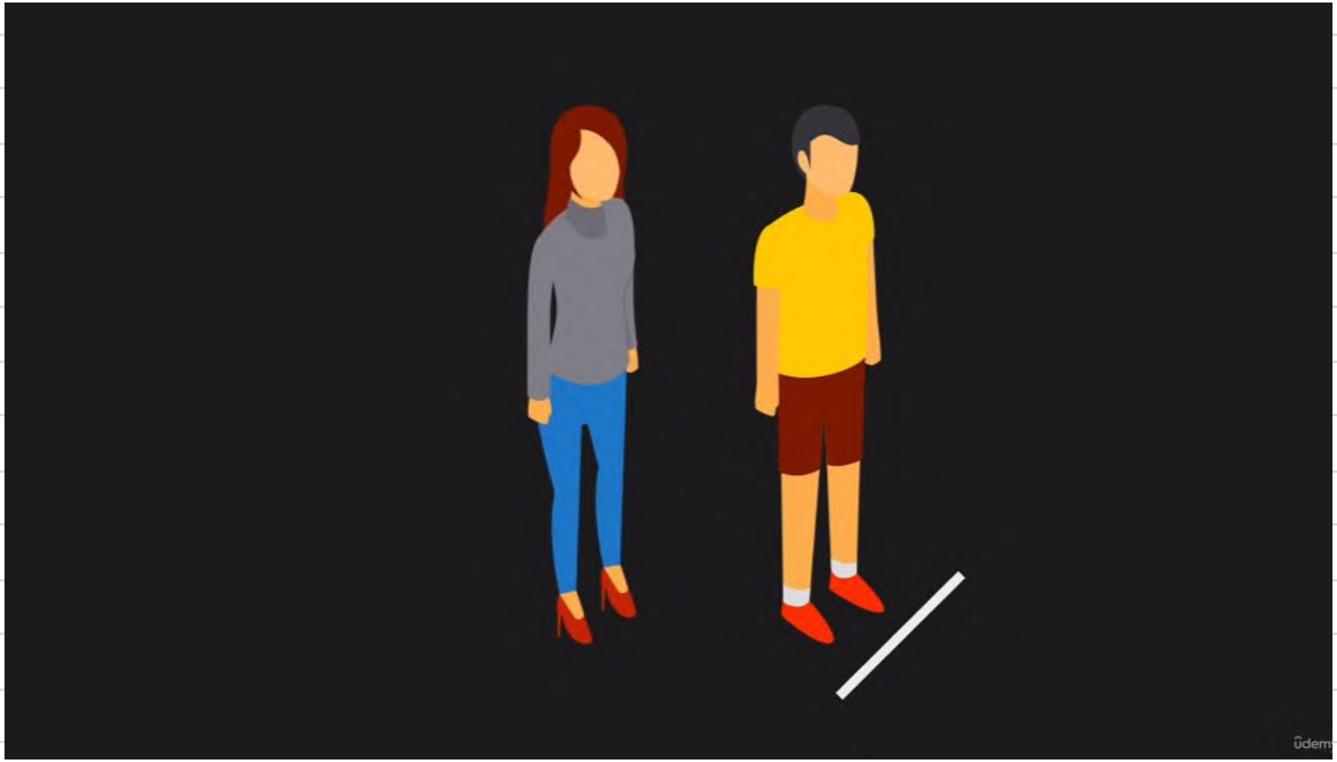
05

Queue Intro

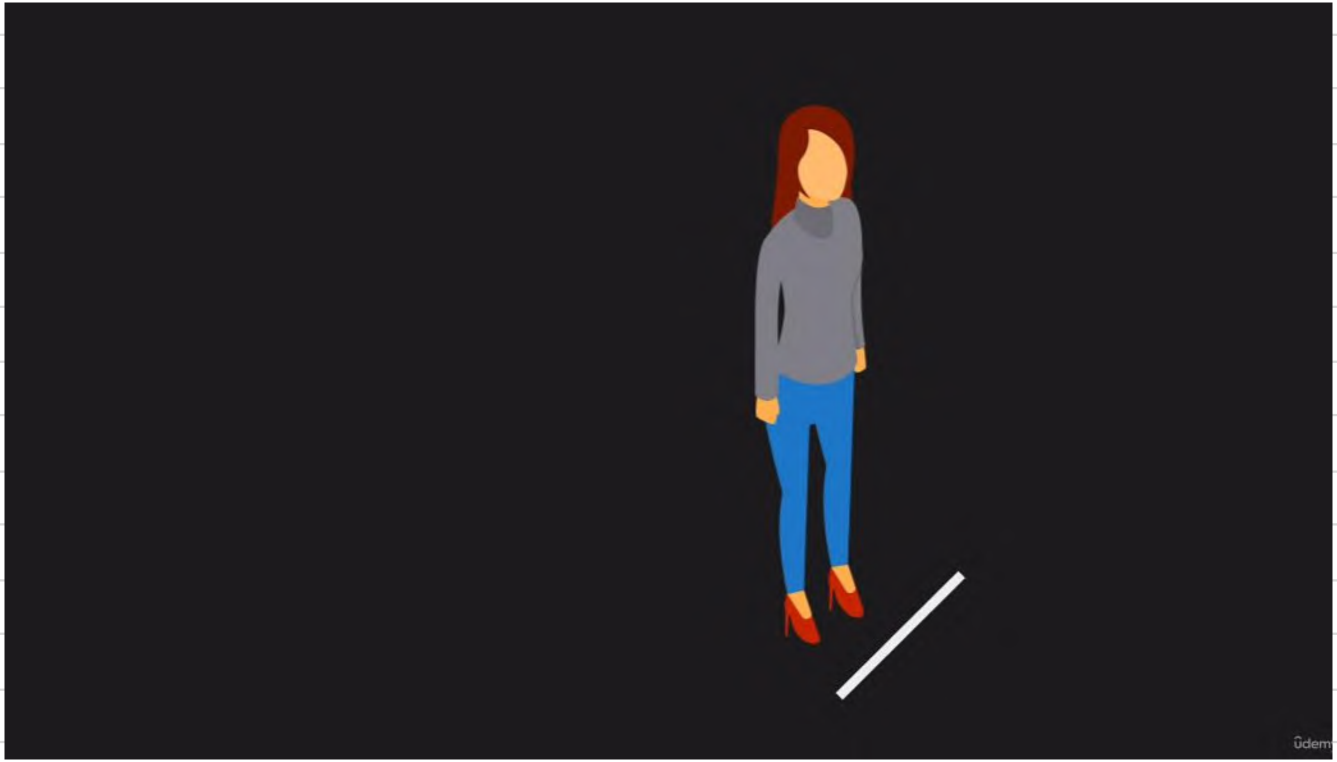
Queue



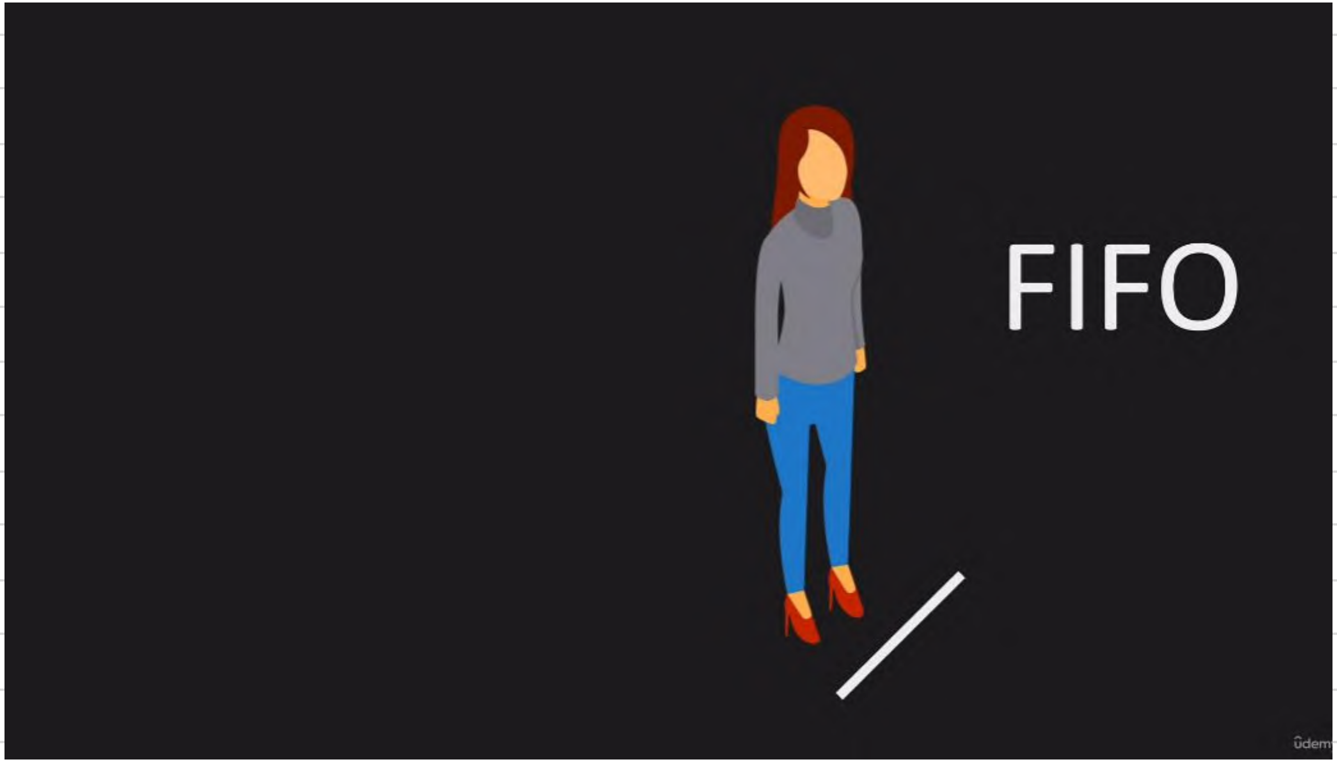
Queue



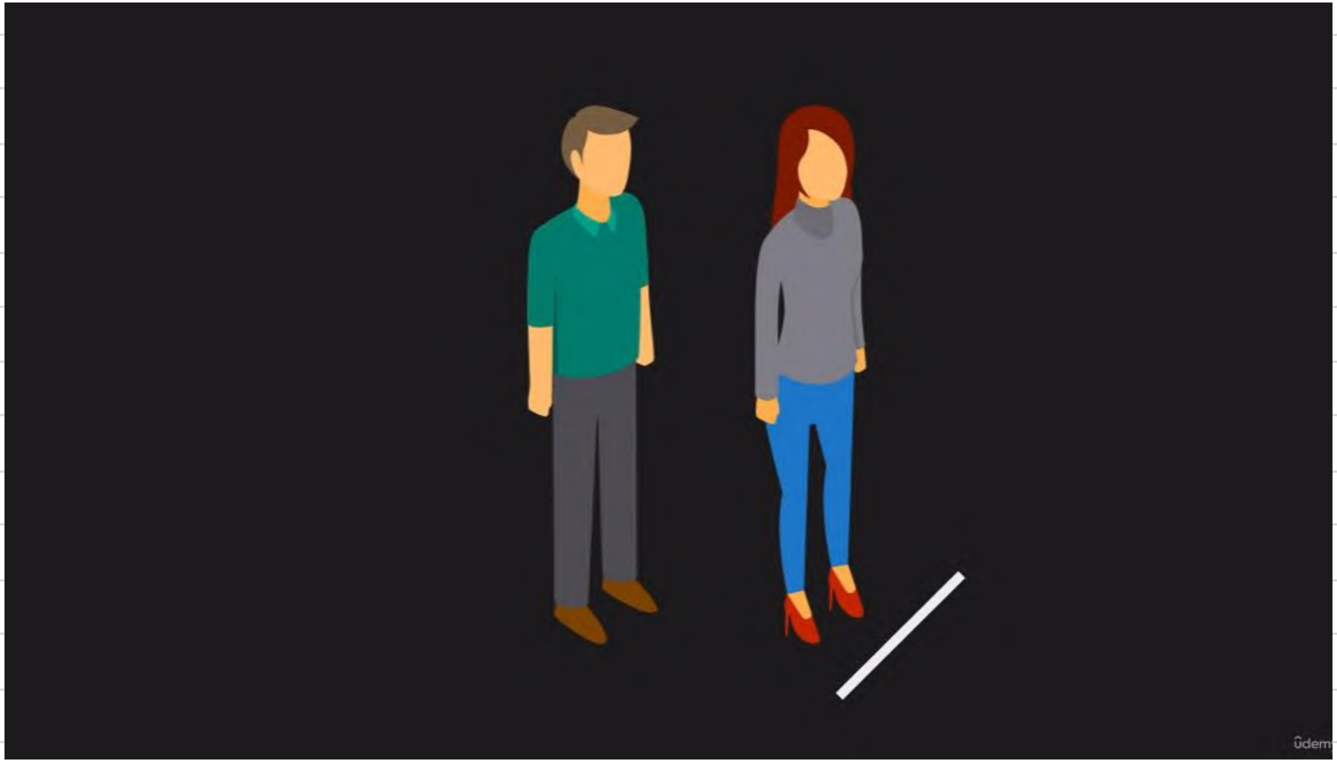
Queue



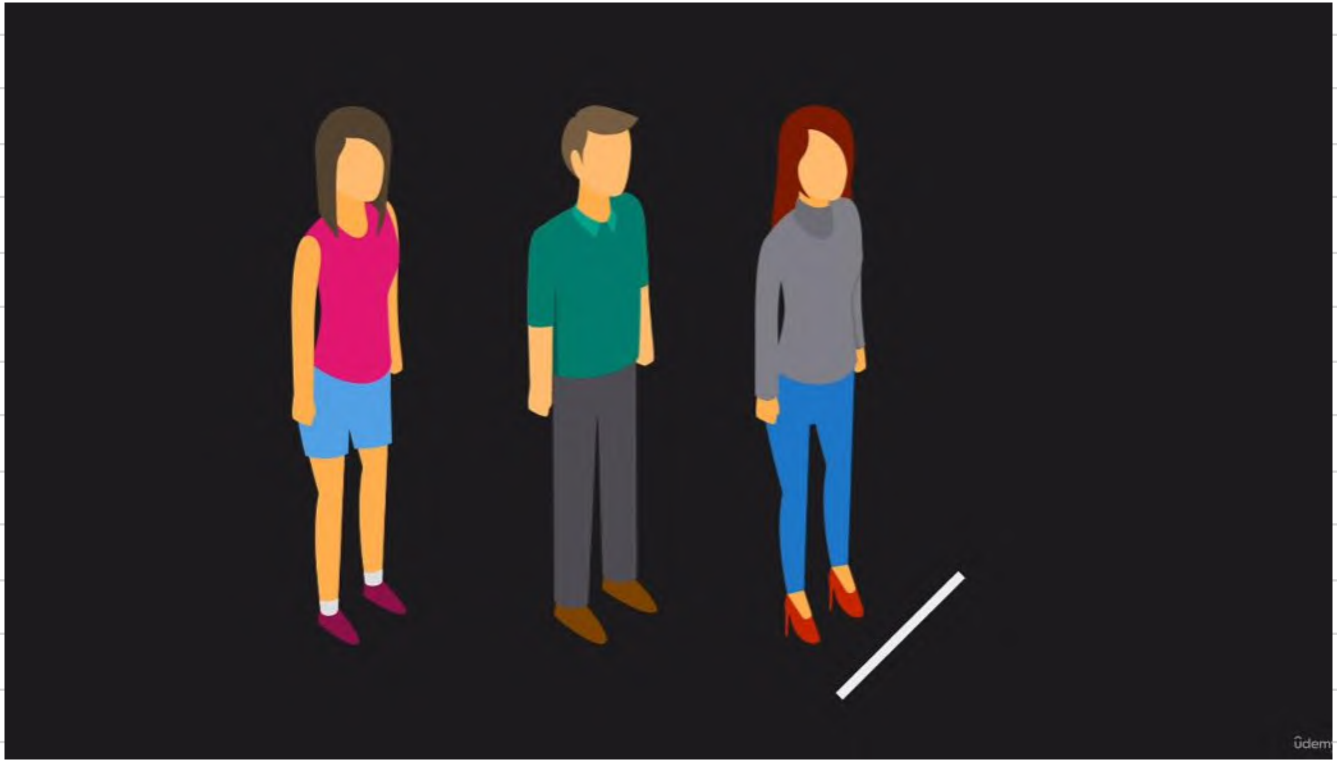
Queue



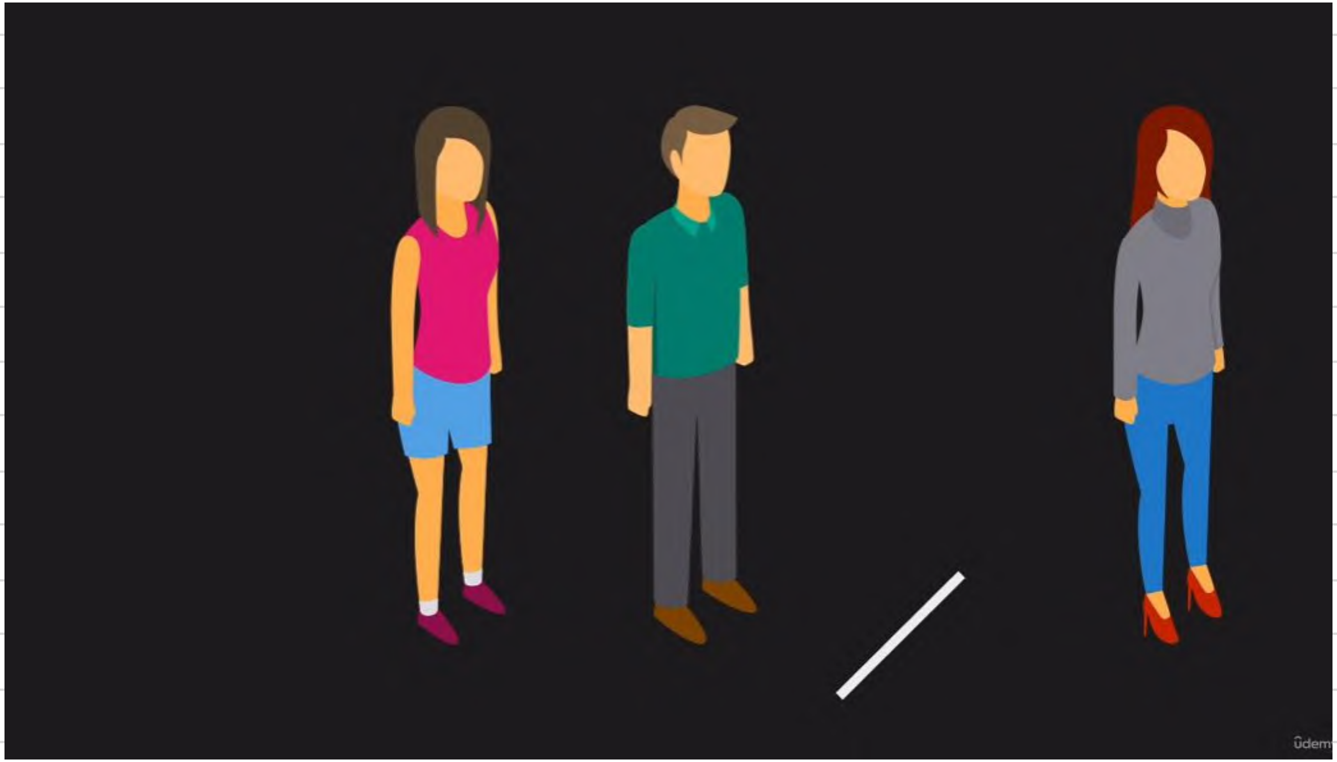
Queue



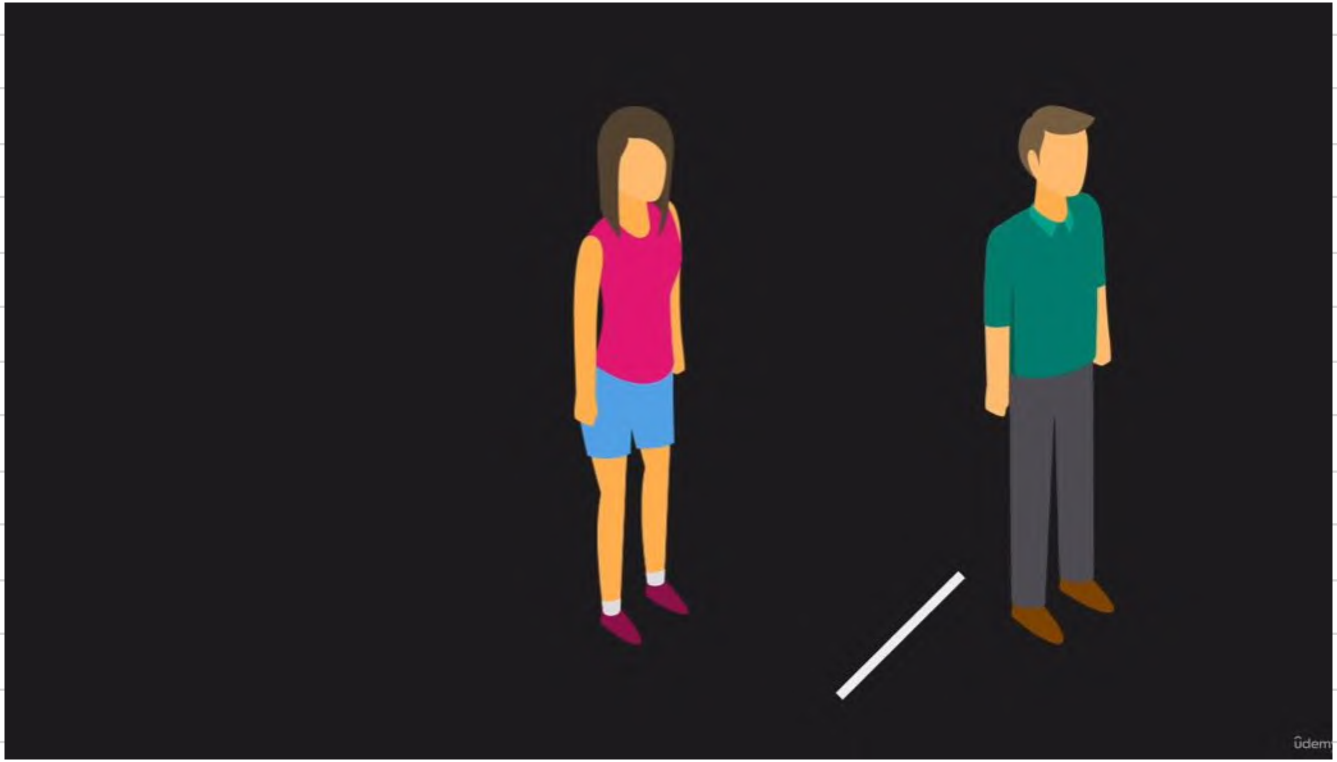
Queue



Queue

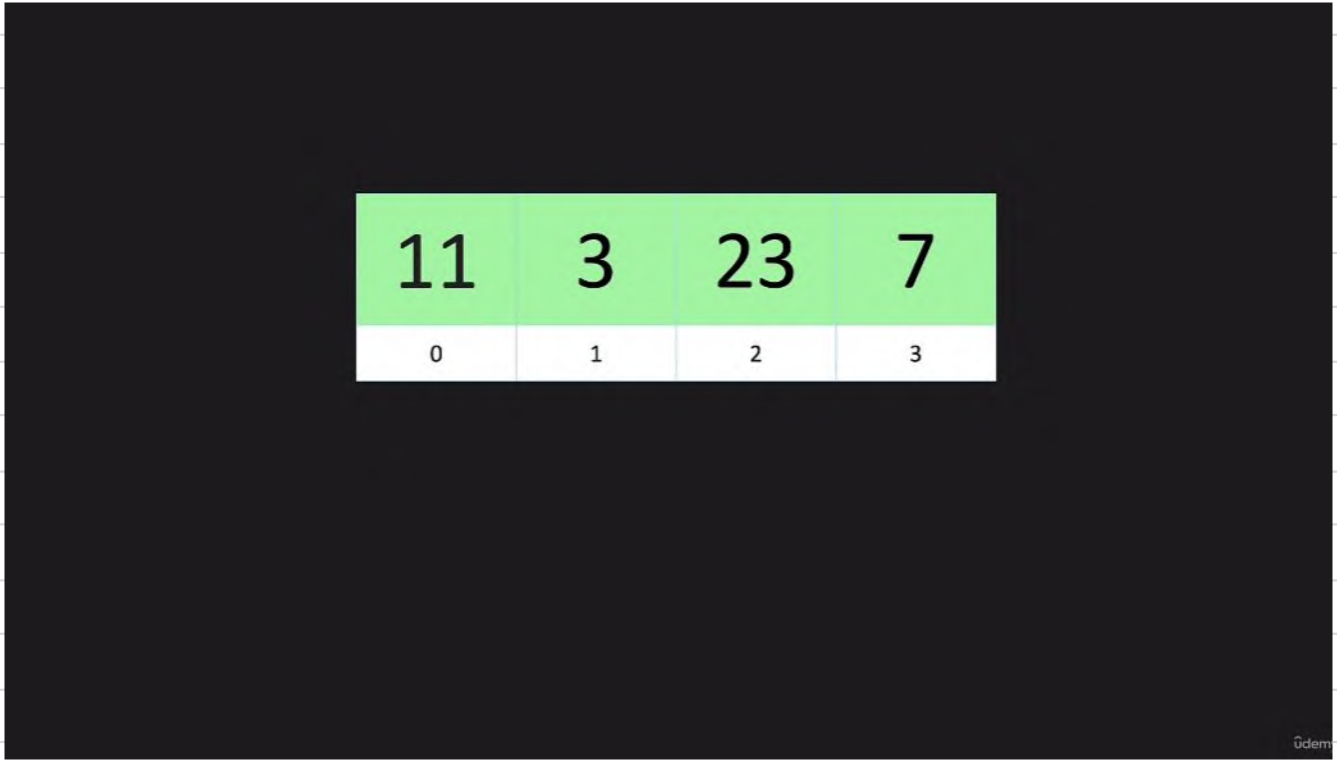


Queue

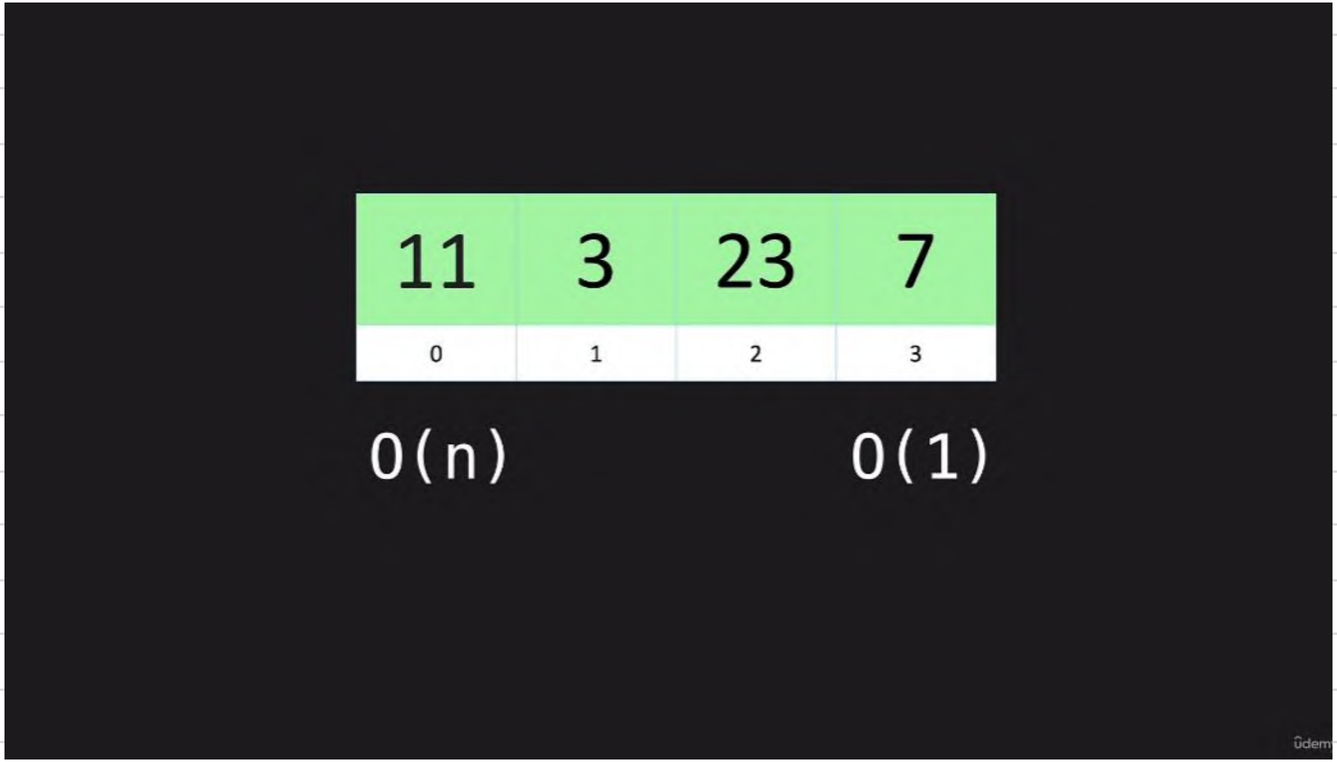


Queue

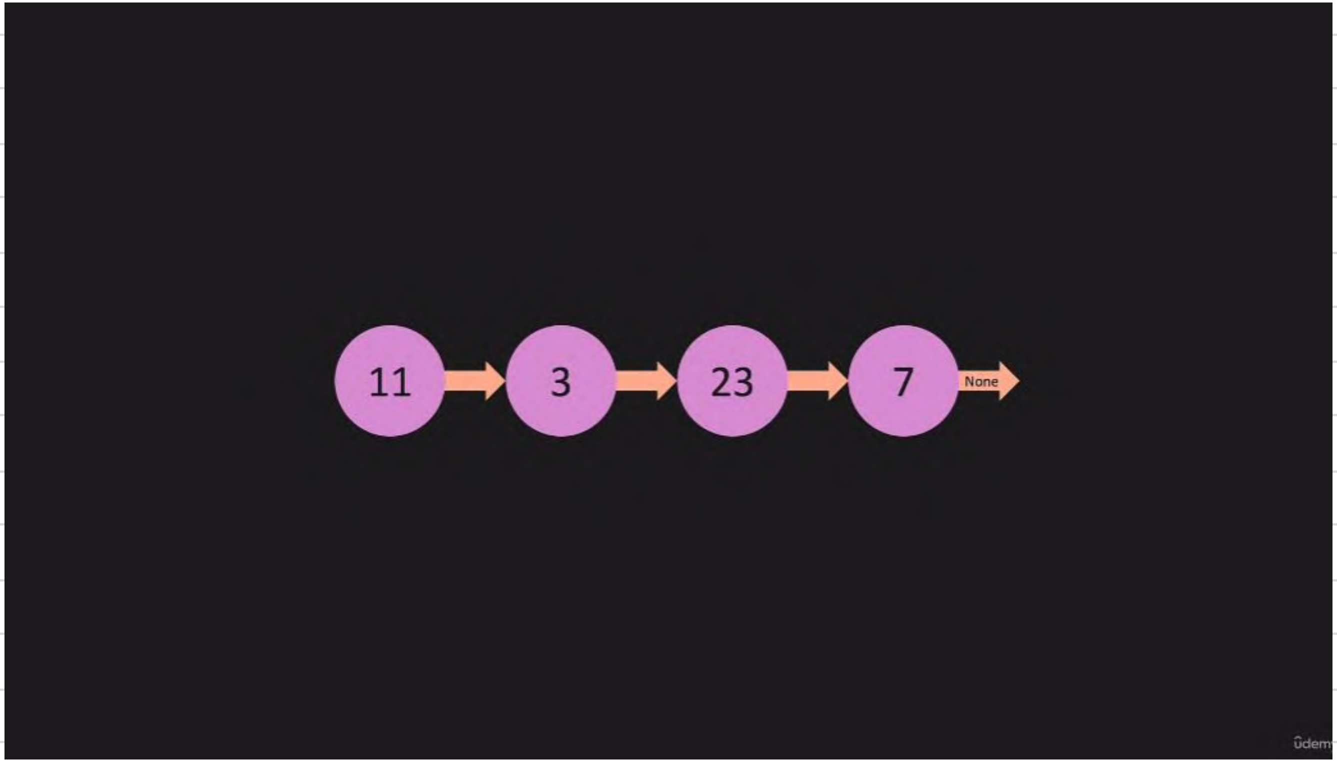
Queue



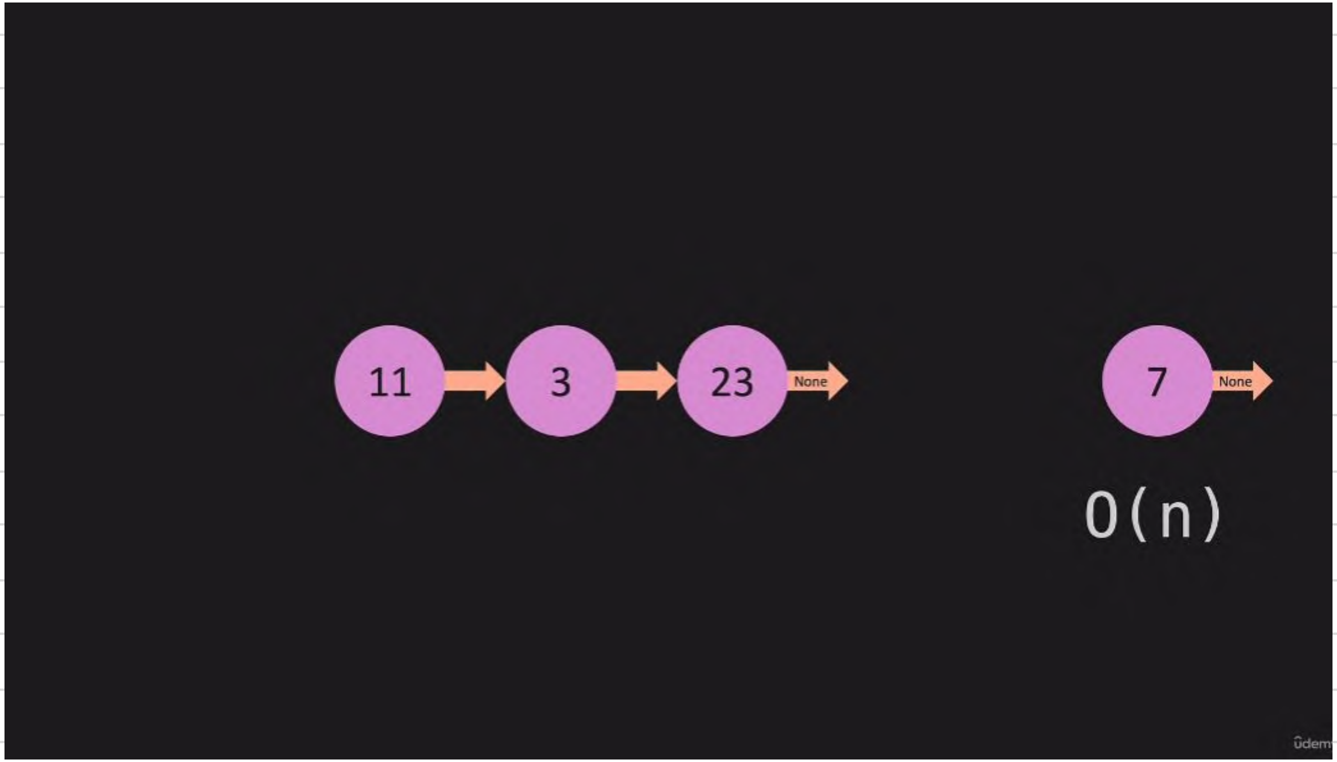
Queue



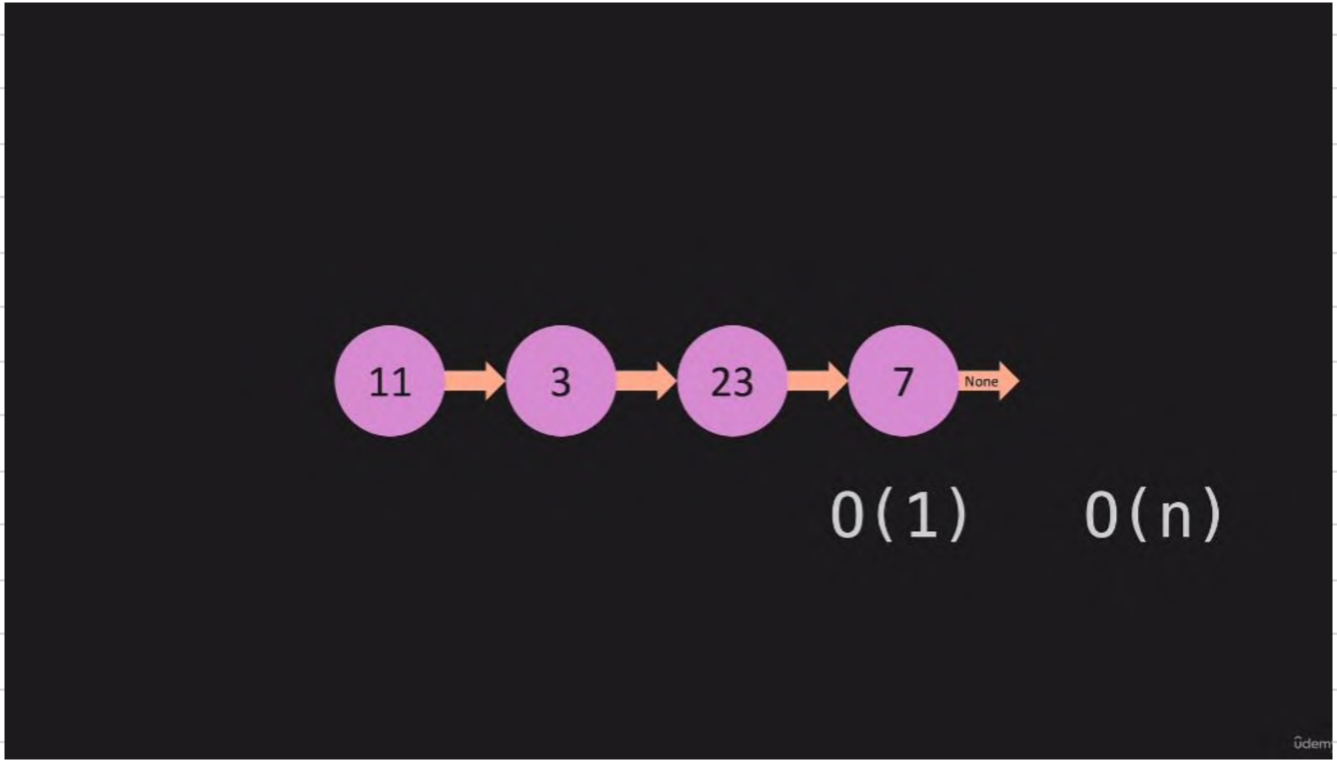
Queue



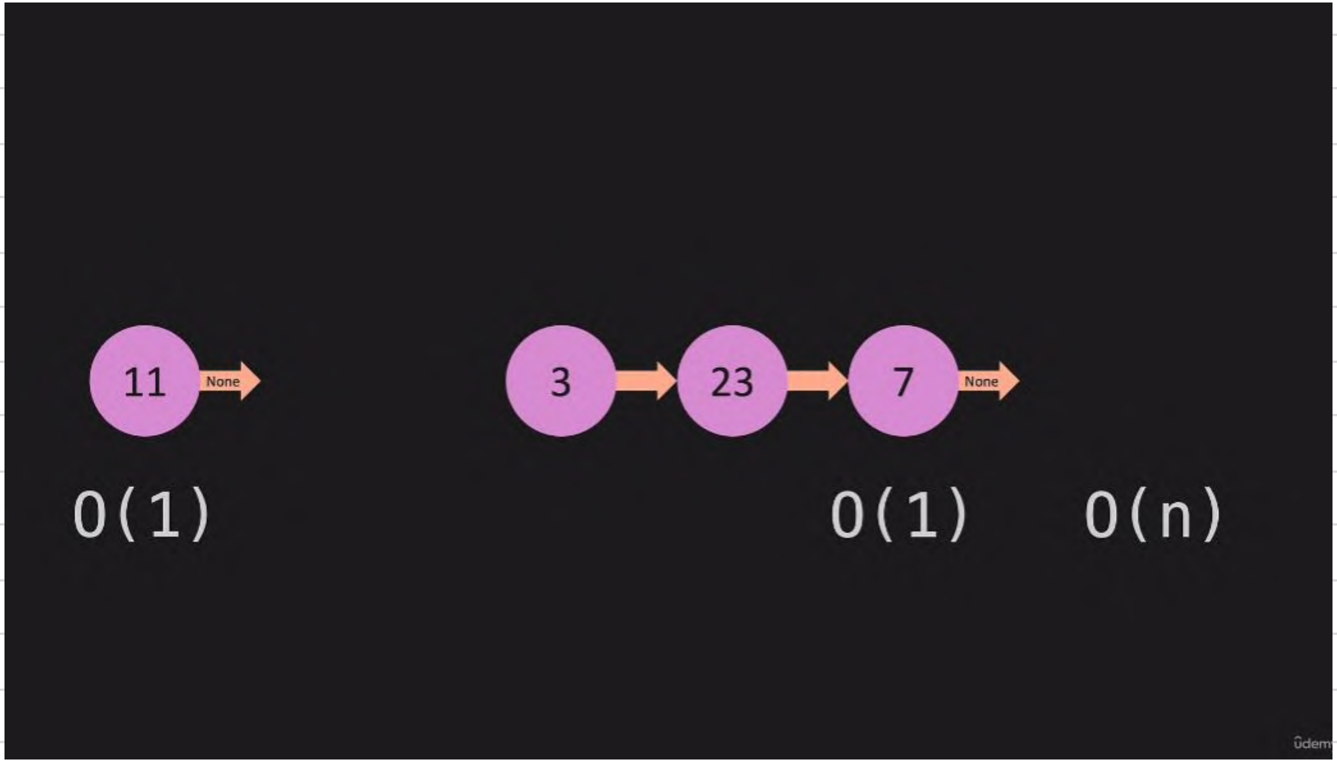
Queue



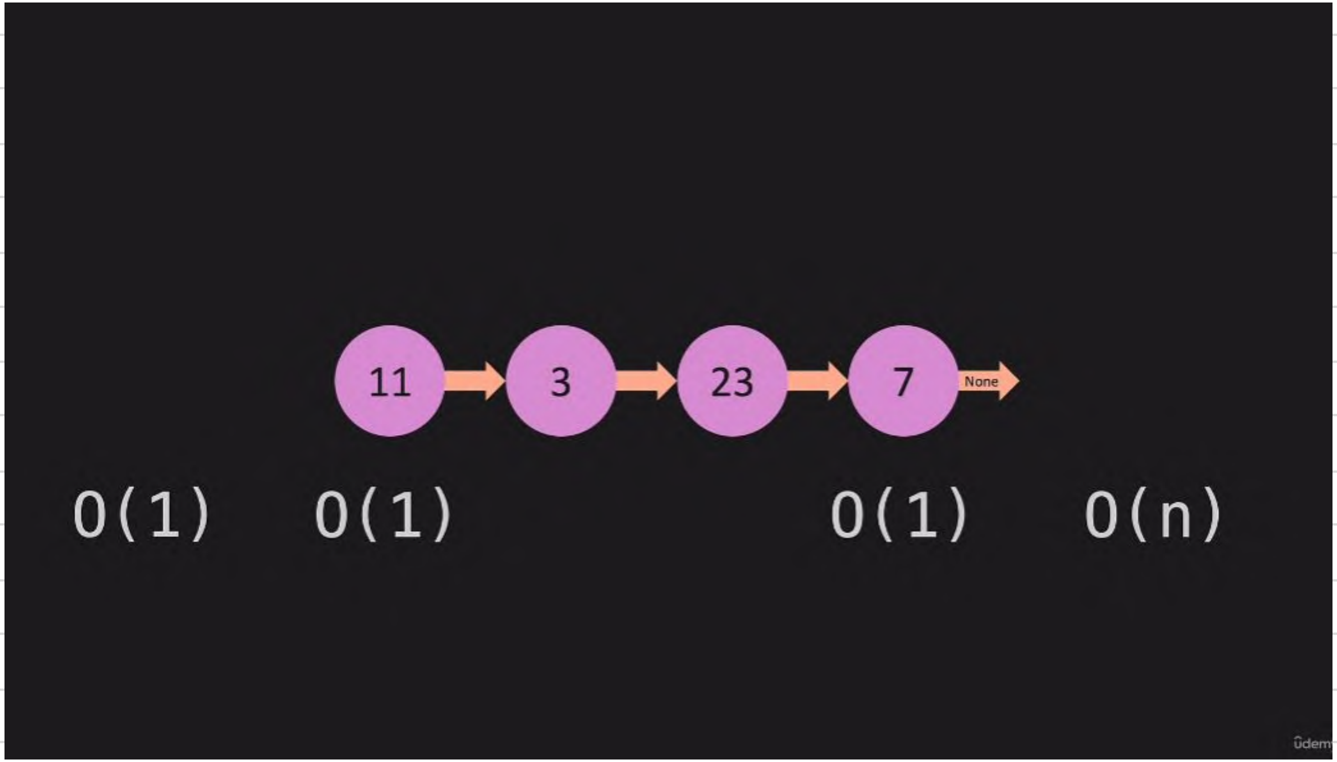
Queue



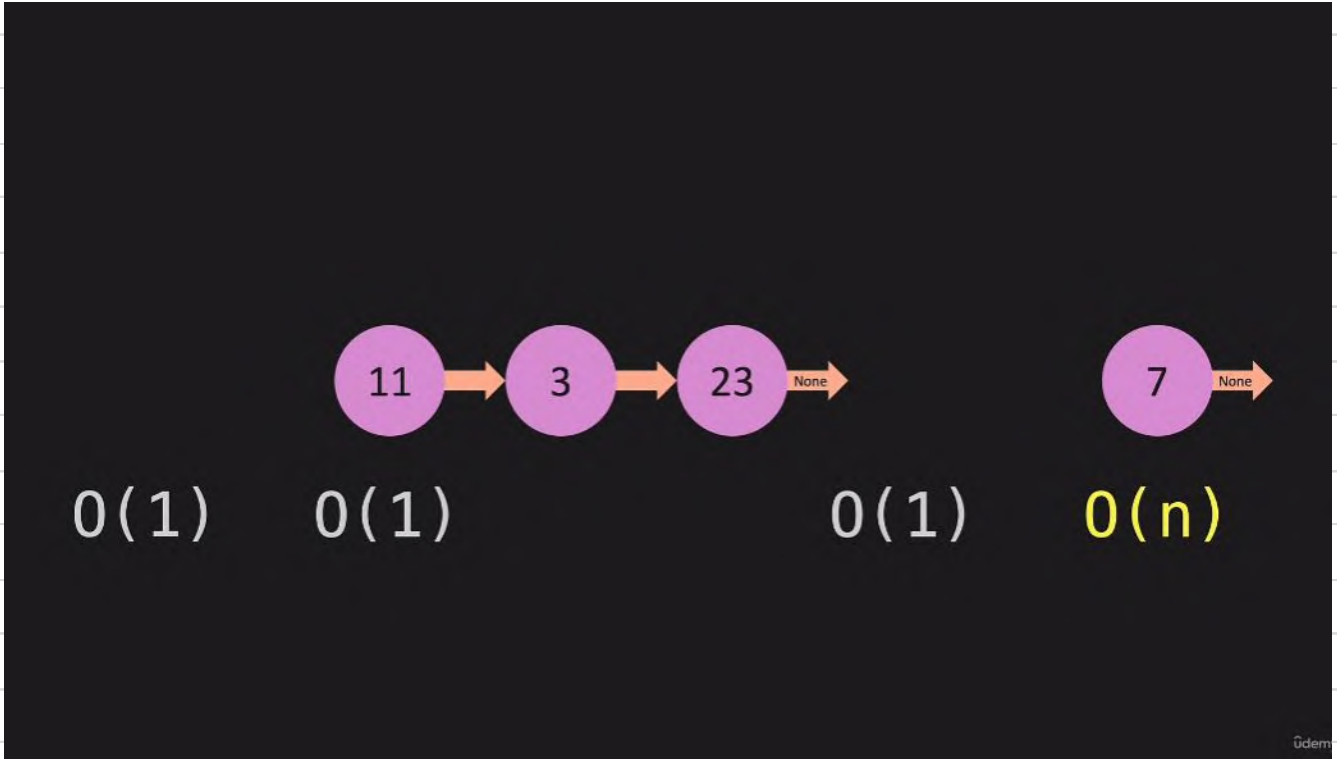
Queue



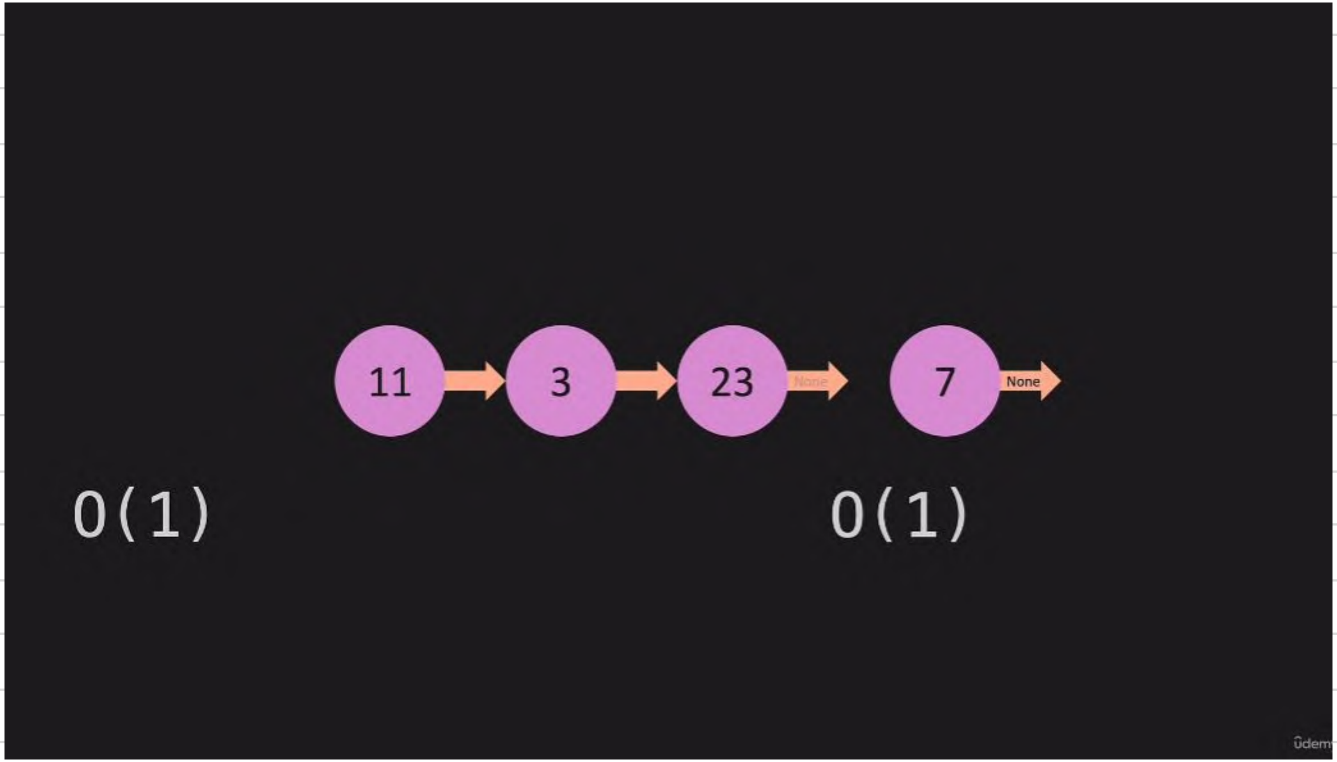
Queue



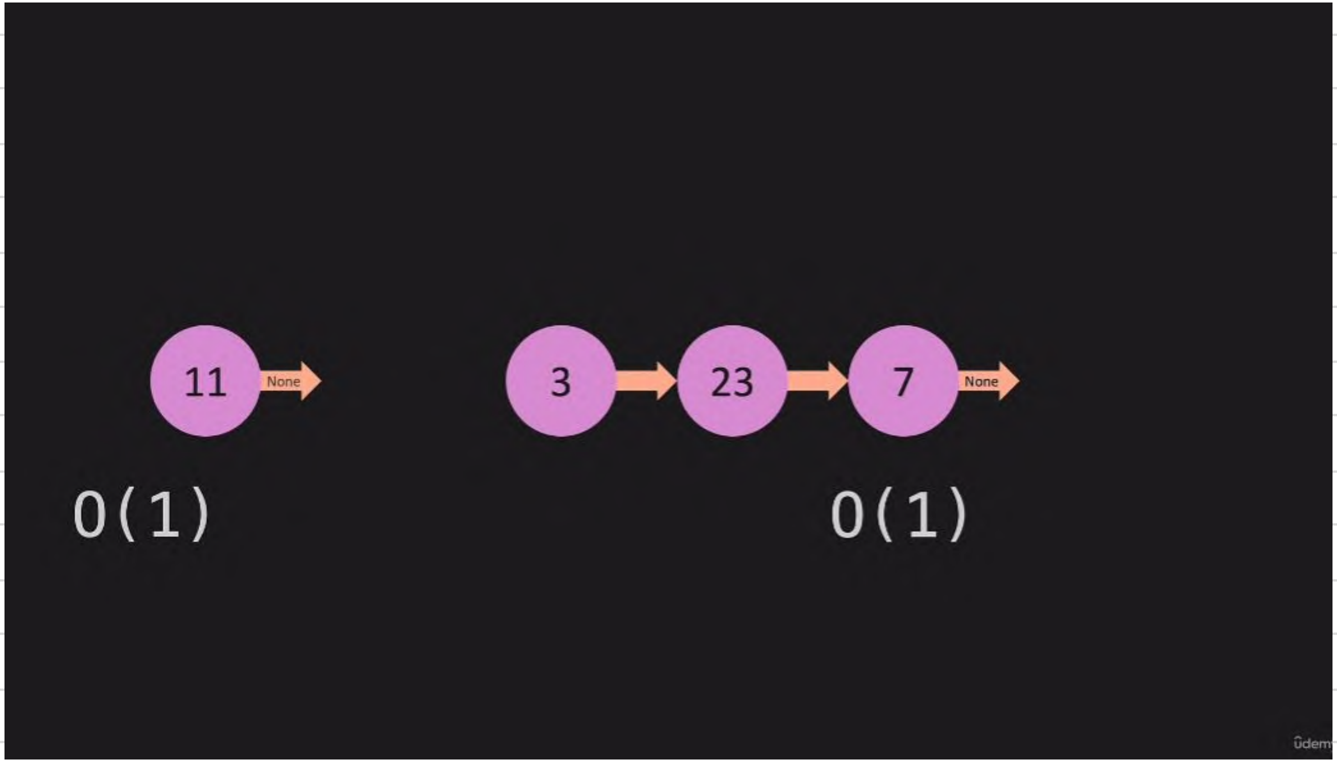
Queue



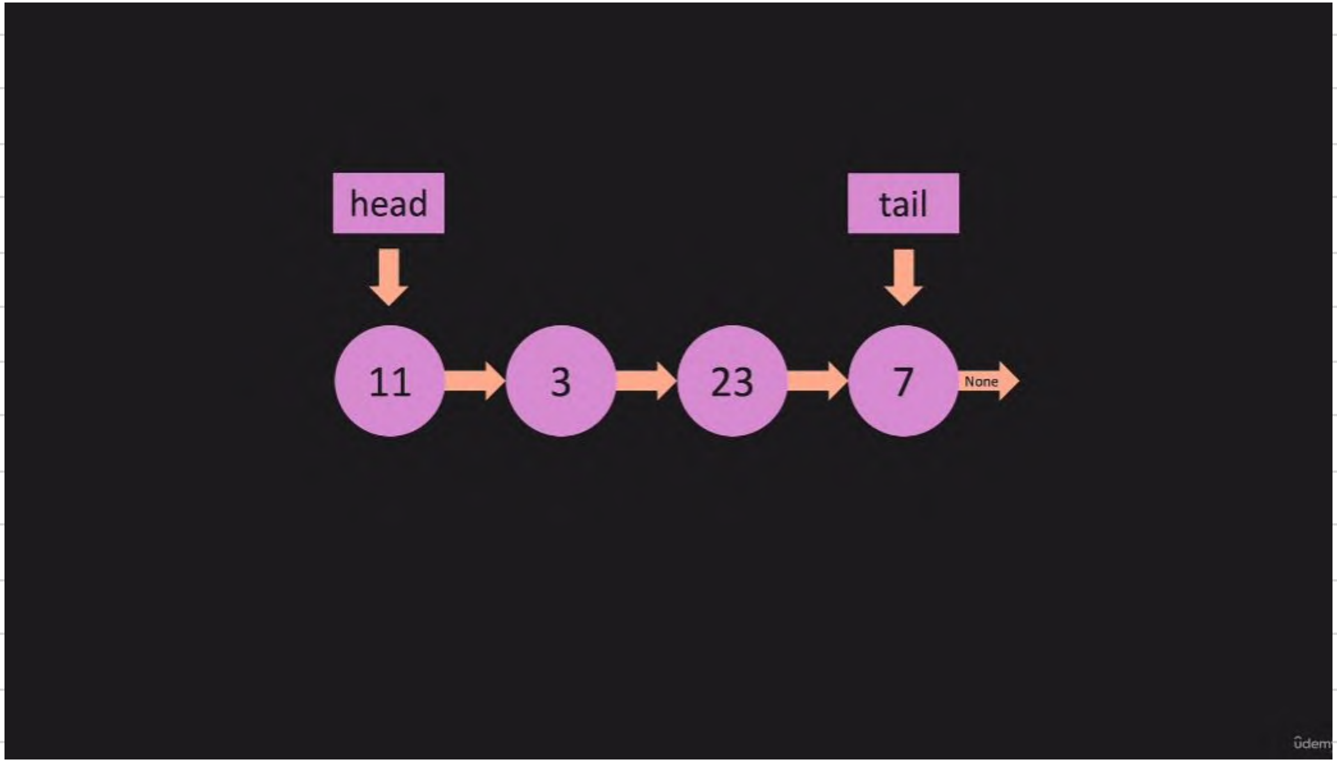
Queue



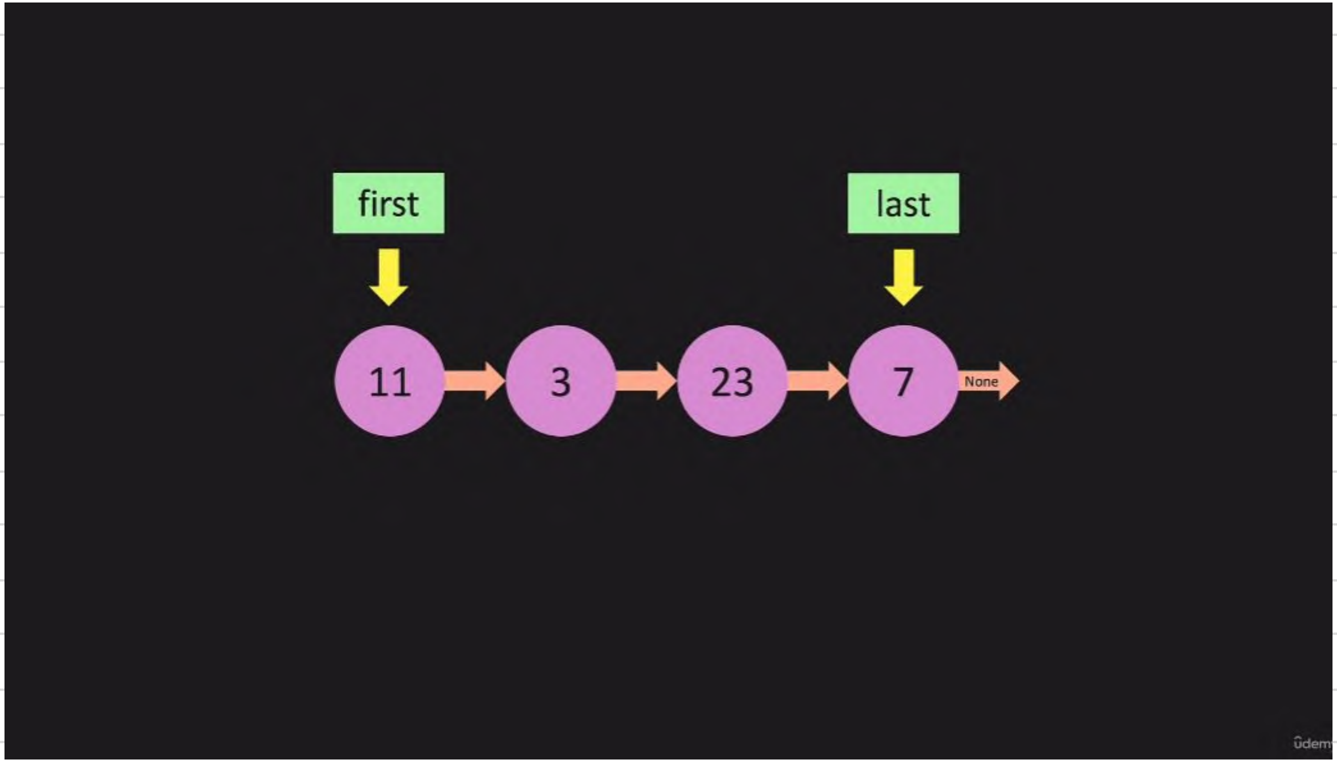
Queue



Queue



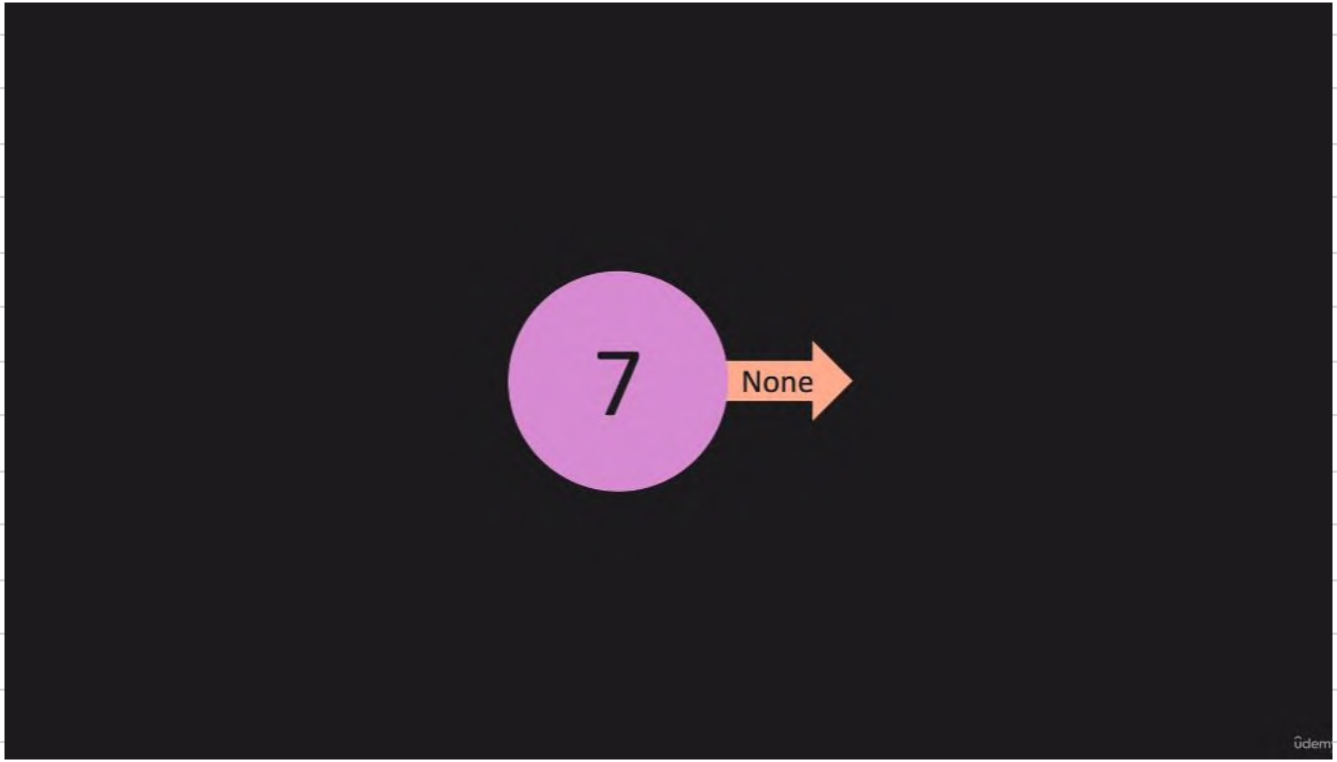
Queue



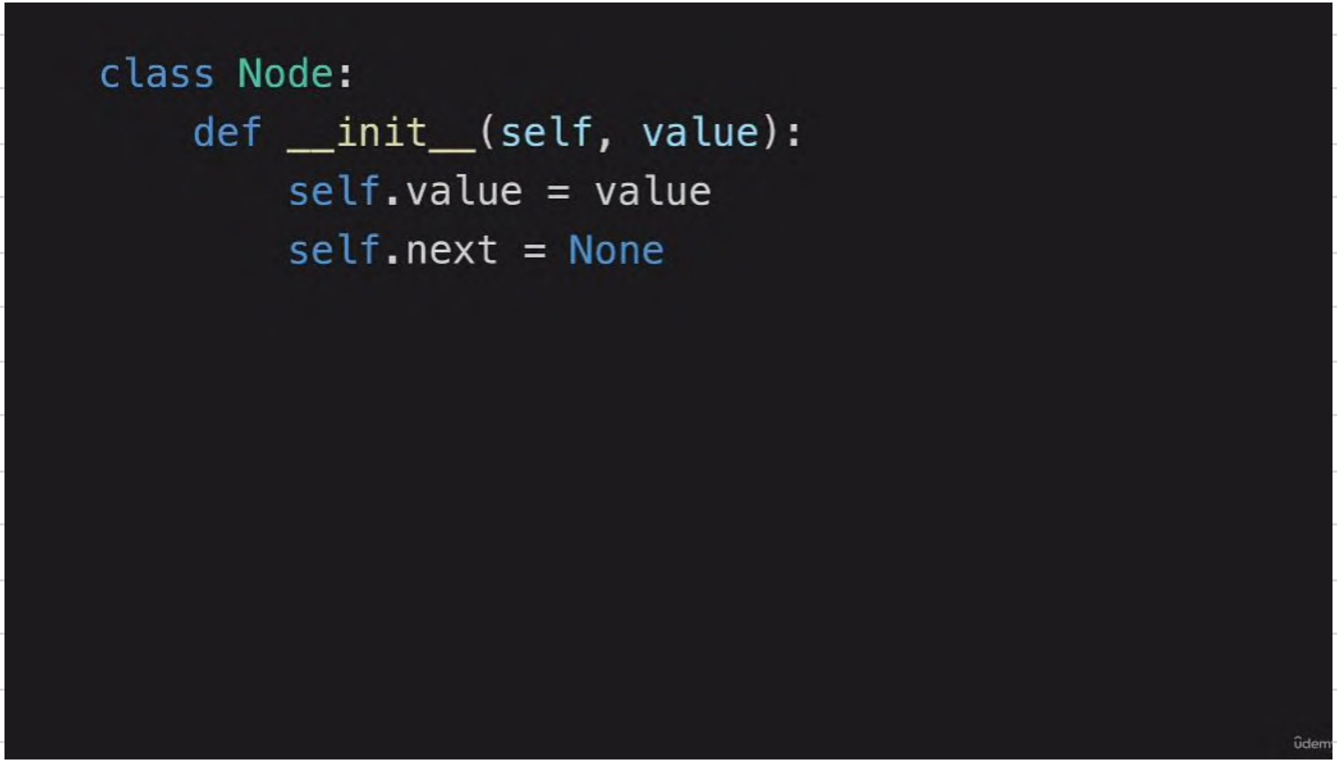
06

Queue Constructor

Queue : Constructor

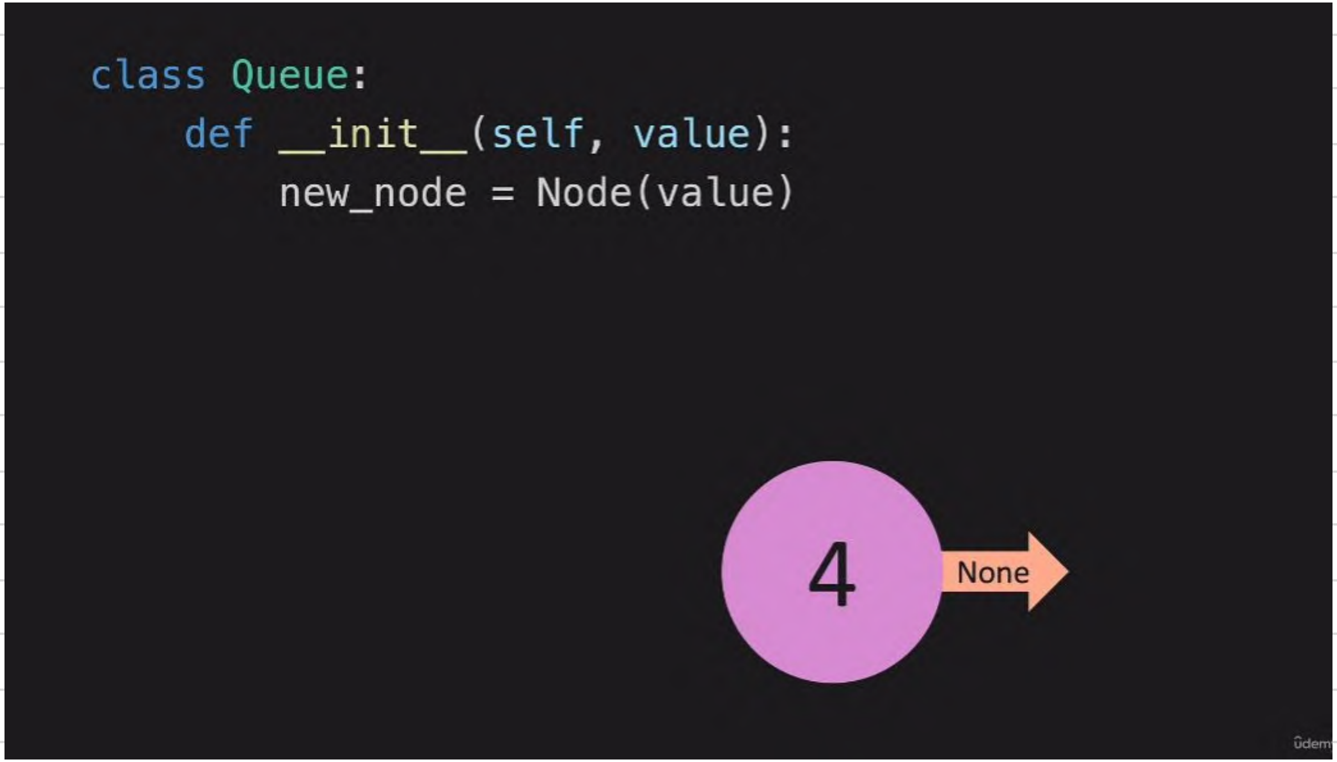


Queue : Constructor



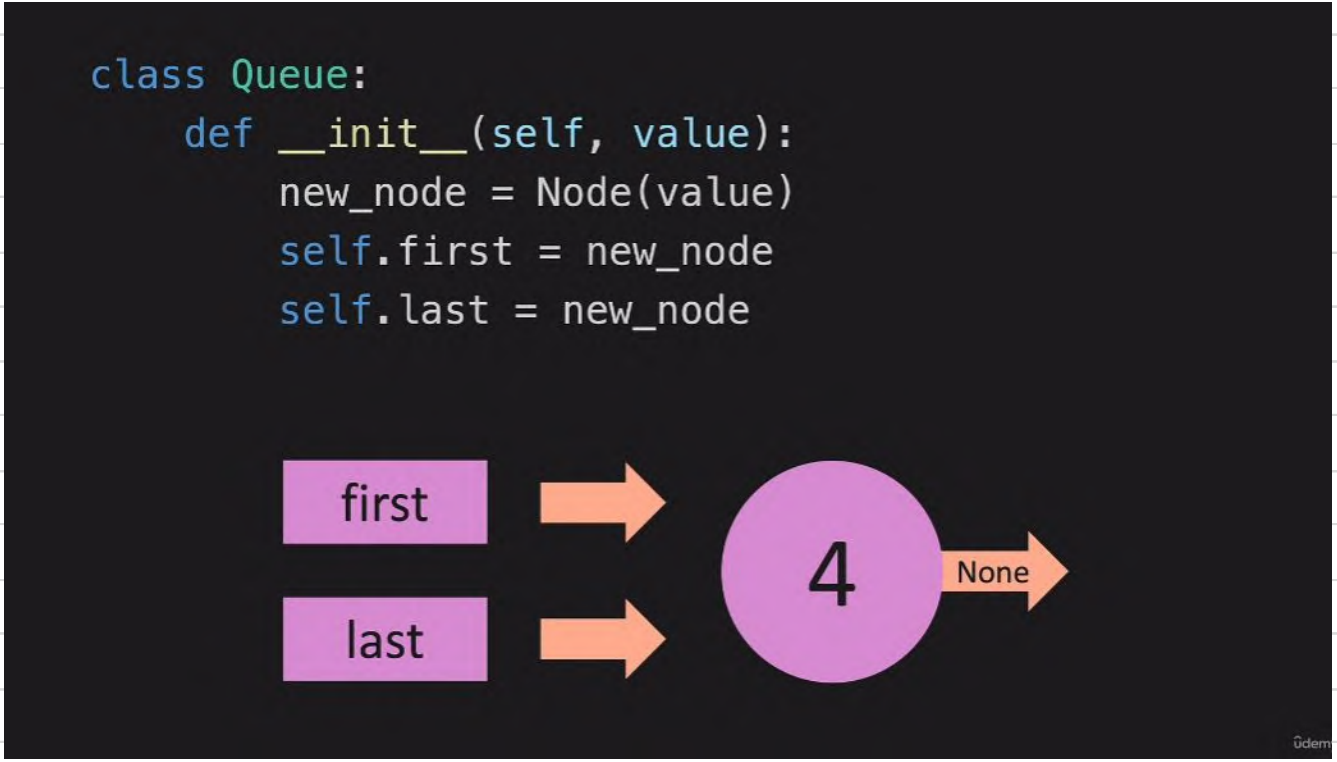
```
class Node:
    def __init__(self, value):
        self.value = value
        self.next = None
```

Queue : Constructor



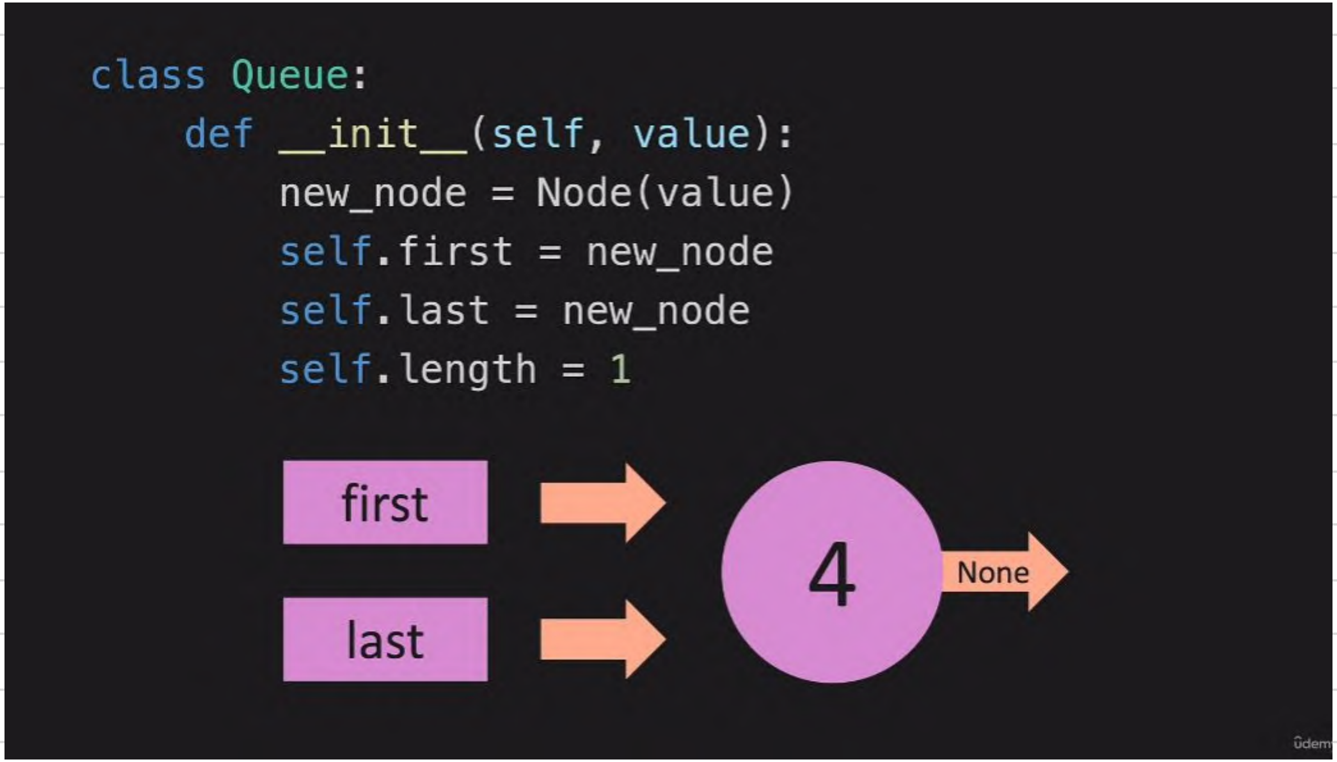
```
class Queue:
    def __init__(self, value):
        new_node = Node(value)
```

Queue : Constructor



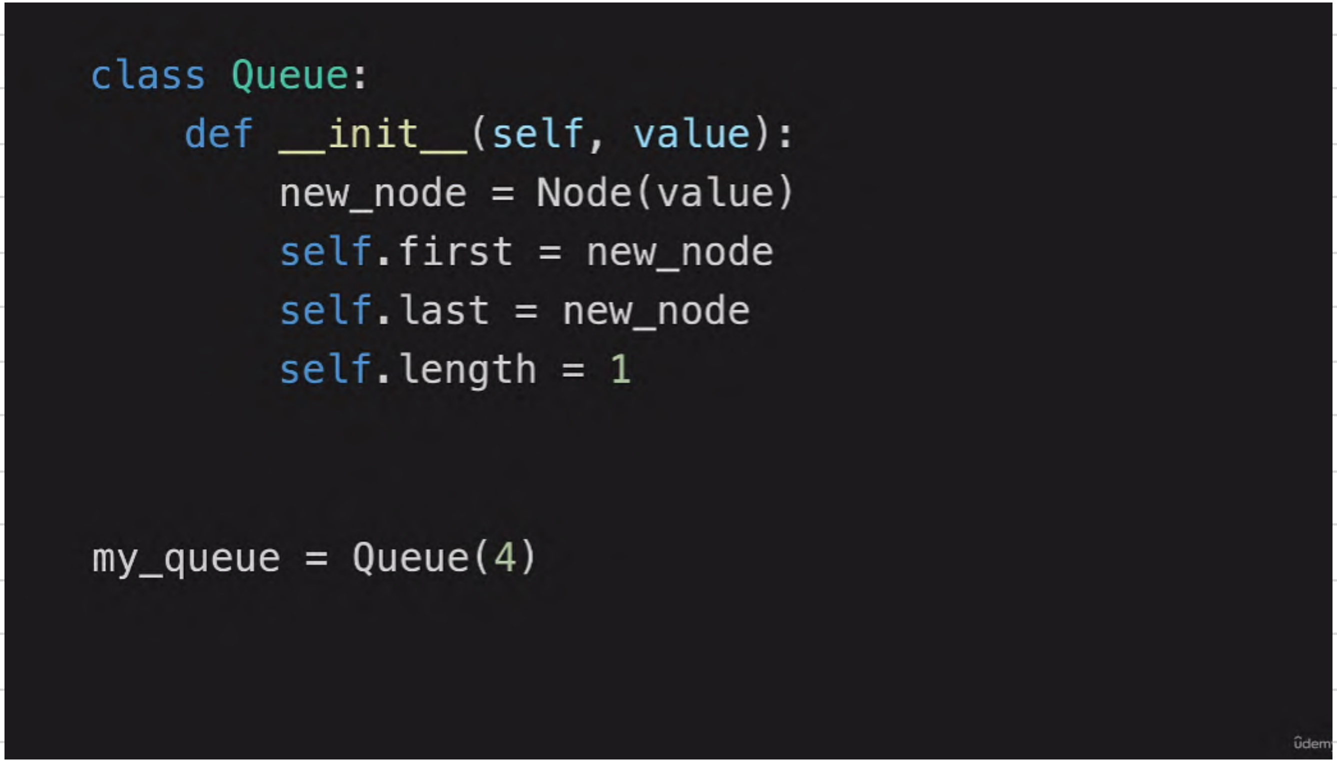
```
class Queue:
    def __init__(self, value):
        new_node = Node(value)
        self.first = new_node
        self.last = new_node
```

Queue : Constructor



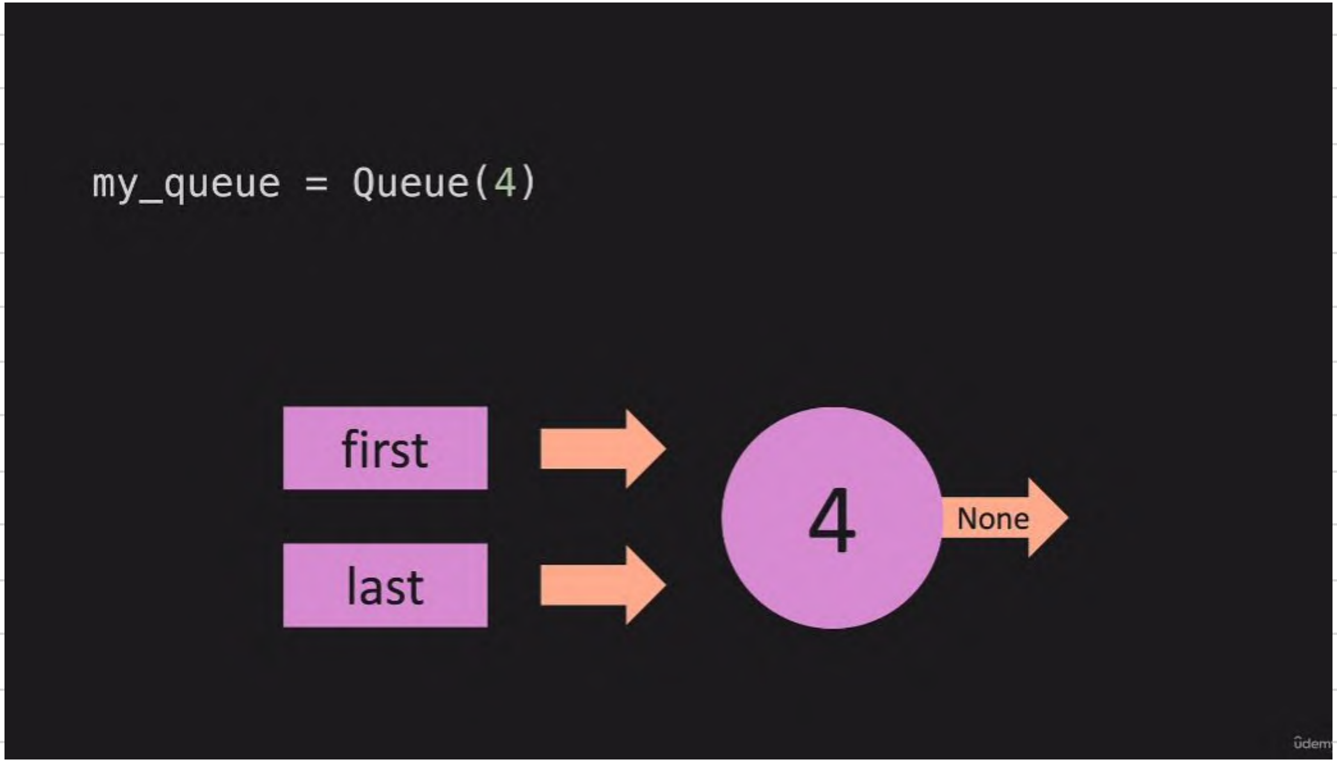
```
class Queue:
    def __init__(self, value):
        new_node = Node(value)
        self.first = new_node
        self.last = new_node
        self.length = 1
```

Queue : Constructor



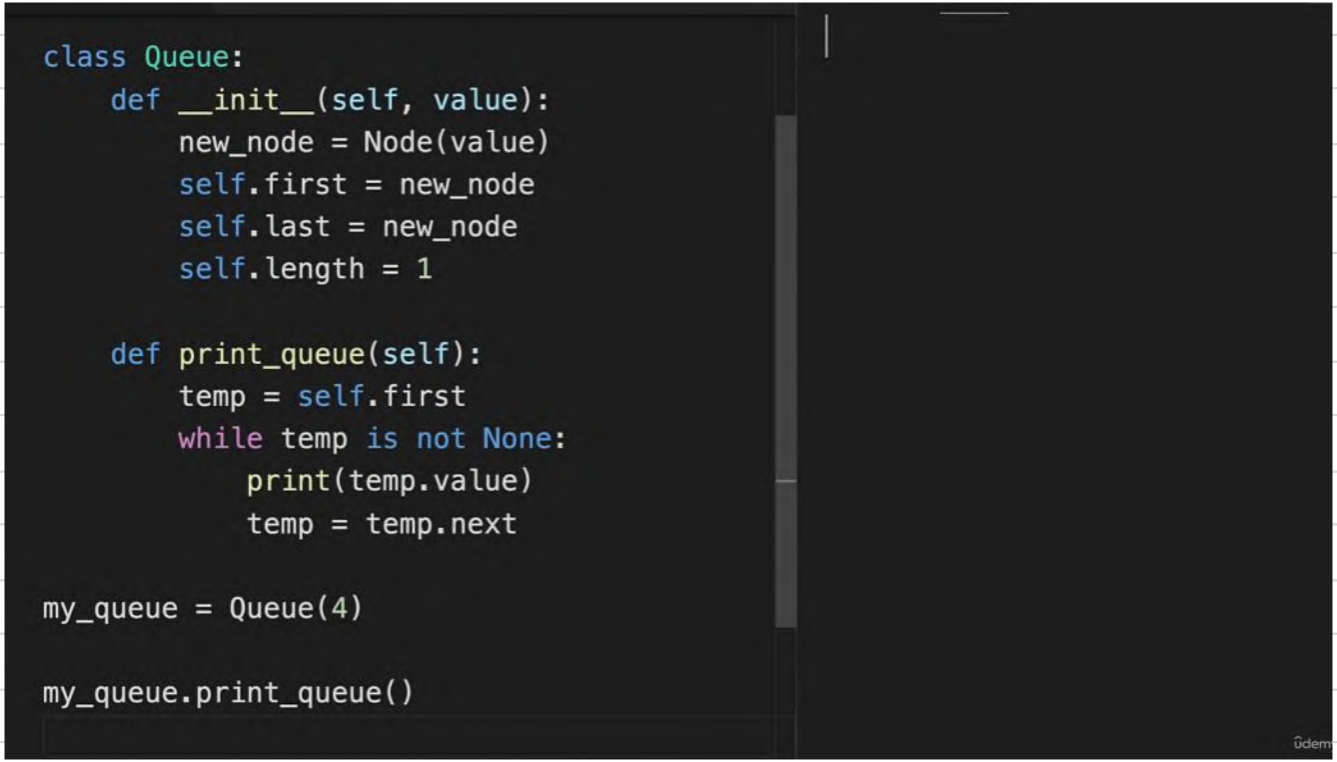
```python
class Queue:
    def __init__(self, value):
        new_node = Node(value)
        self.first = new_node
        self.last = new_node
        self.length = 1


my_queue = Queue(4)
```

Queue : Constructor



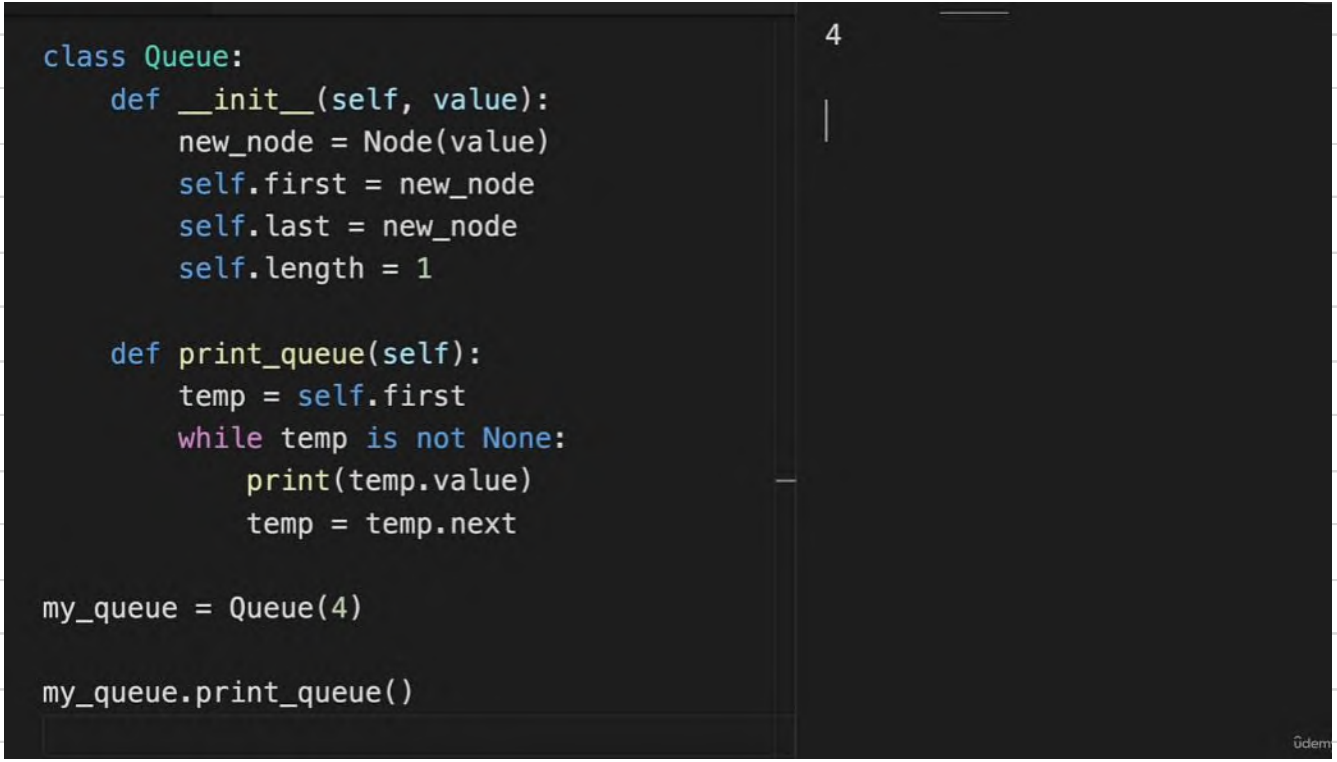
```
my_queue = Queue(4)
```

Queue : Constructor



```python
class Queue:
    def __init__(self, value):
        new_node = Node(value)
        self.first = new_node
        self.last = new_node
        self.length = 1

    def print_queue(self):
        temp = self.first
        while temp is not None:
            print(temp.value)
            temp = temp.next

my_queue = Queue(4)

my_queue.print_queue()
```

Queue : Constructor



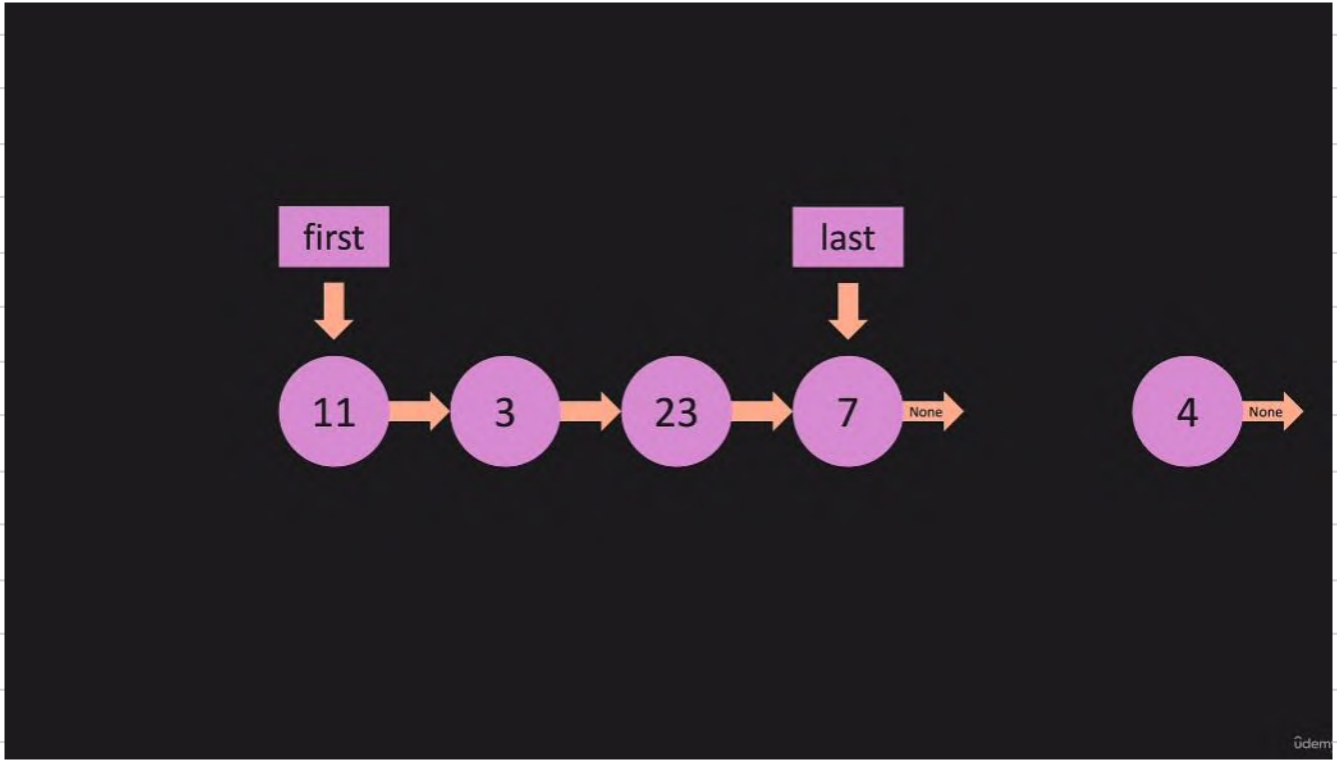
```
class Queue:
    def __init__(self, value):
        new_node = Node(value)
        self.first = new_node
        self.last = new_node
        self.length = 1

    def print_queue(self):
        temp = self.first
        while temp is not None:
            print(temp.value)
            temp = temp.next

my_queue = Queue(4)

my_queue.print_queue()
```

```
4
```

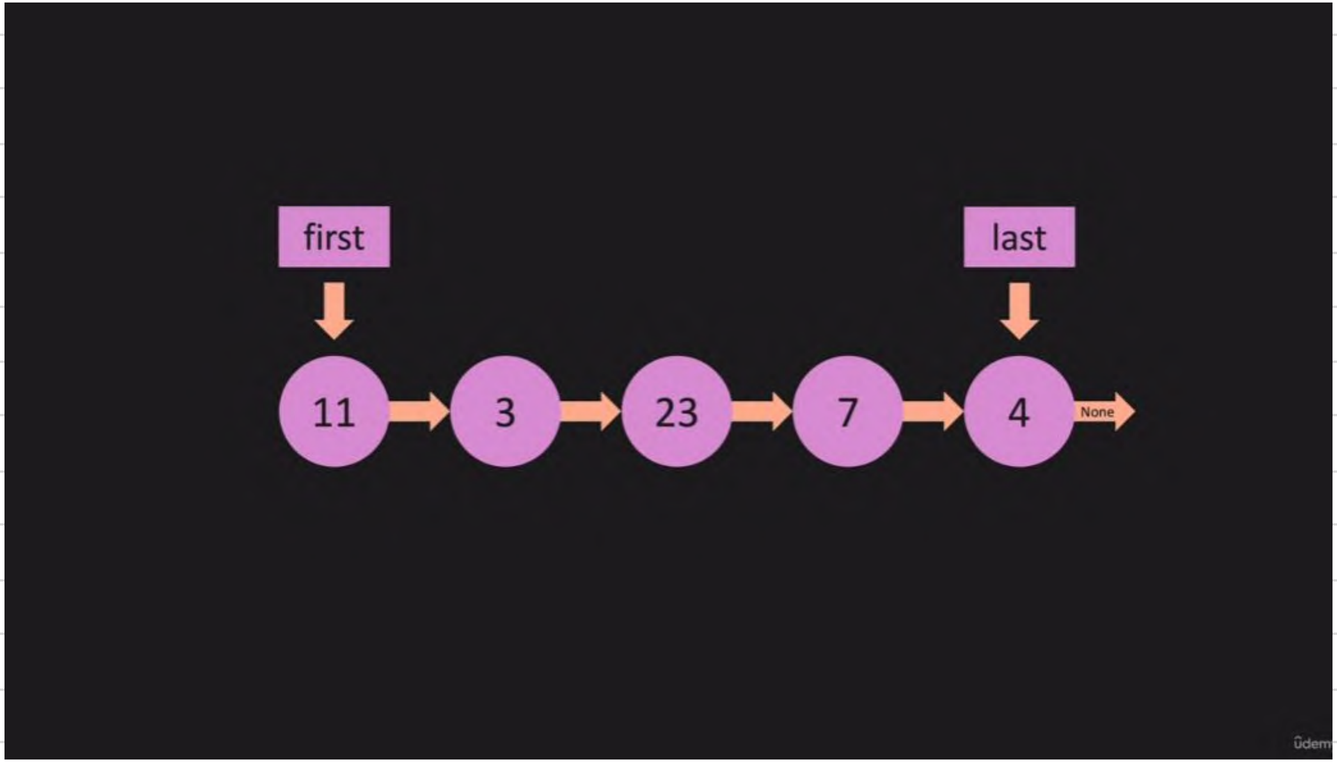
07

Queue Enqueue

Queue : Enqueue

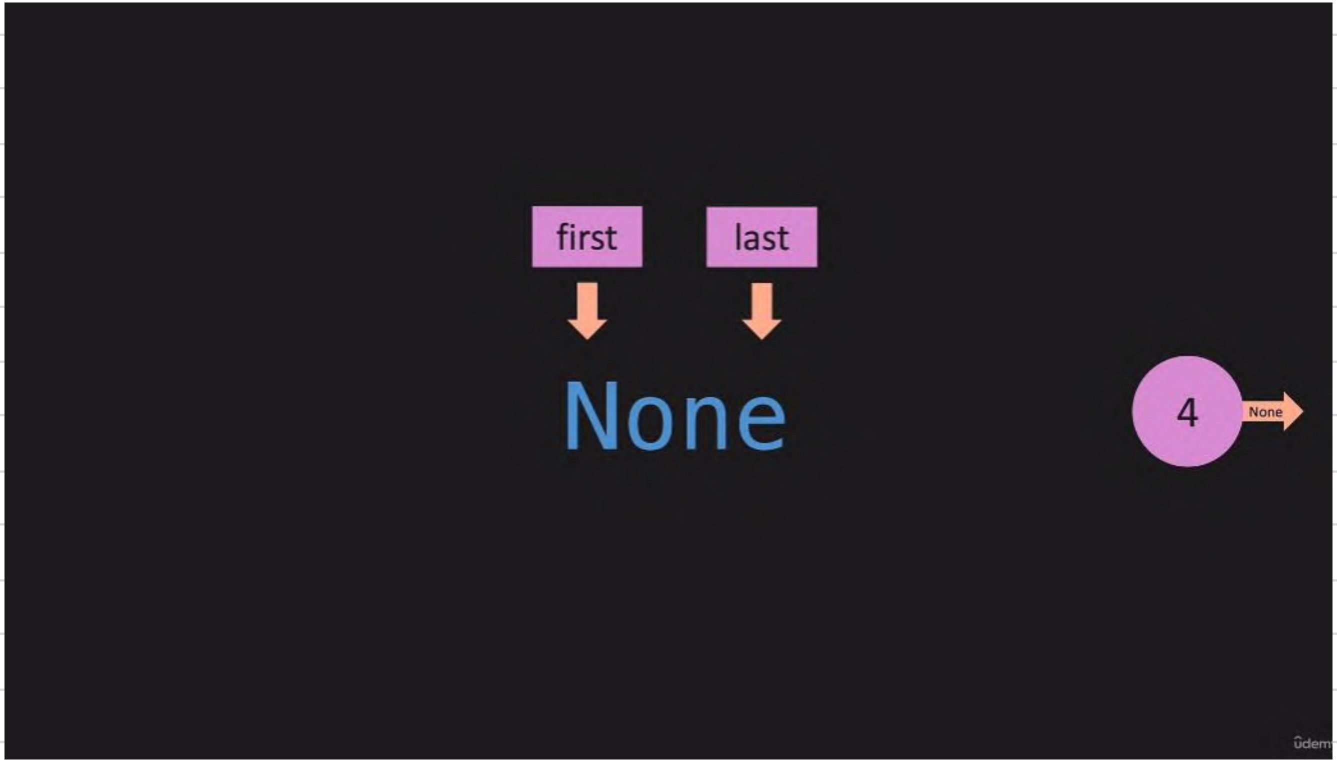


Queue : Enqueue



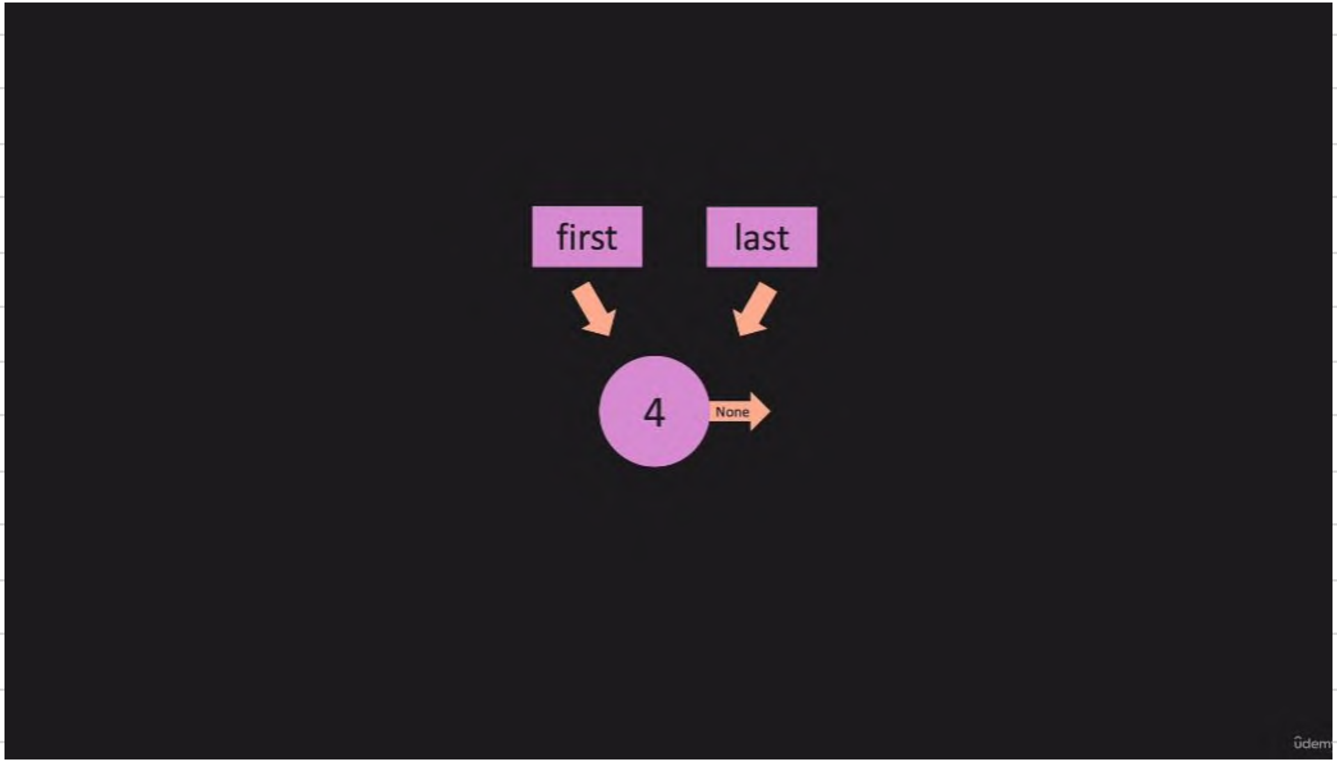
Edge Condition #1

Queue : Enqueue

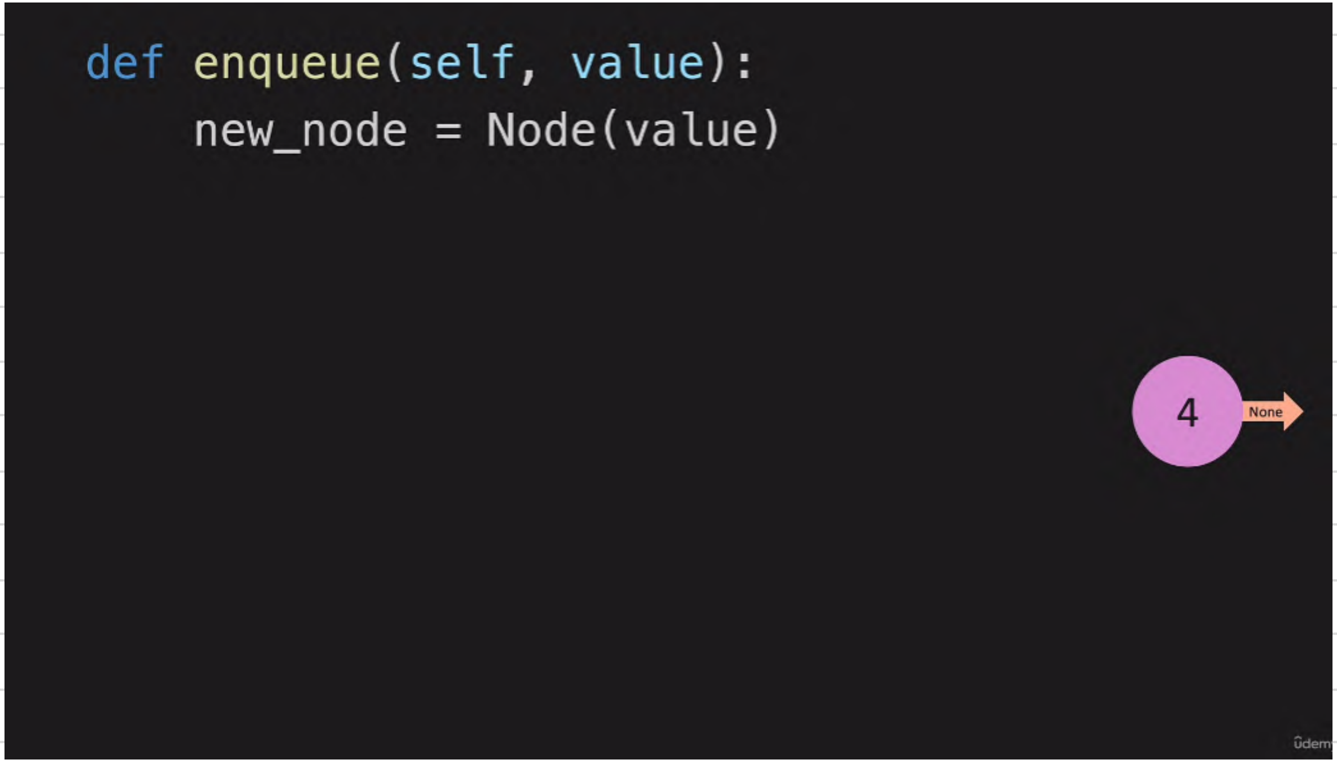


Seharusnya

Queue : Enqueue

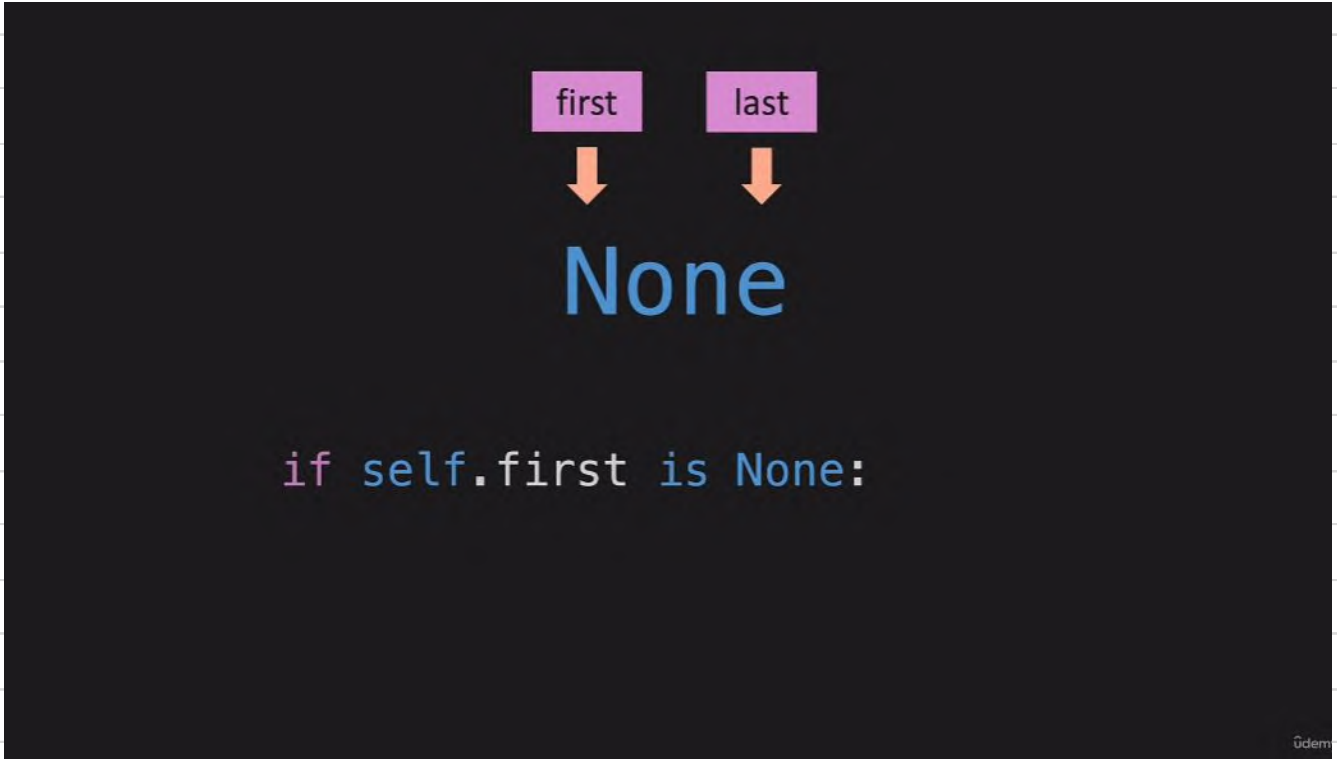


Queue : Enqueue Code



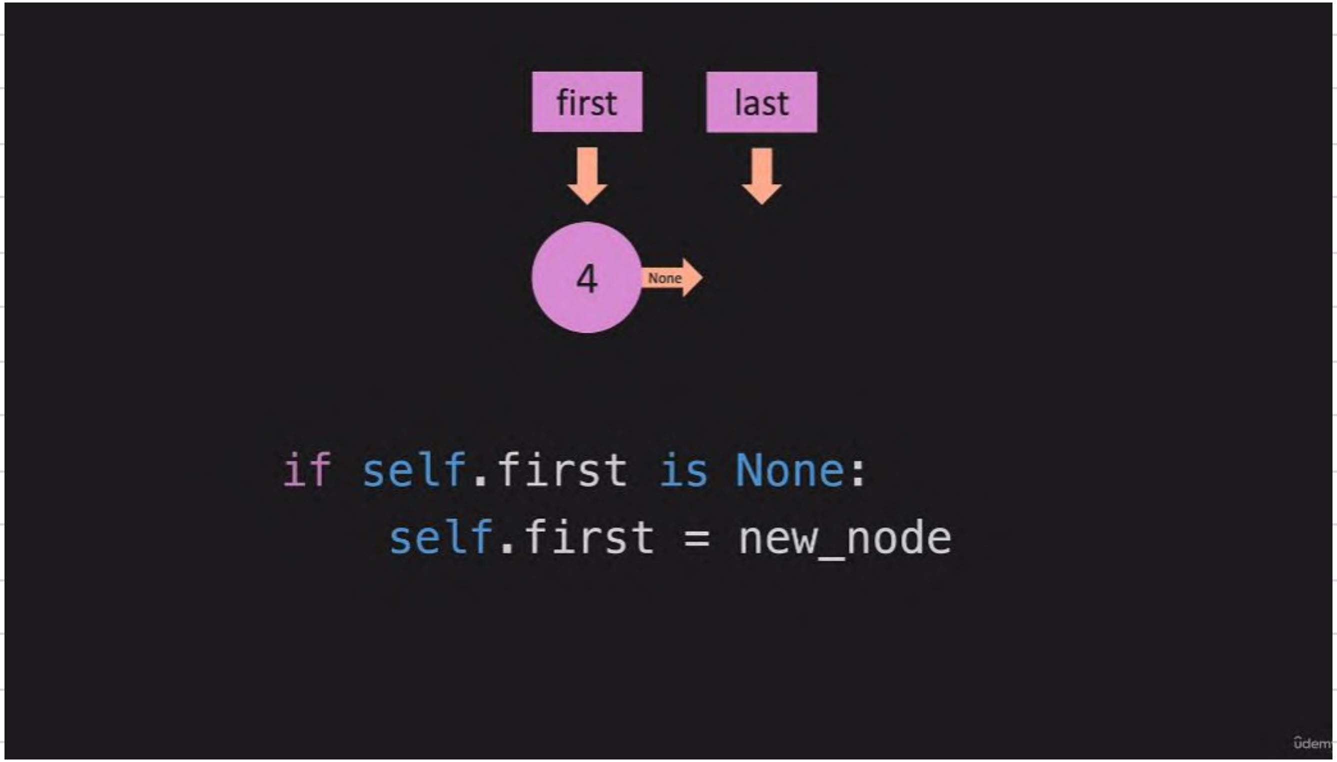
```
def enqueue(self, value):
    new_node = Node(value)
```

Queue : Enqueue Code



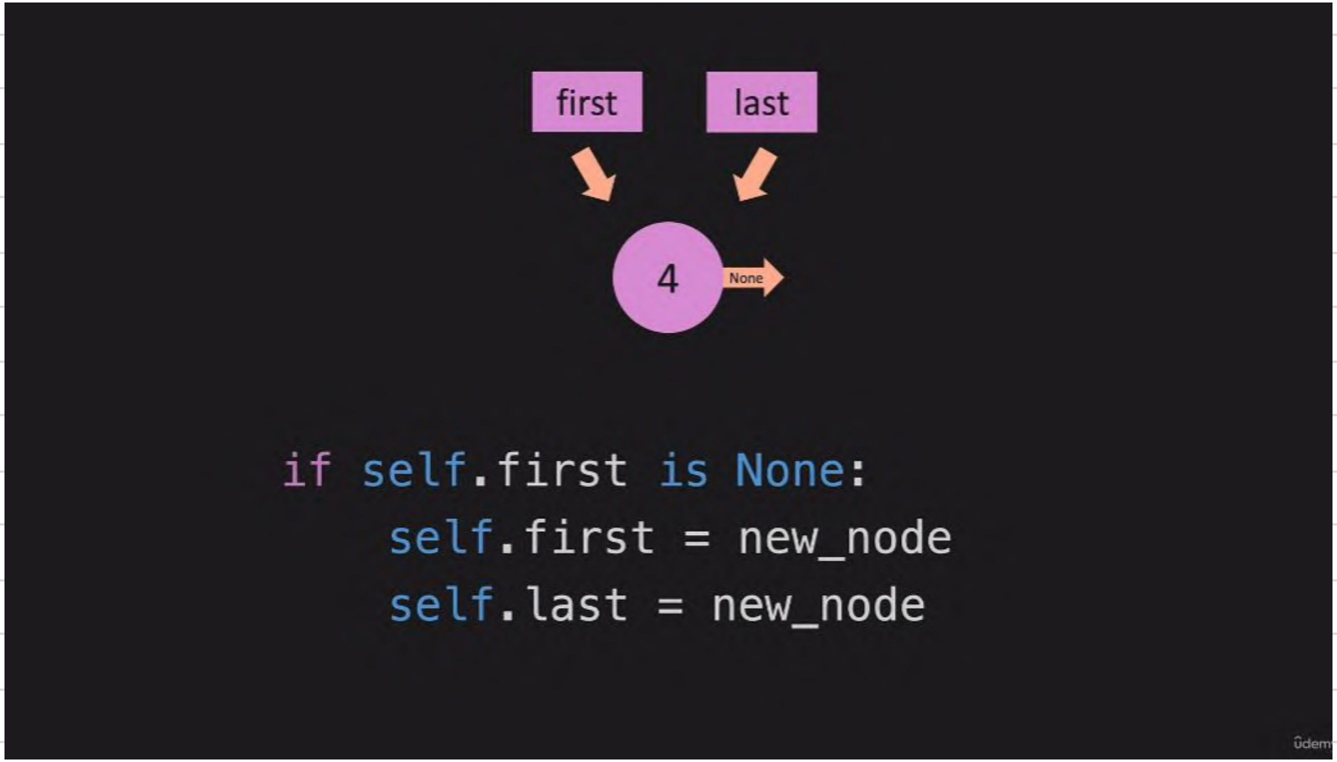
```
if self.first is None:
```

Queue : Enqueue Code



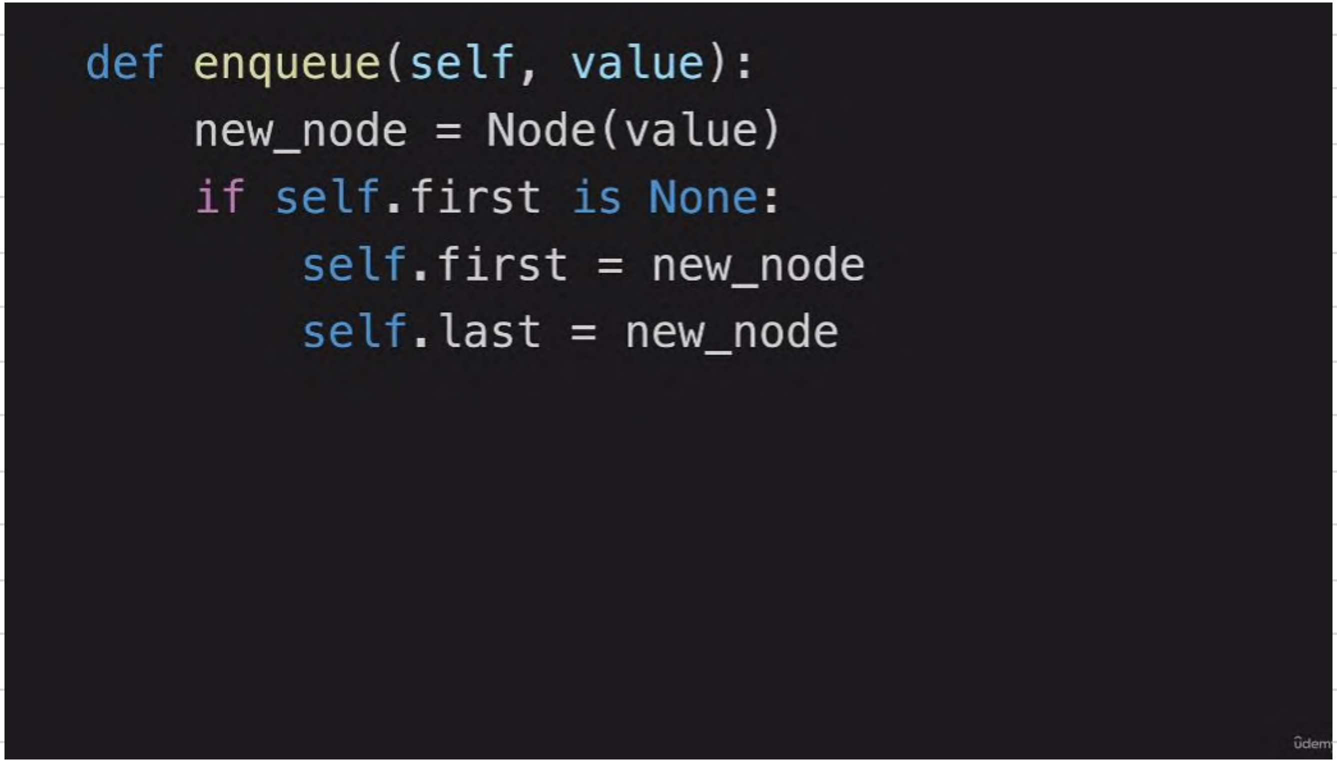
```
if self.first is None:
    self.first = new_node
```

Queue : Enqueue Code



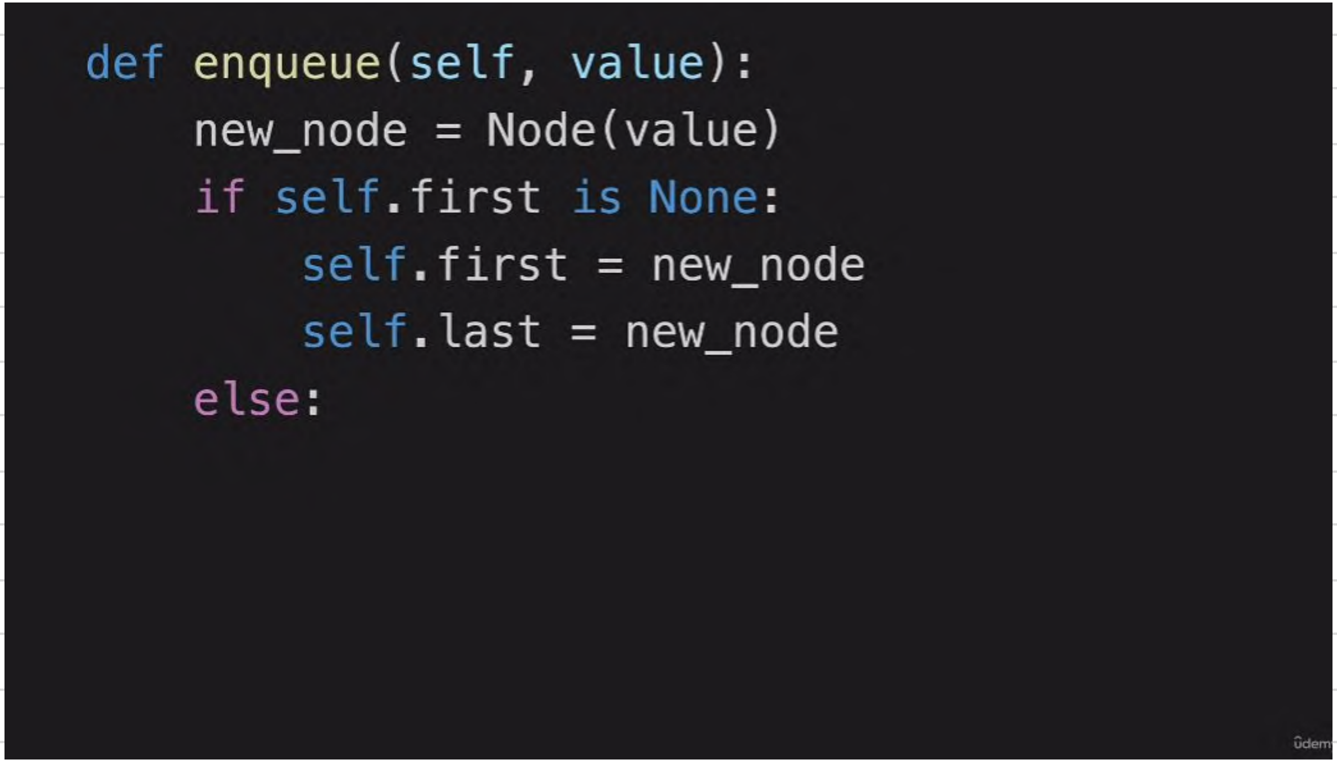
```
if self.first is None:
    self.first = new_node
    self.last = new_node
```

Queue : Enqueue Code



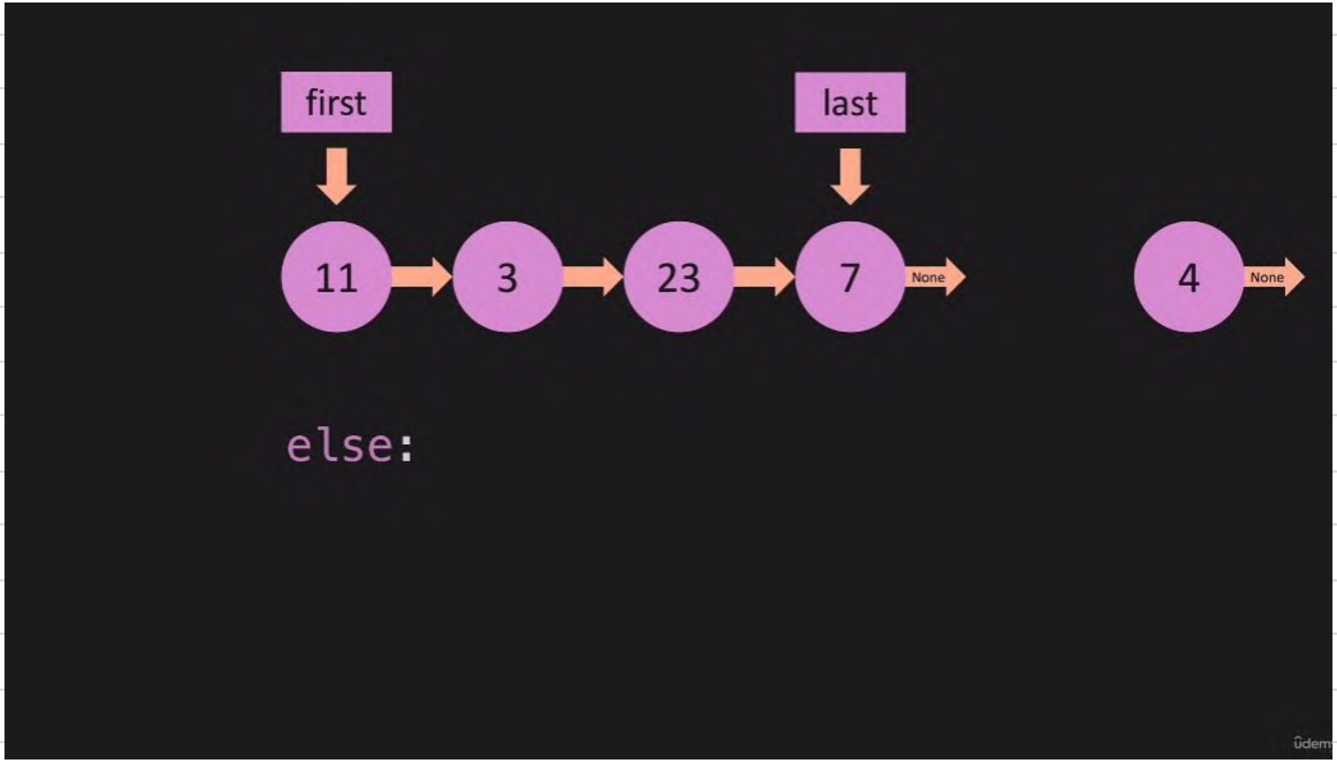
```
def enqueue(self, value):
    new_node = Node(value)
    if self.first is None:
        self.first = new_node
        self.last = new_node
```

Queue : Enqueue Code



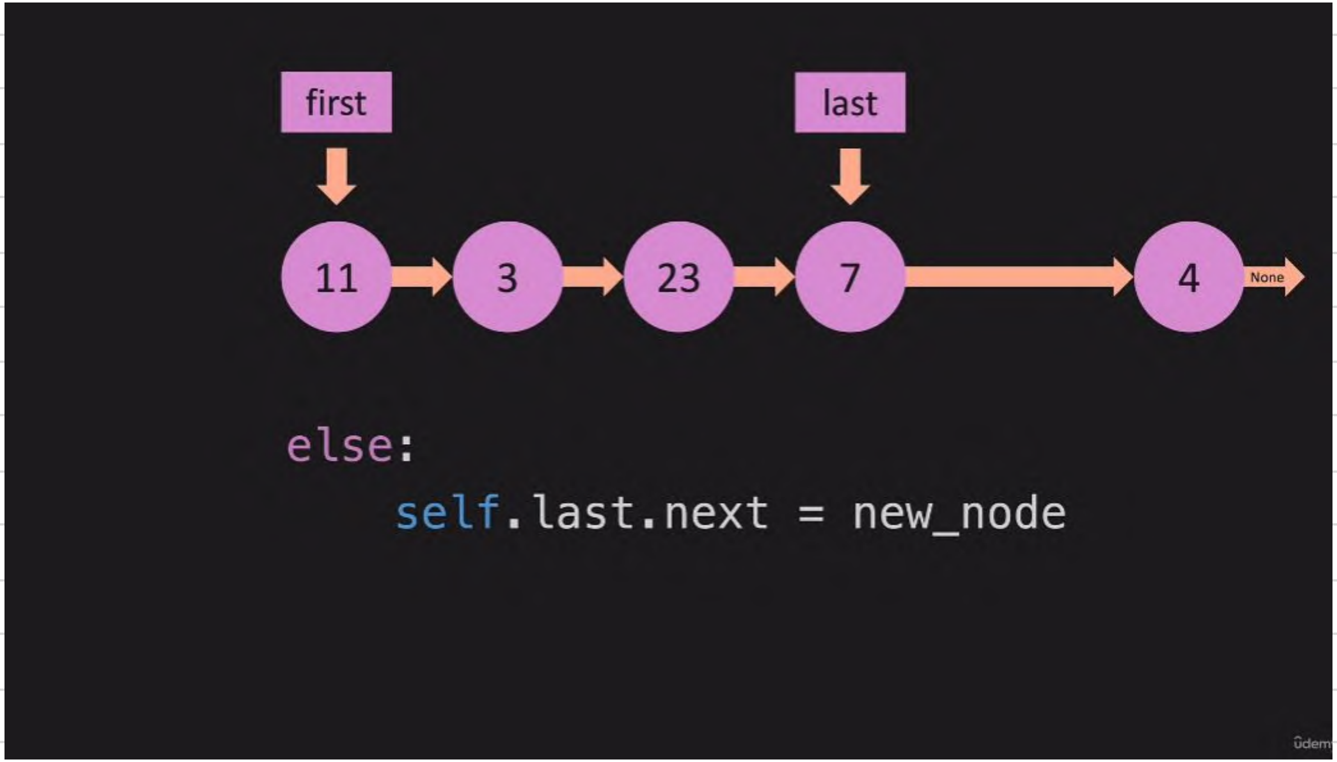
```
def enqueue(self, value):
    new_node = Node(value)
    if self.first is None:
        self.first = new_node
        self.last = new_node
    else:
```

Queue : Enqueue Code



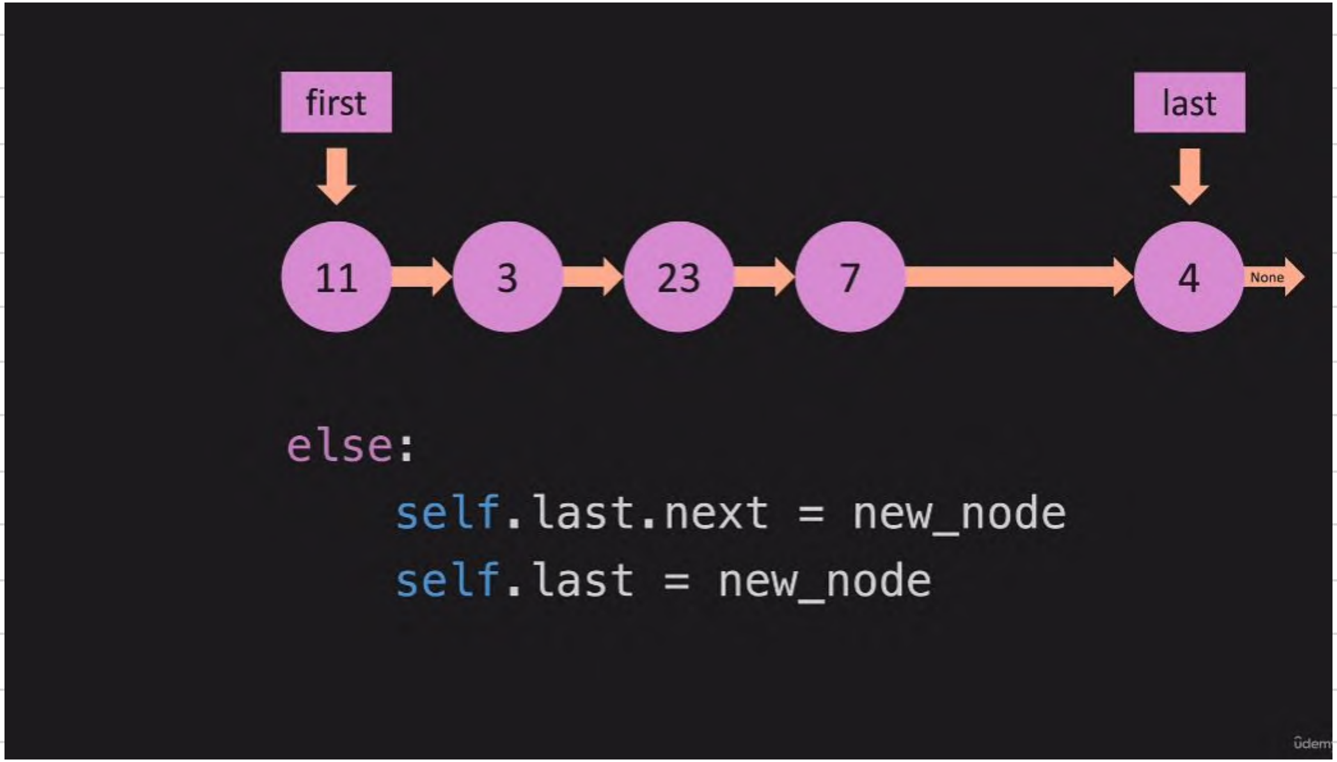
```
else:
```

Queue : Enqueue Code



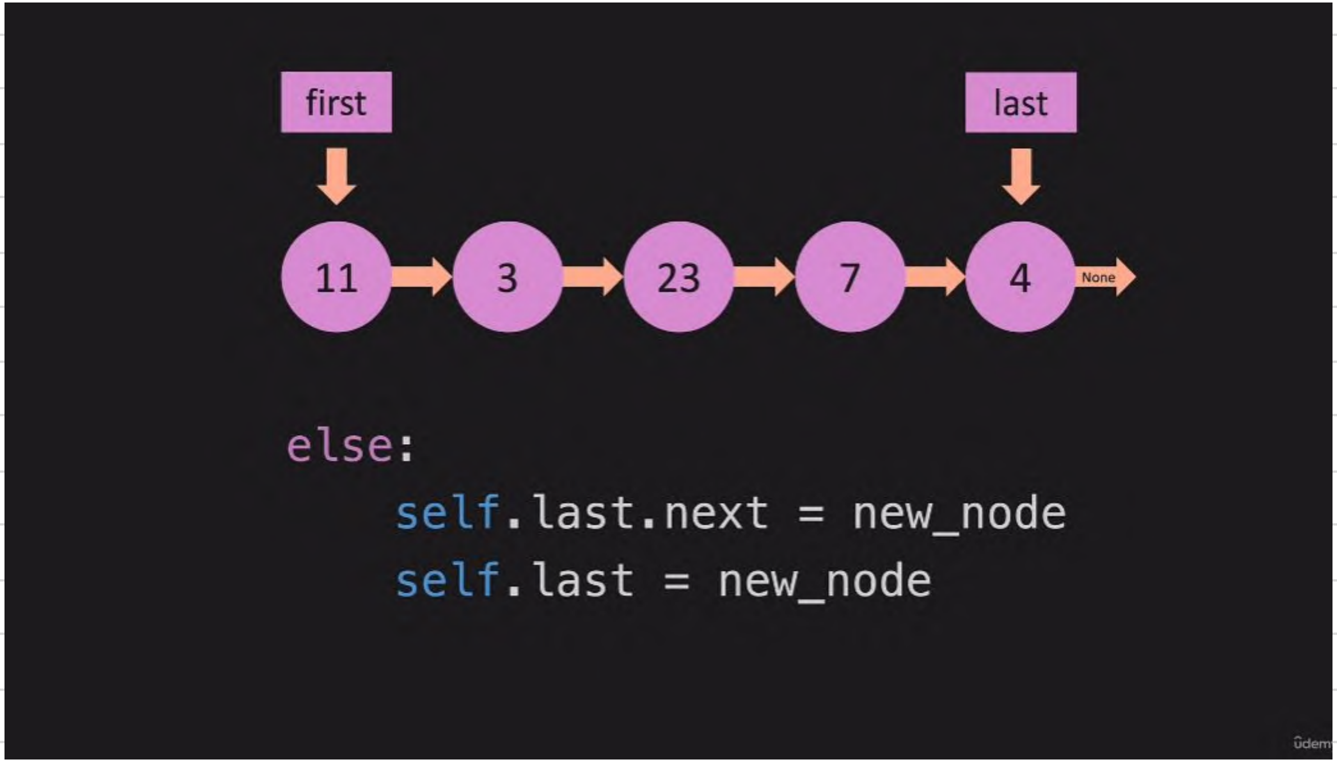
```
else:
    self.last.next = new_node
```

Queue : Enqueue Code



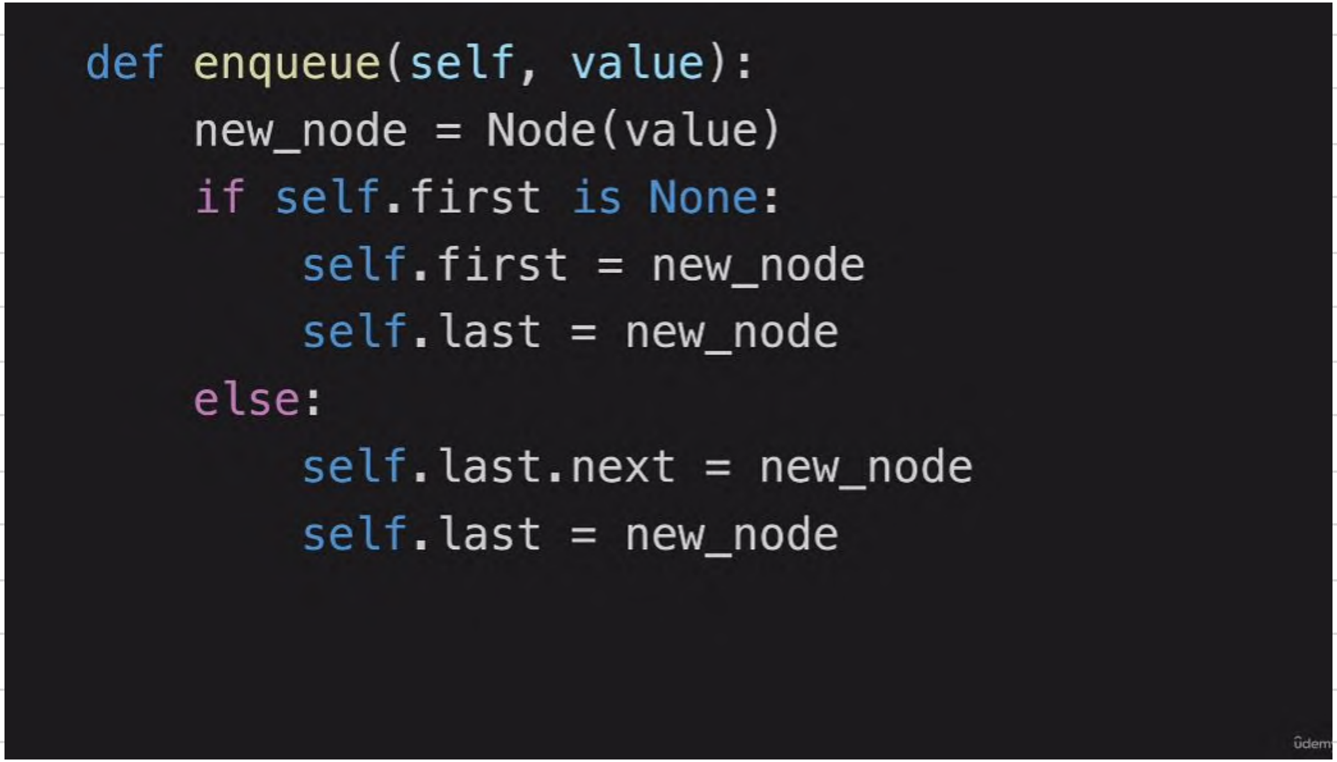
```
else:
    self.last.next = new_node
    self.last = new_node
```

Queue : Enqueue Code



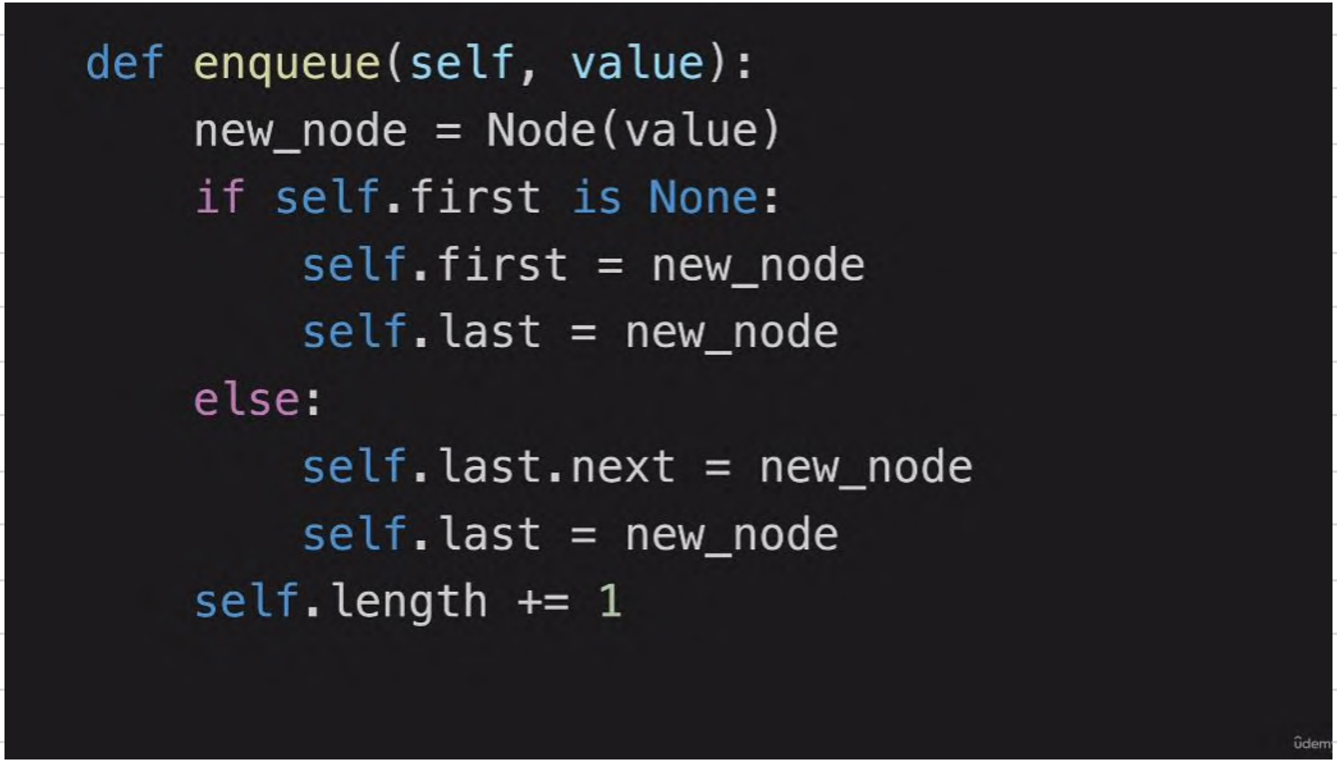
```
else:
    self.last.next = new_node
    self.last = new_node
```

Queue : Enqueue Code



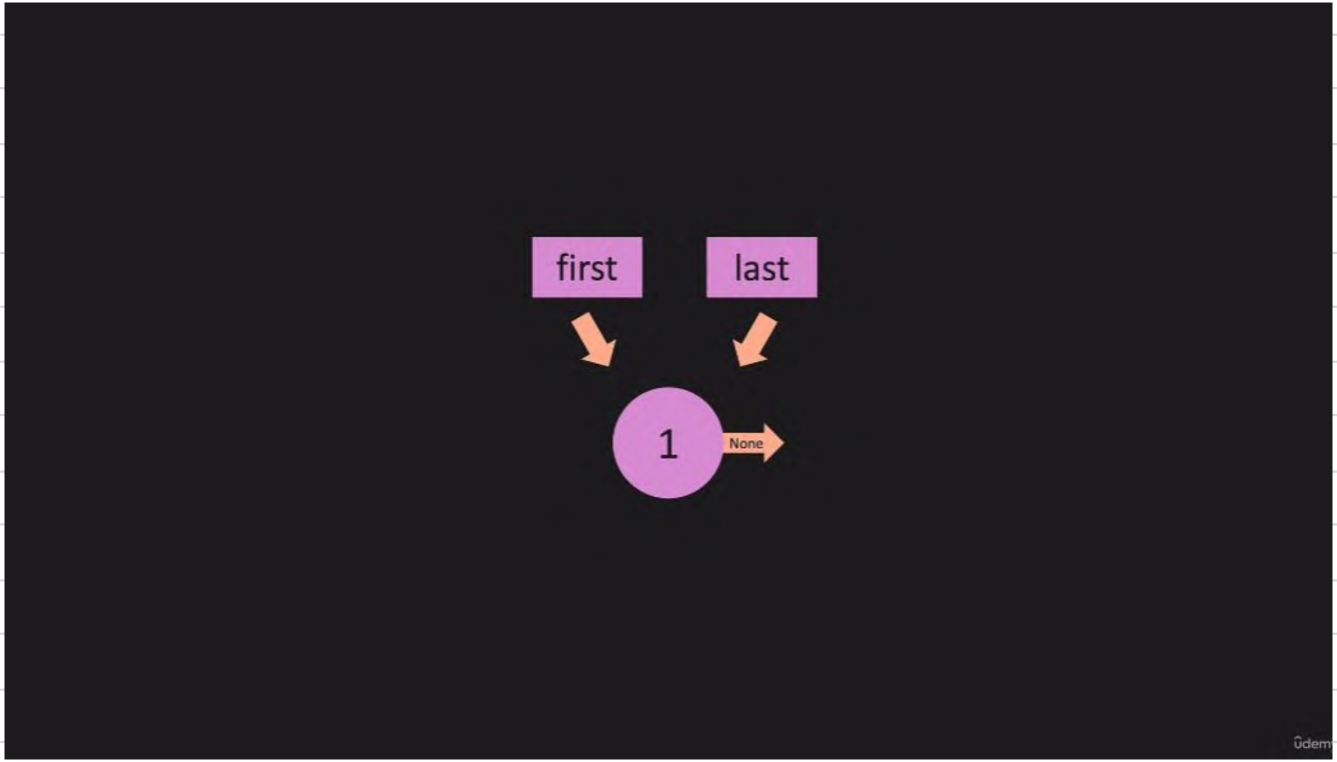
```
def enqueue(self, value):
    new_node = Node(value)
    if self.first is None:
        self.first = new_node
        self.last = new_node
    else:
        self.last.next = new_node
        self.last = new_node
```

Queue : Enqueue Code

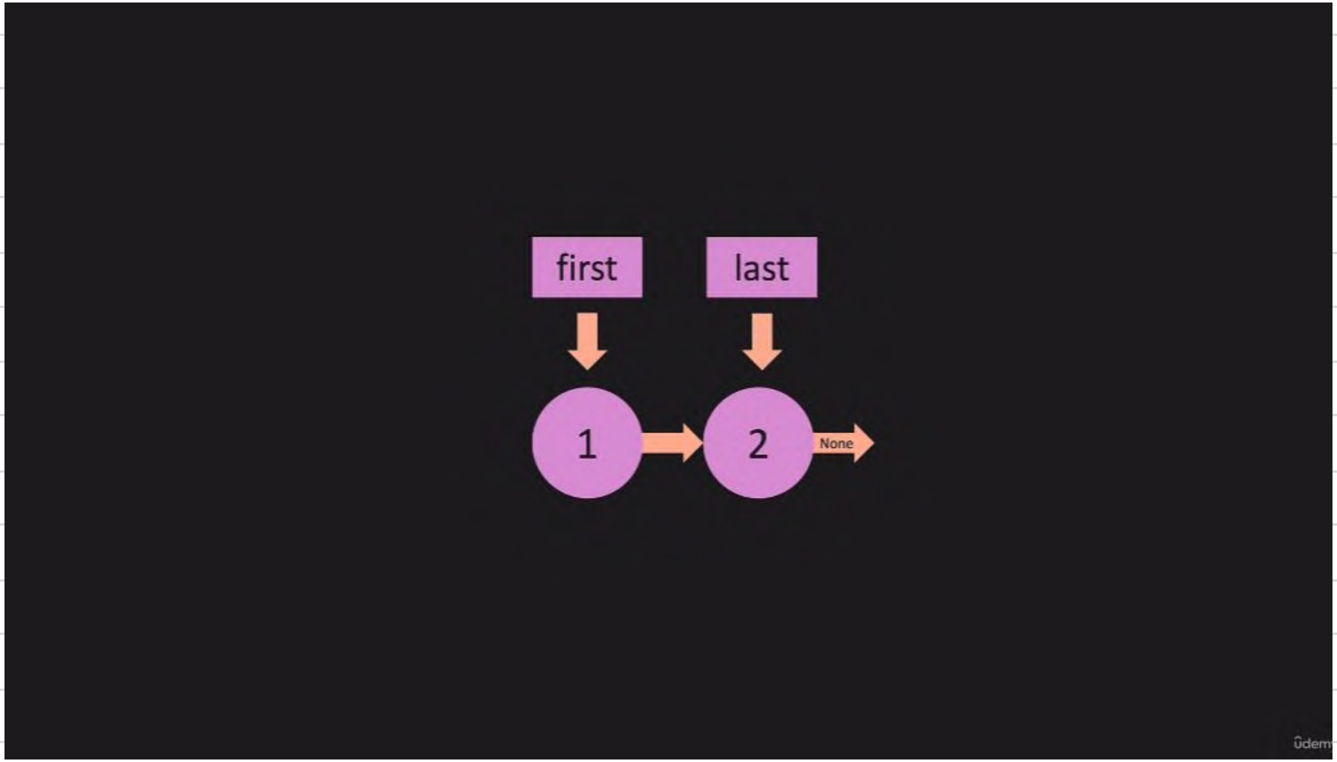


```python
def enqueue(self, value):
    new_node = Node(value)
    if self.first is None:
        self.first = new_node
        self.last = new_node
    else:
        self.last.next = new_node
        self.last = new_node
    self.length += 1
```

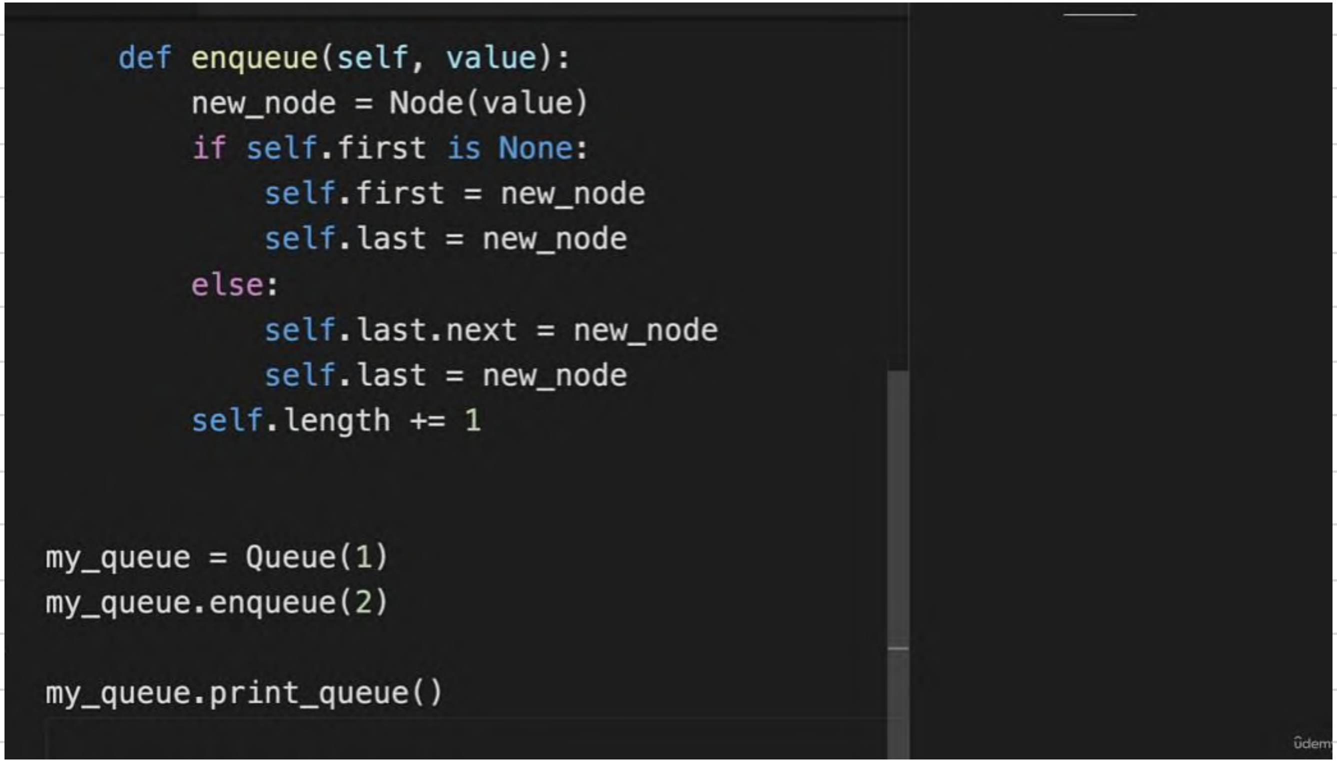
Queue : Enqueue Skenario Percobaan



Queue : Enqueue Skenario Percobaan

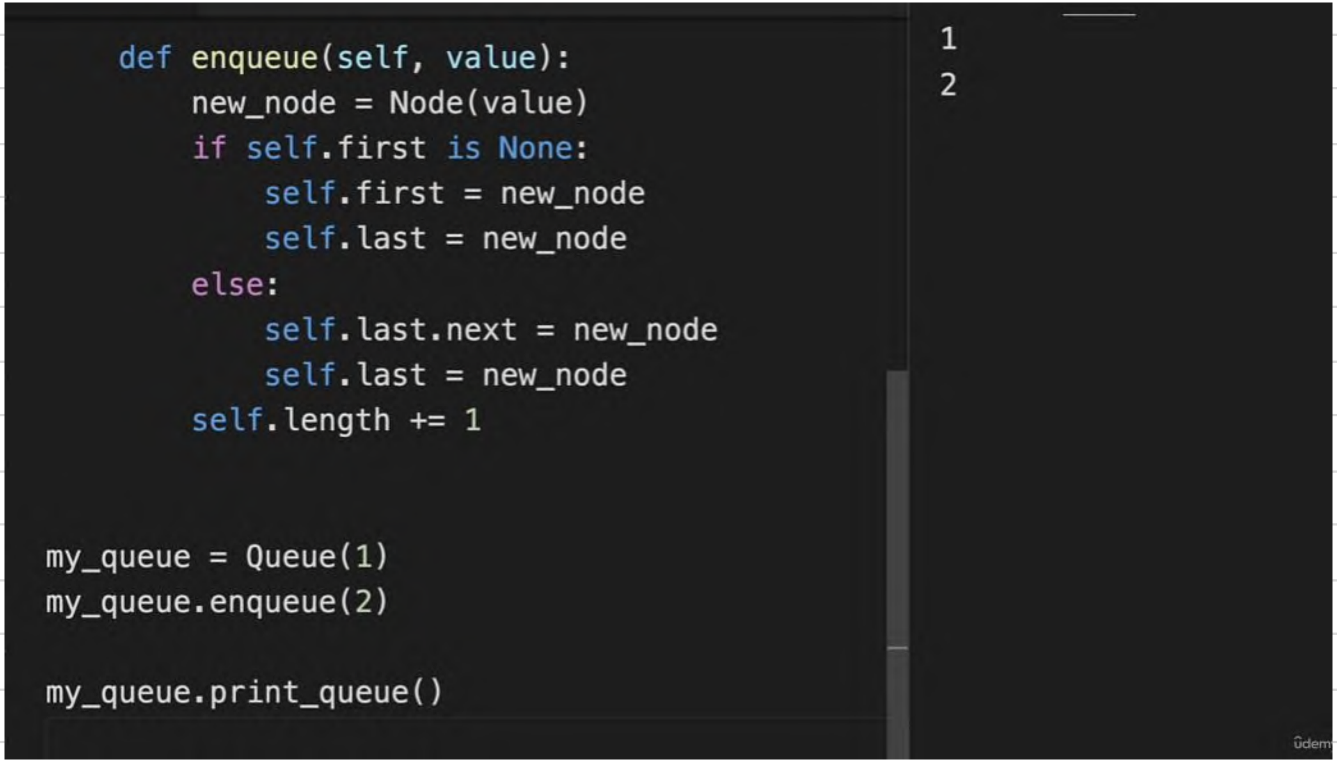


Queue : Enqueue Skenario Percobaan



```
    def enqueue(self, value):
        new_node = Node(value)
        if self.first is None:
            self.first = new_node
            self.last = new_node
        else:
            self.last.next = new_node
            self.last = new_node
        self.length += 1


my_queue = Queue(1)
my_queue.enqueue(2)

my_queue.print_queue()
```

Queue : Enqueue Skenario Percobaan



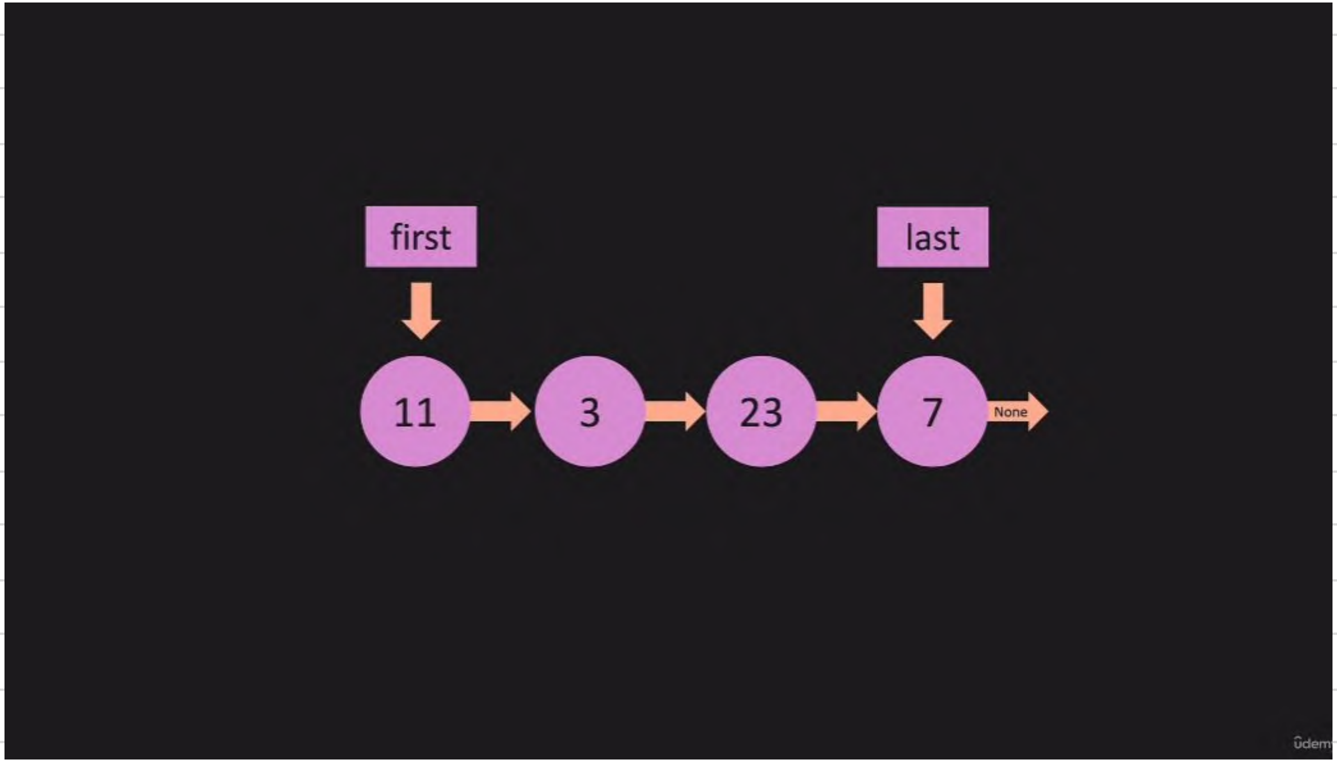
```
    def enqueue(self, value):
        new_node = Node(value)
        if self.first is None:
            self.first = new_node
            self.last = new_node
        else:
            self.last.next = new_node
            self.last = new_node
        self.length += 1


my_queue = Queue(1)
my_queue.enqueue(2)

my_queue.print_queue()
```

```
1
2
```

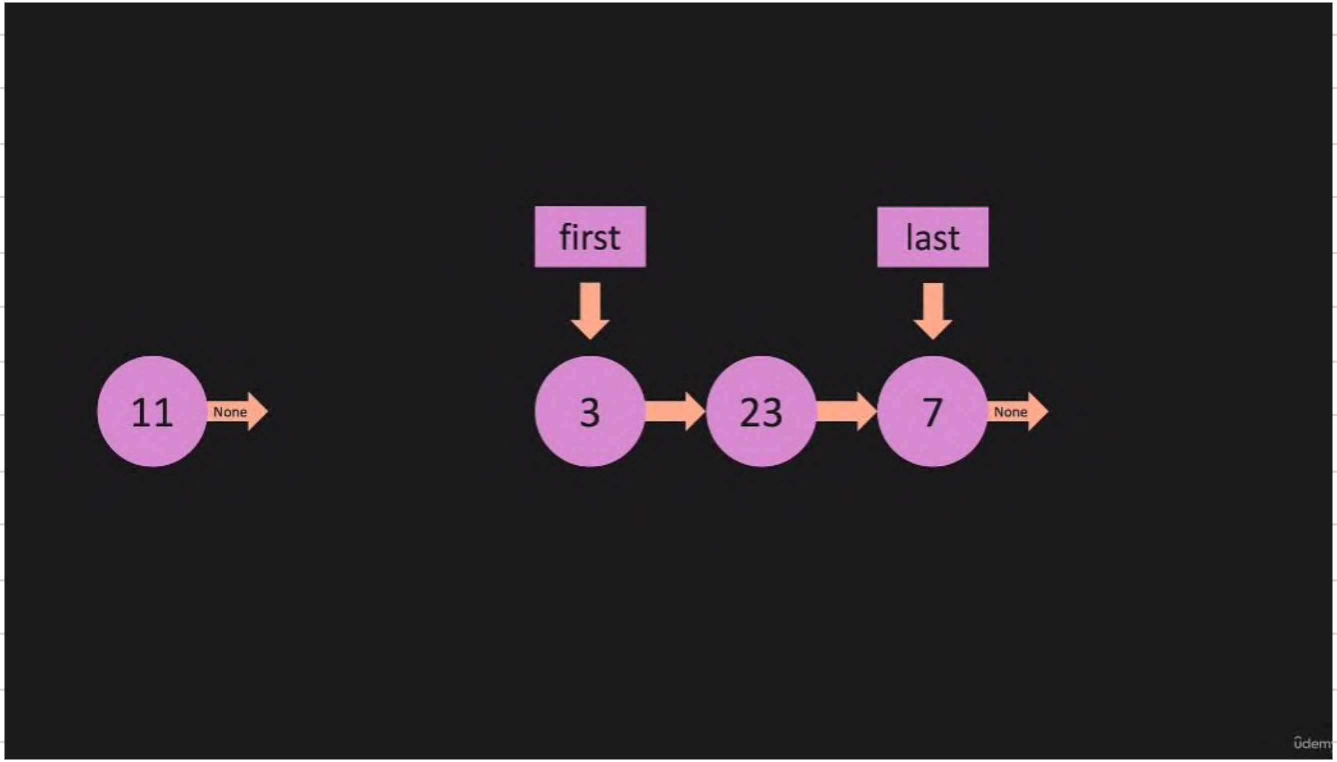
08

Queue
Dequeue

Queue : Dequeue

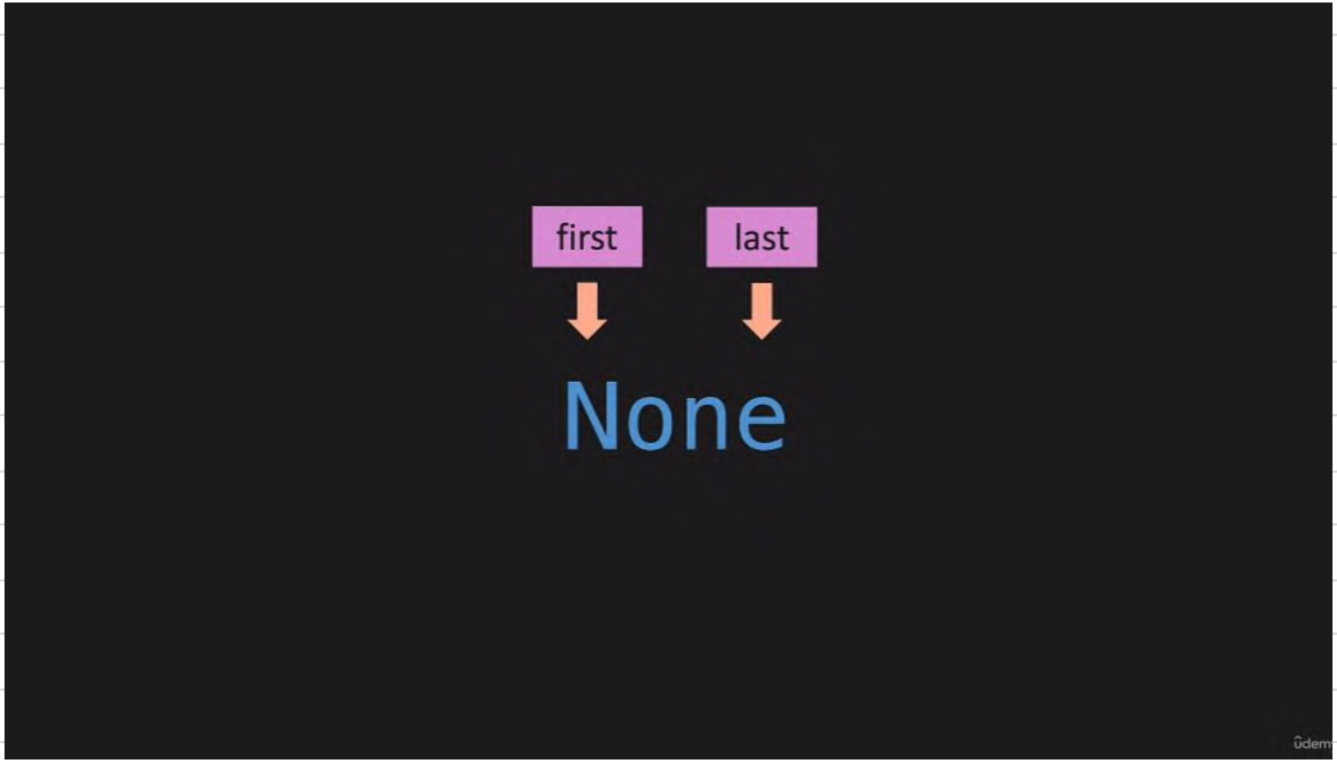


Queue : Dequeue



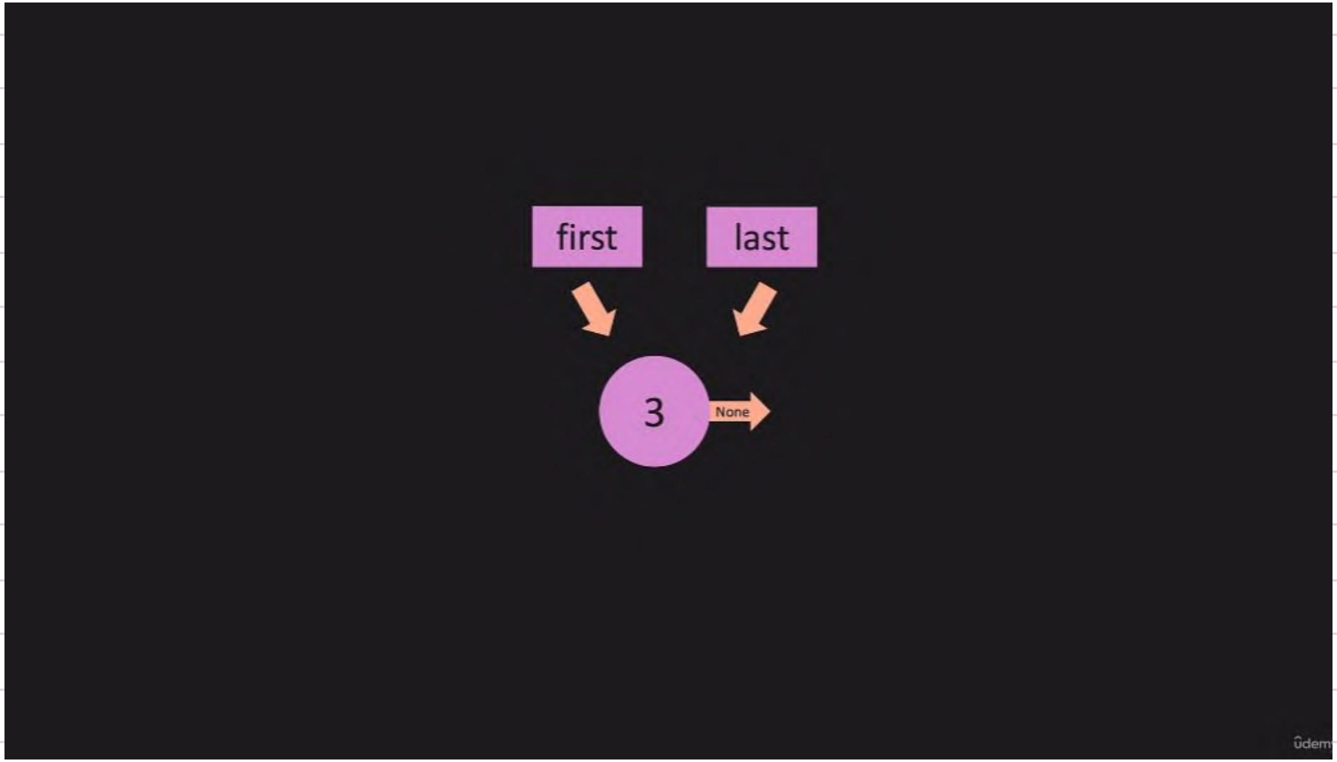
Edge Condition #1

Queue : Dequeue

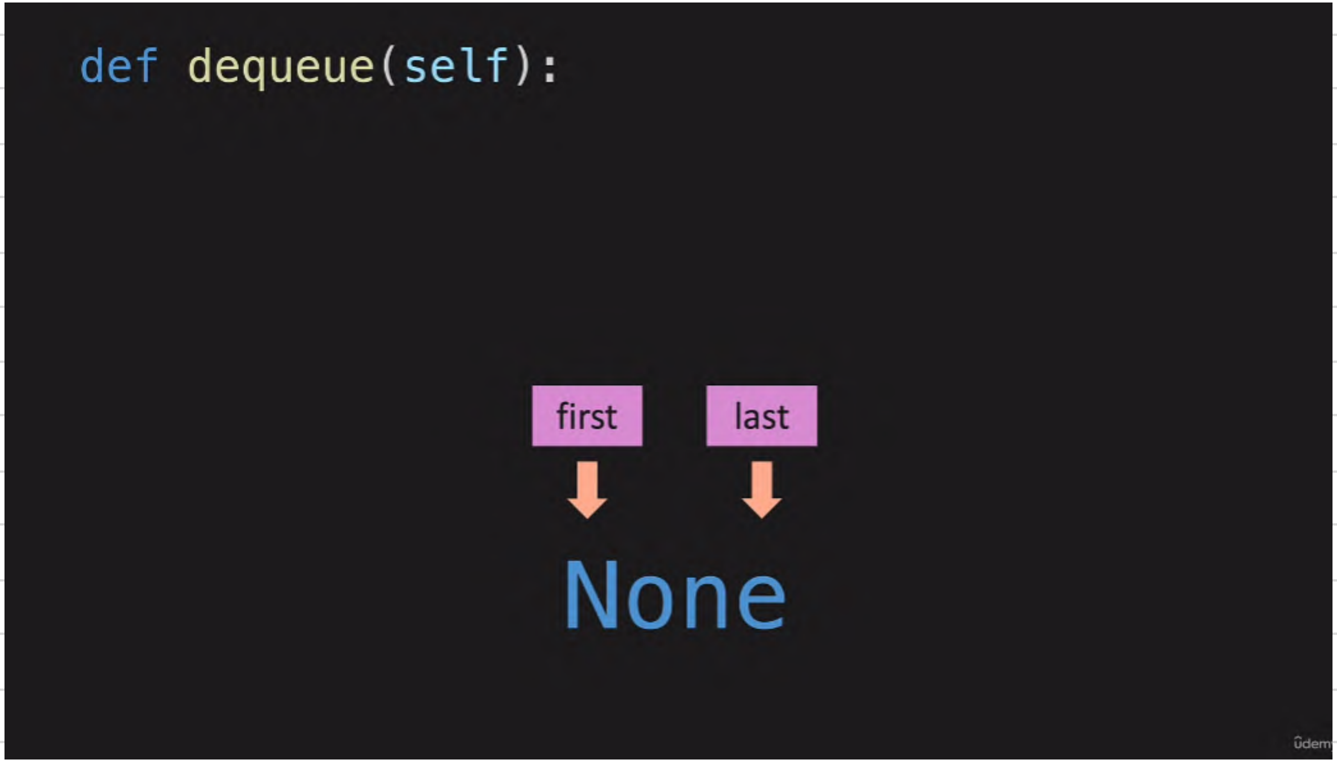


Edge Condition #2

Queue : Dequeue

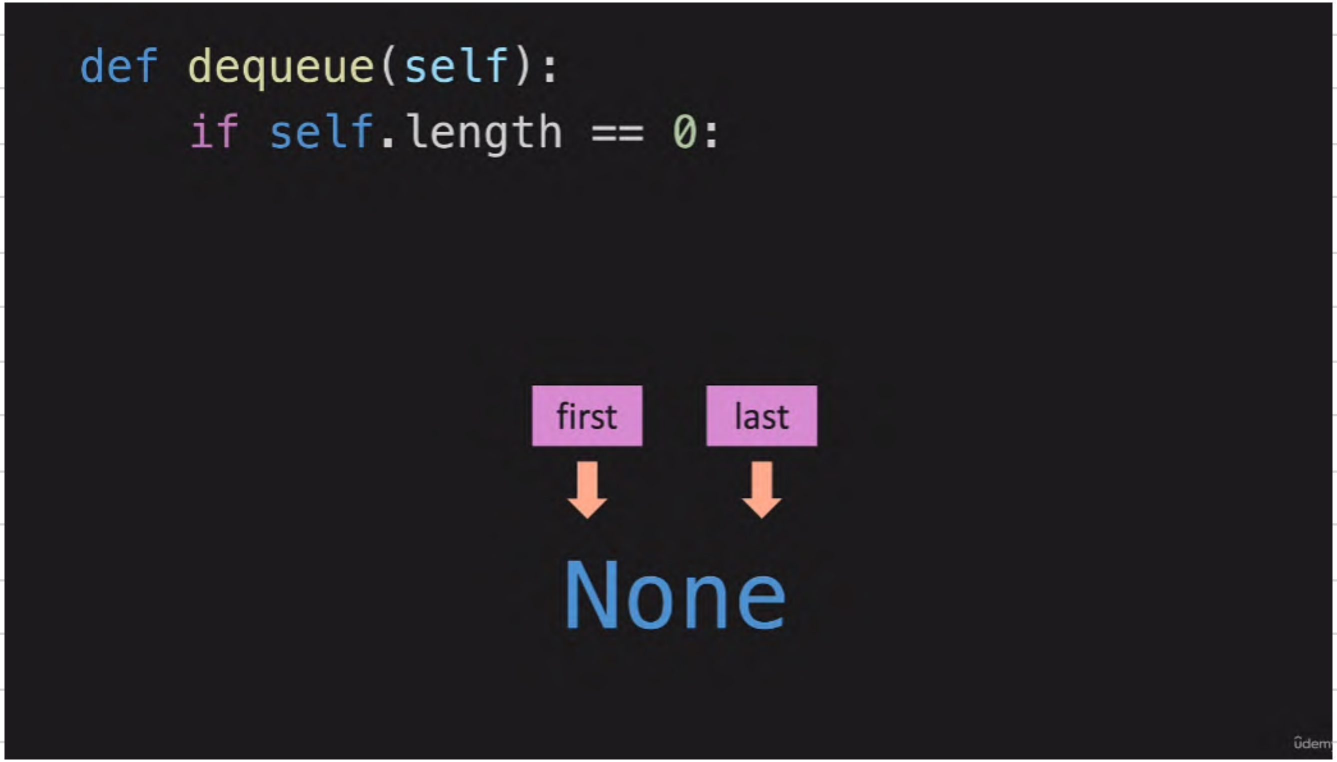


Queue : Dequeue Code



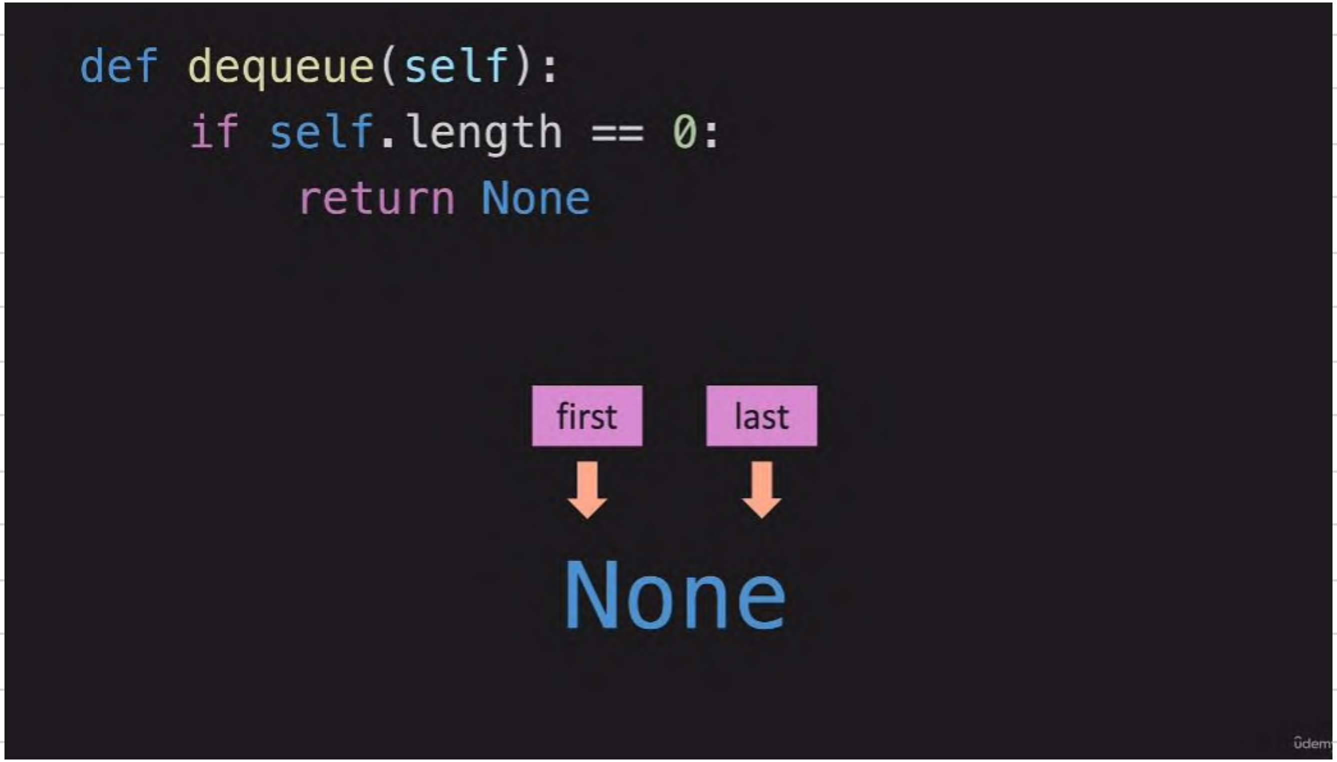
```
def dequeue(self):
```

Queue : Dequeue Code



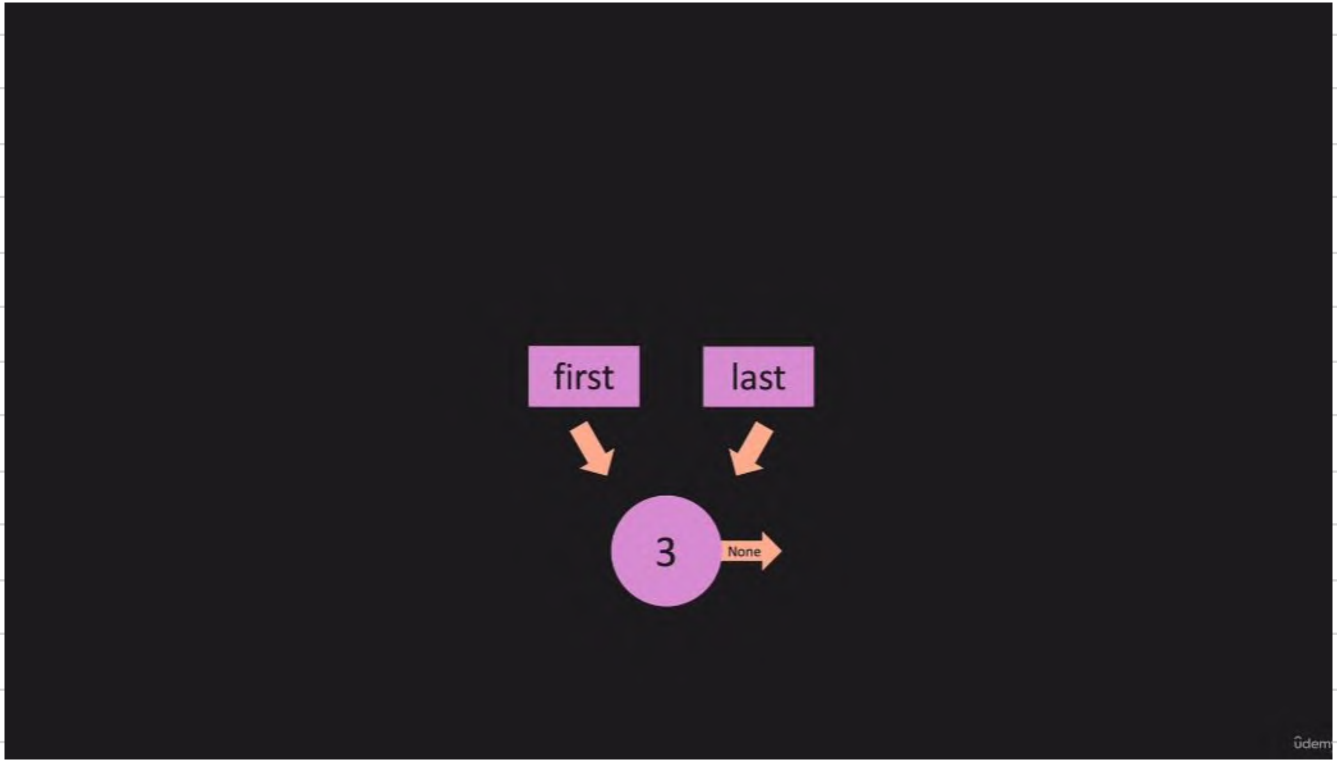
```
def dequeue(self):
    if self.length == 0:
```

Queue : Dequeue Code

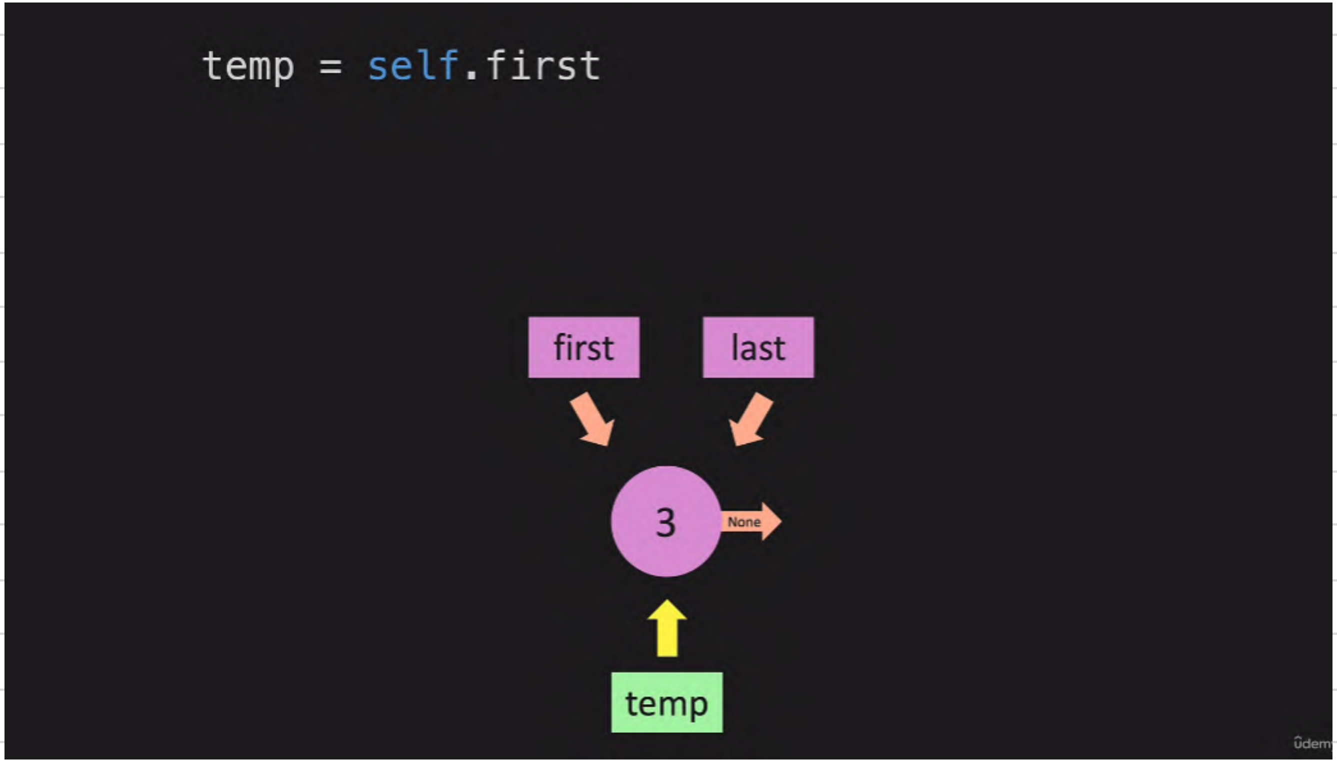


```
def dequeue(self):
    if self.length == 0:
        return None
```

Queue : Dequeue Code

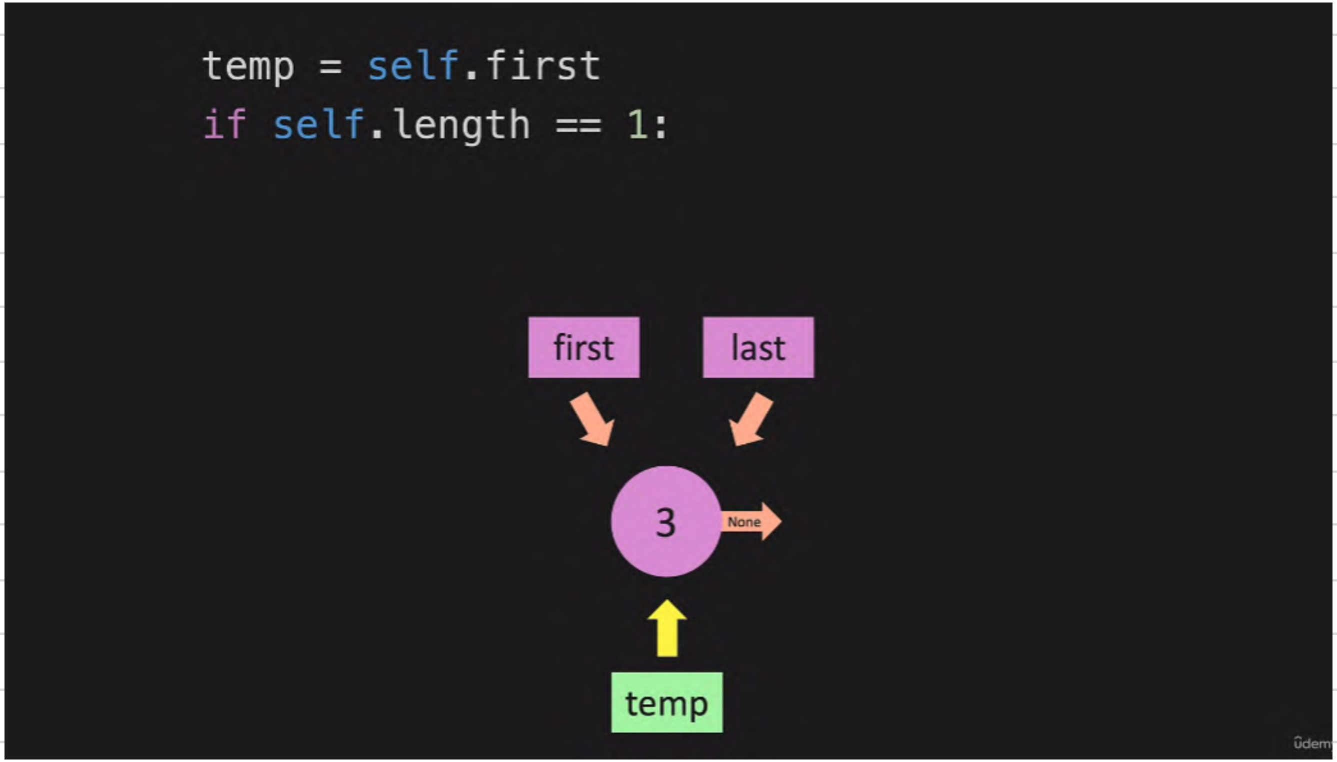


Queue : Dequeue Code



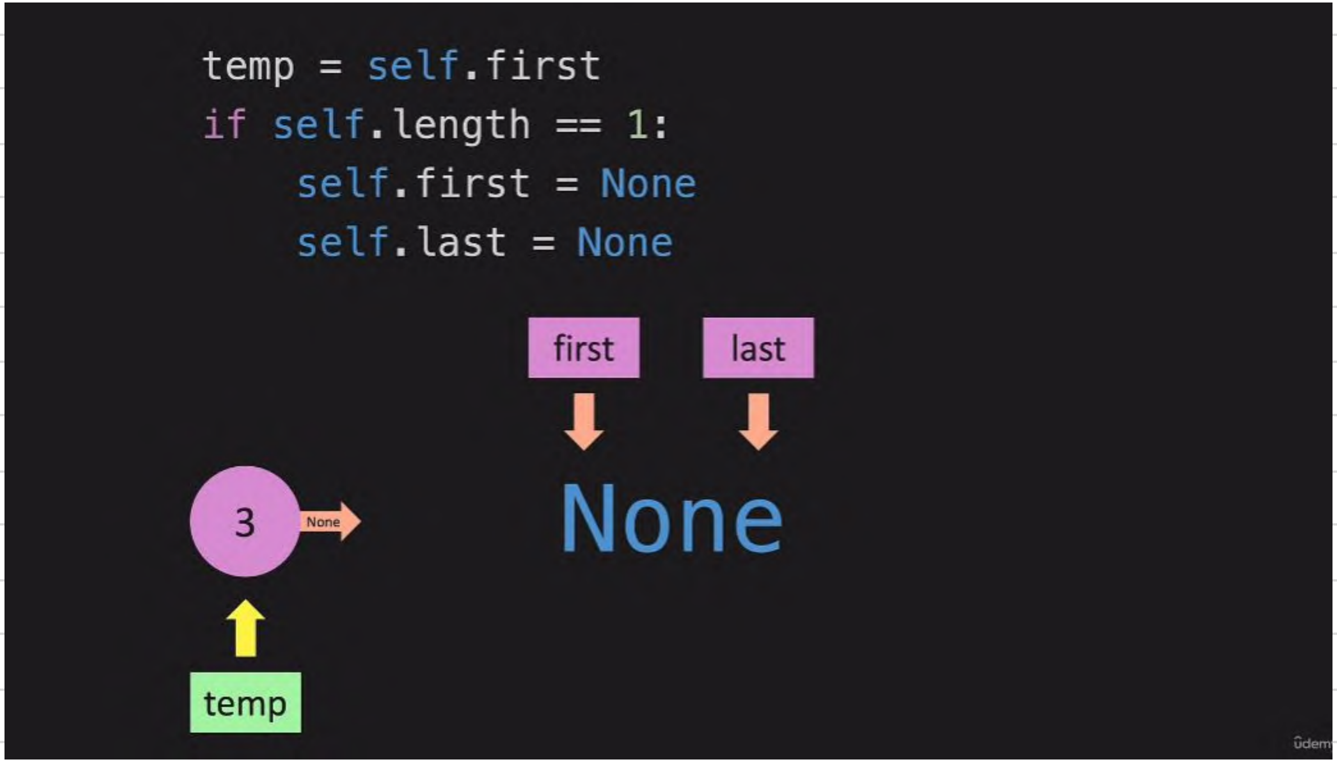
```
temp = self.first
```

Queue : Dequeue Code



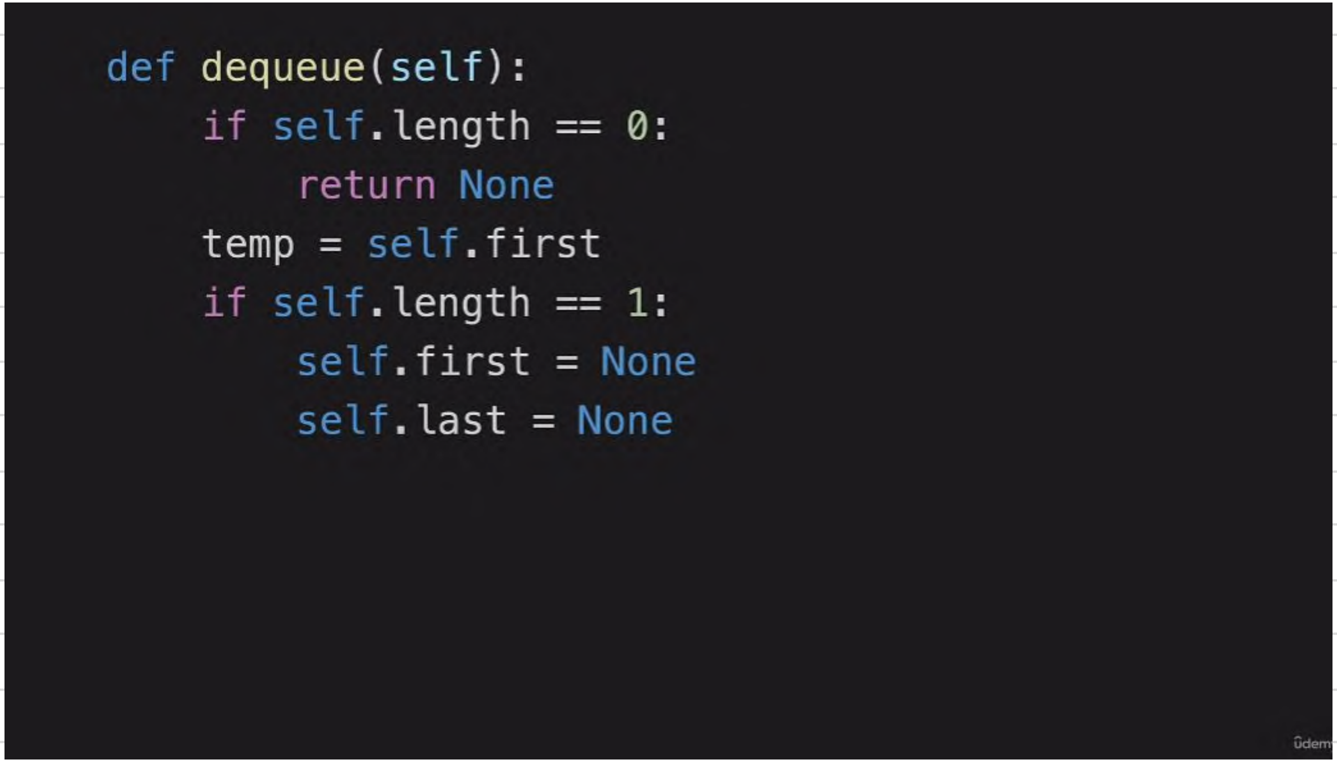
```
temp = self.first
if self.length == 1:
```

Queue : Dequeue Code



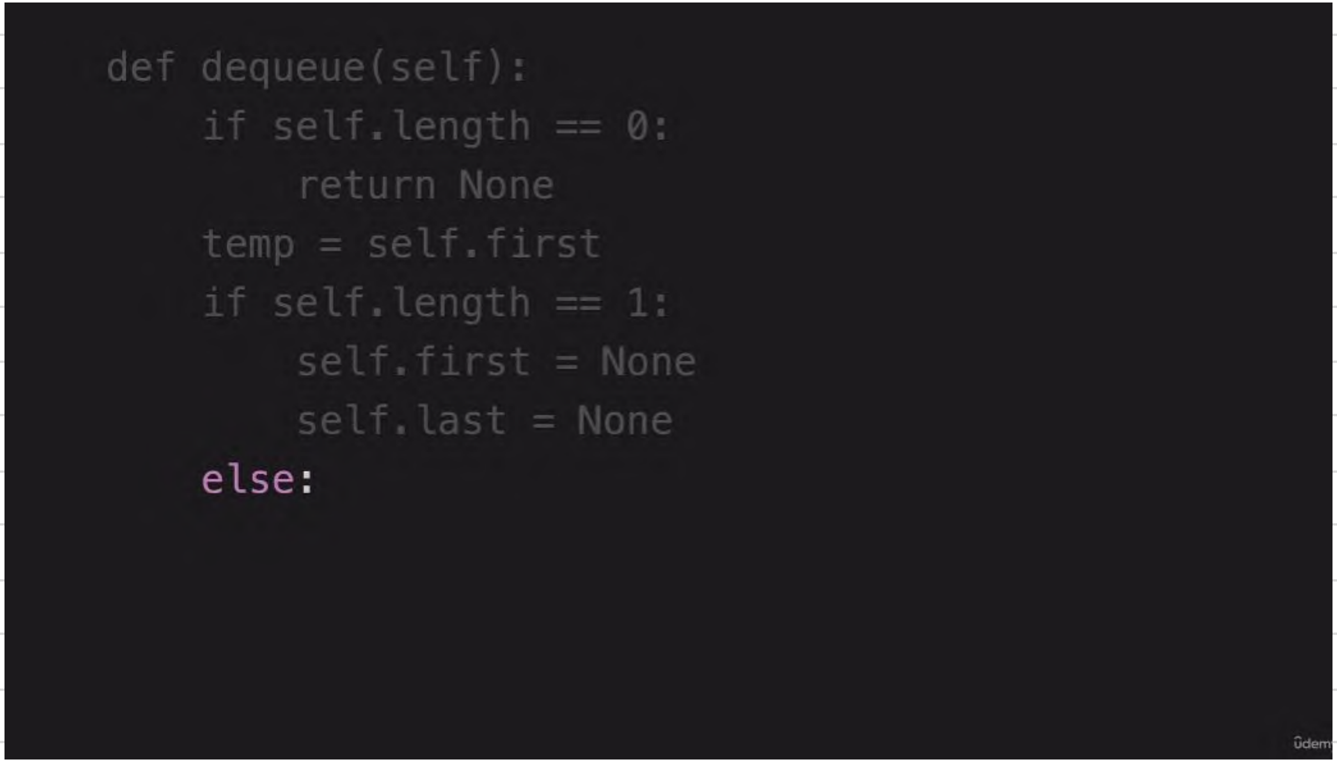
```
temp = self.first
if self.length == 1:
    self.first = None
    self.last = None
```

Queue : Dequeue Code



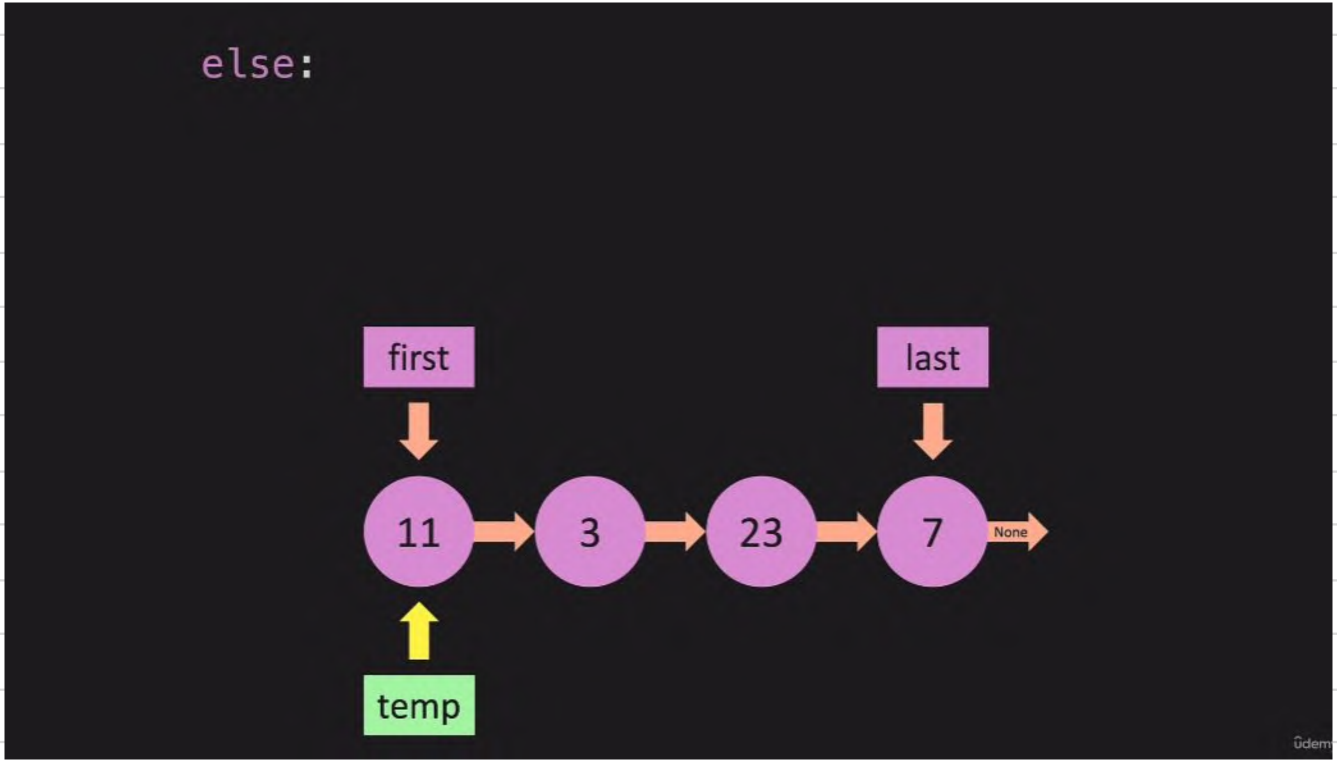
```
def dequeue(self):
    if self.length == 0:
        return None
    temp = self.first
    if self.length == 1:
        self.first = None
        self.last = None
```

Queue : Dequeue Code



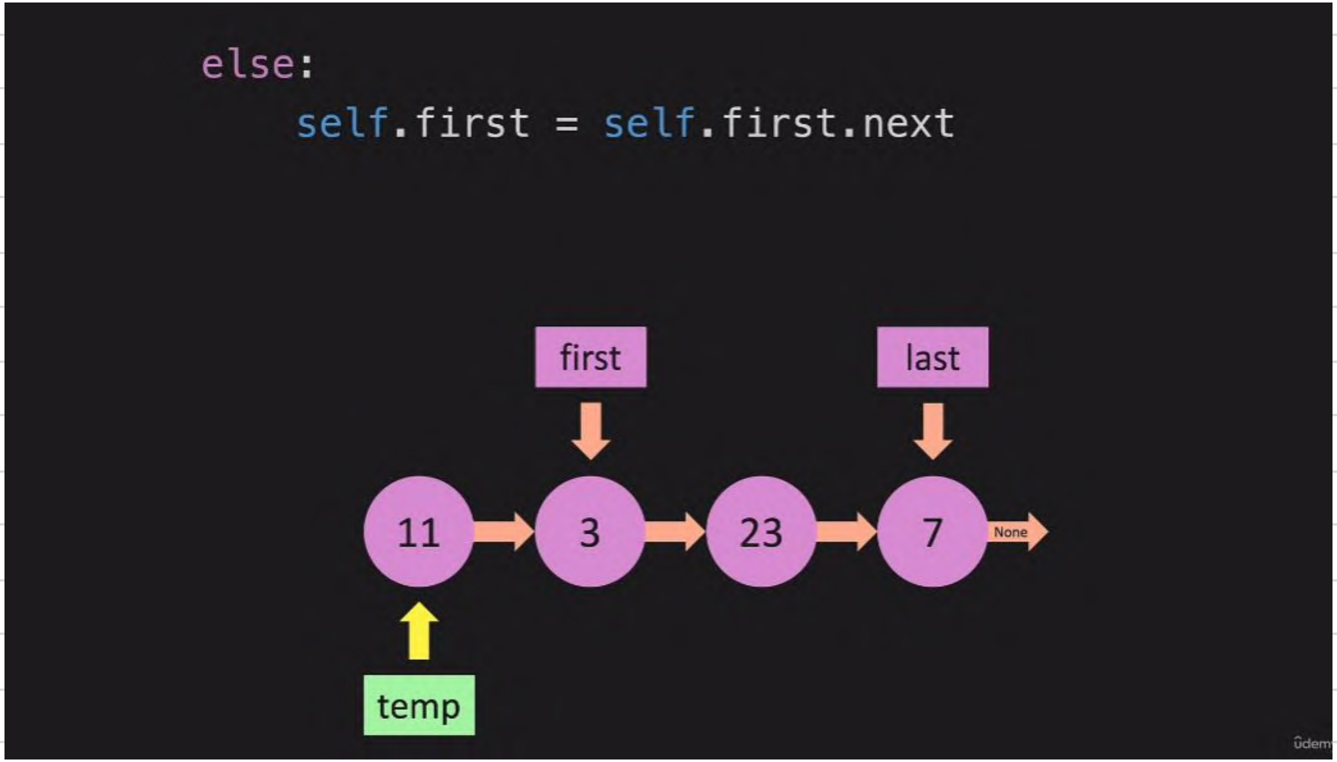
```
def dequeue(self):
    if self.length == 0:
        return None
    temp = self.first
    if self.length == 1:
        self.first = None
        self.last = None
    else:
```

Queue : Dequeue Code



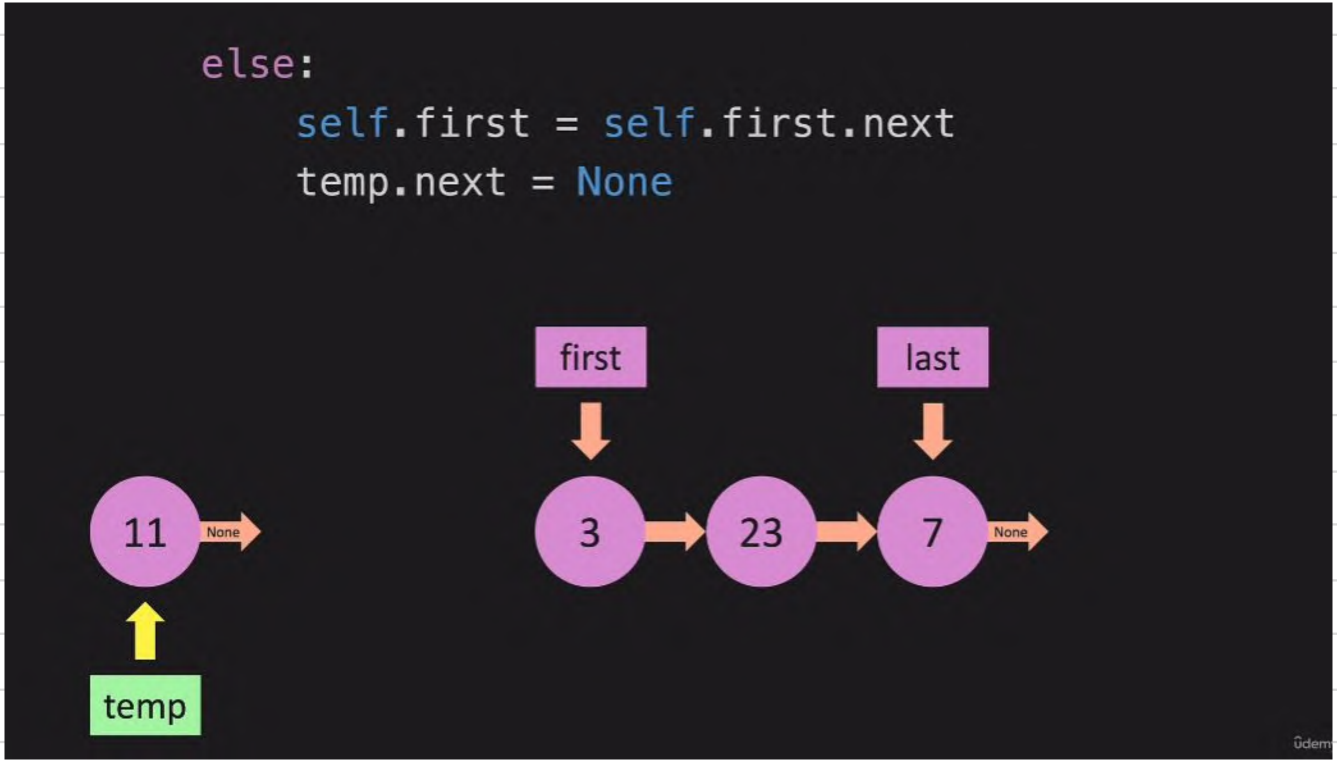
```
else:
```

Queue : Dequeue Code



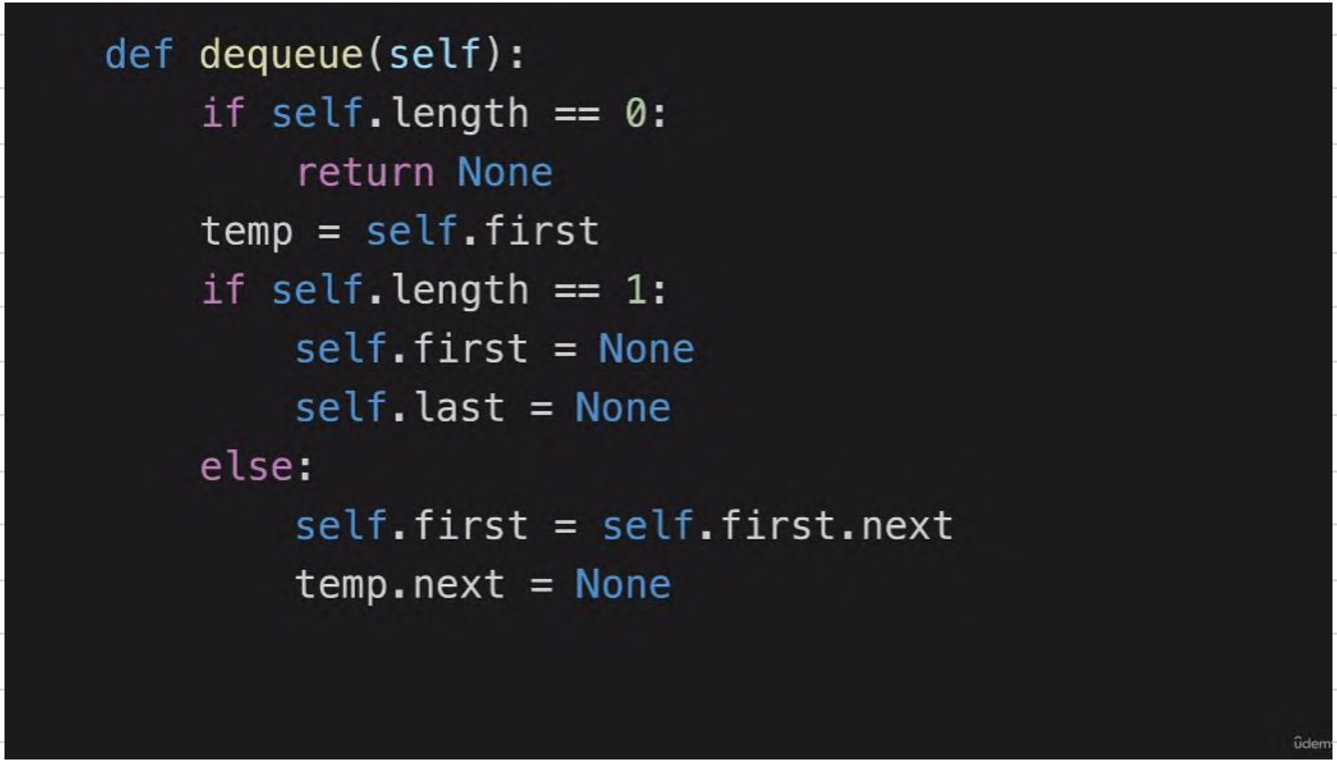
```
else:
    self.first = self.first.next
```

Queue : Dequeue Code



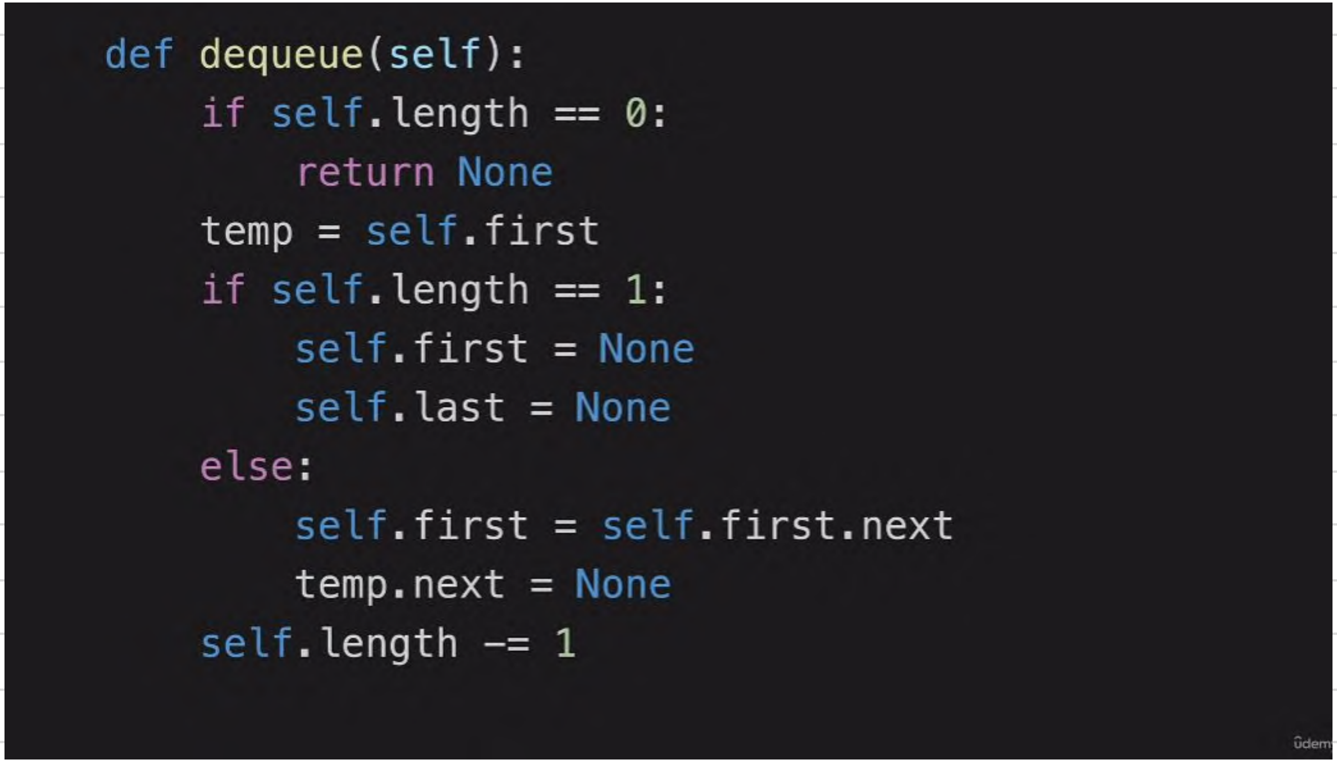
```
else:
    self.first = self.first.next
    temp.next = None
```

Queue : Dequeue Code



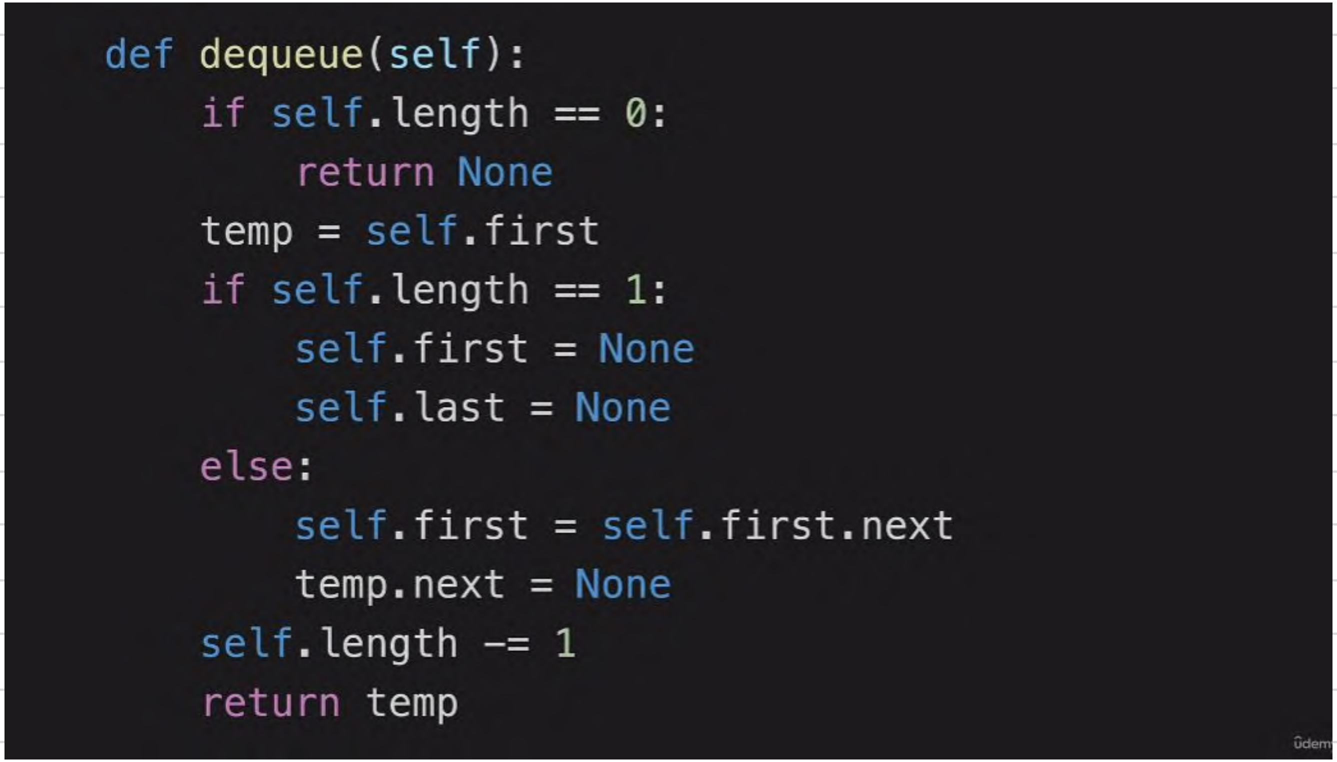
```
def dequeue(self):
    if self.length == 0:
        return None
    temp = self.first
    if self.length == 1:
        self.first = None
        self.last = None
    else:
        self.first = self.first.next
        temp.next = None
```

Queue : Dequeue Code



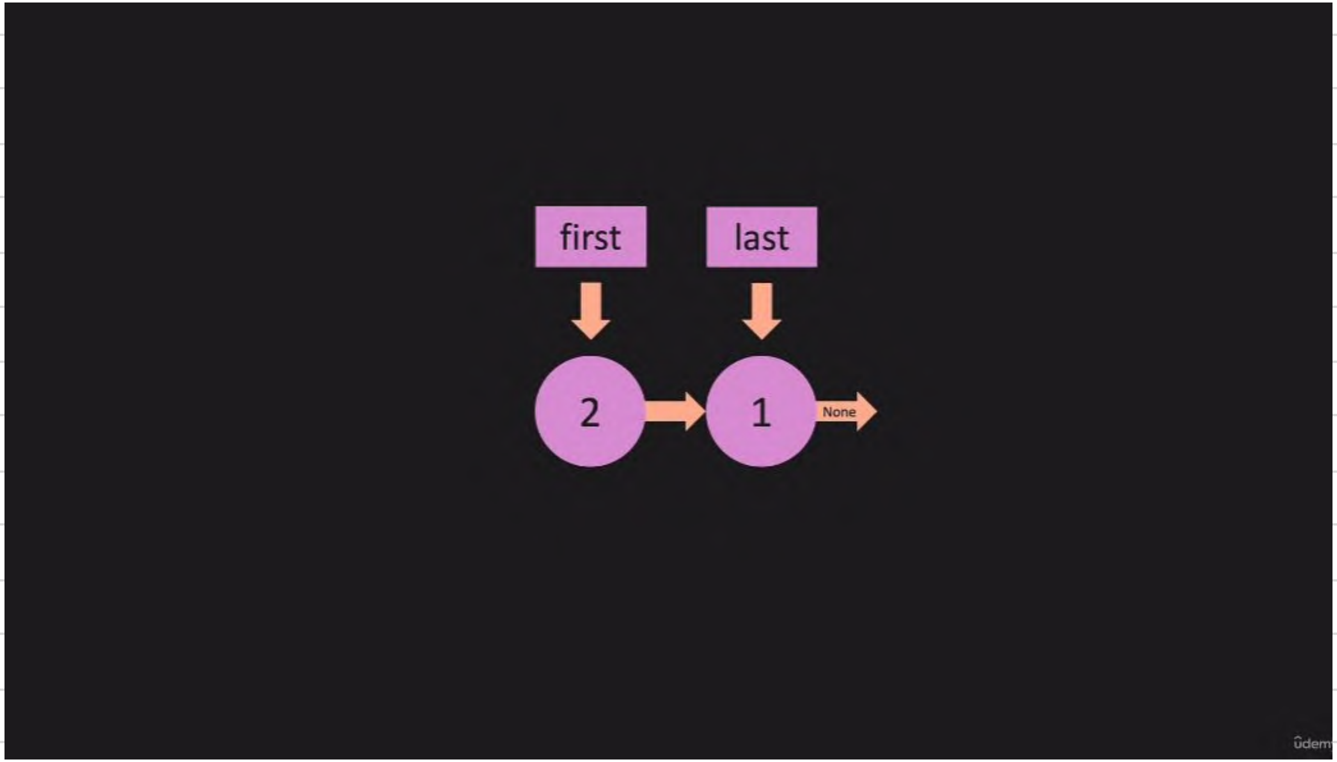
```
def dequeue(self):
    if self.length == 0:
        return None
    temp = self.first
    if self.length == 1:
        self.first = None
        self.last = None
    else:
        self.first = self.first.next
        temp.next = None
    self.length -= 1
```

Queue : Dequeue Code

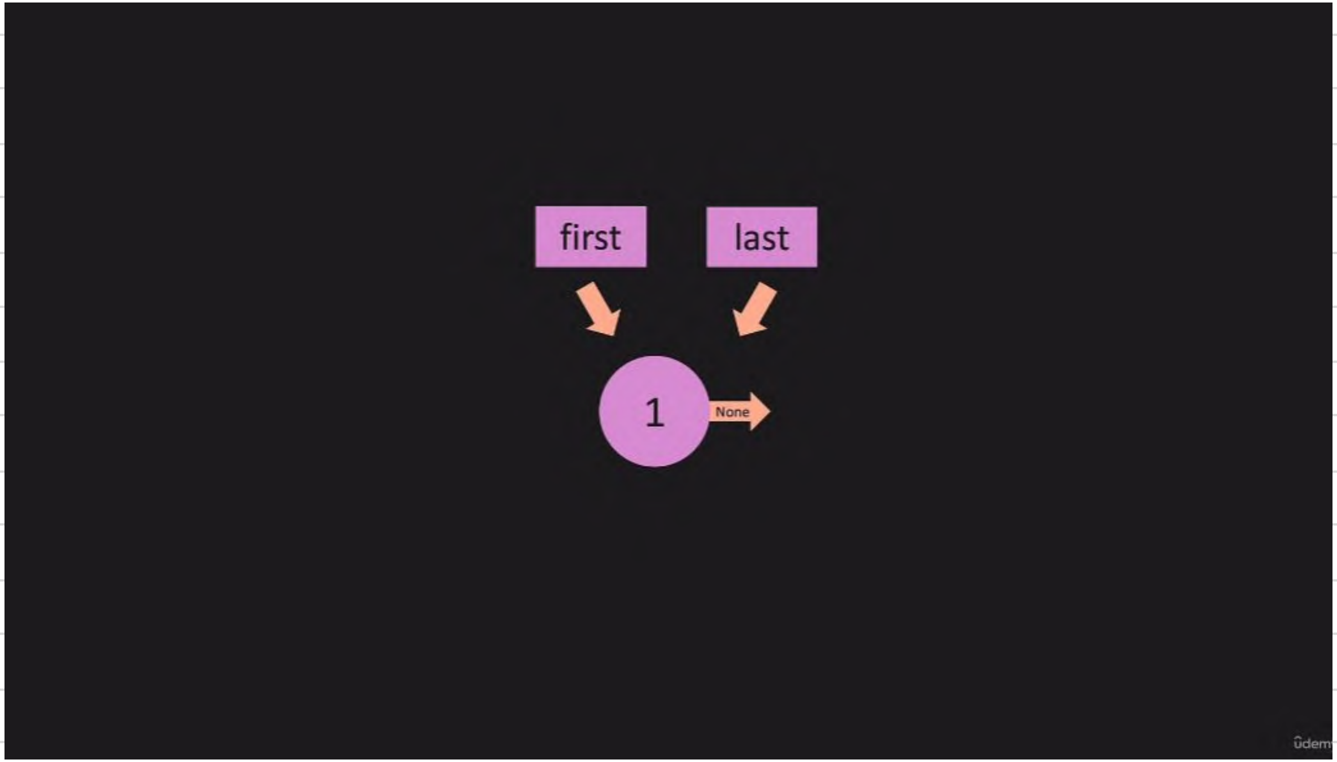


```python
def dequeue(self):
    if self.length == 0:
        return None
    temp = self.first
    if self.length == 1:
        self.first = None
        self.last = None
    else:
        self.first = self.first.next
        temp.next = None
    self.length -= 1
    return temp
```

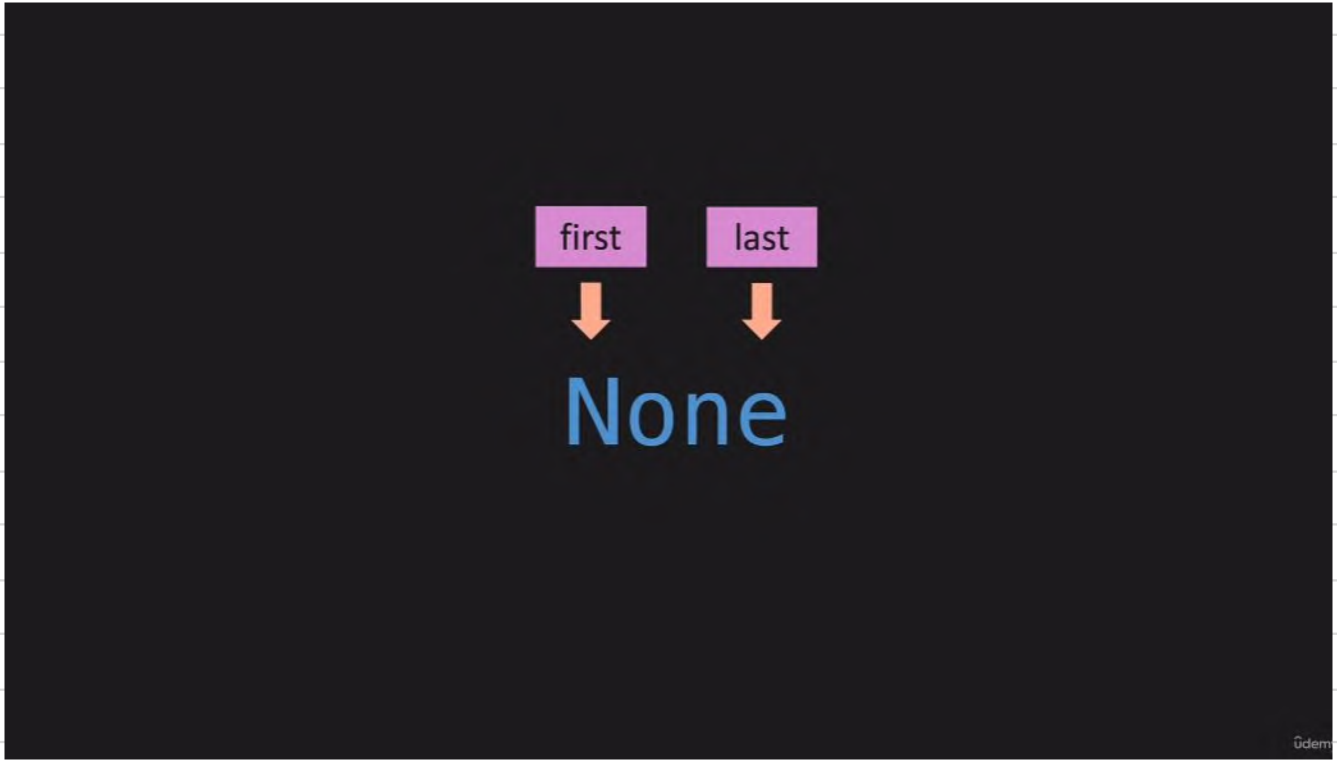
Queue : Dequeue Skenario Percobaan



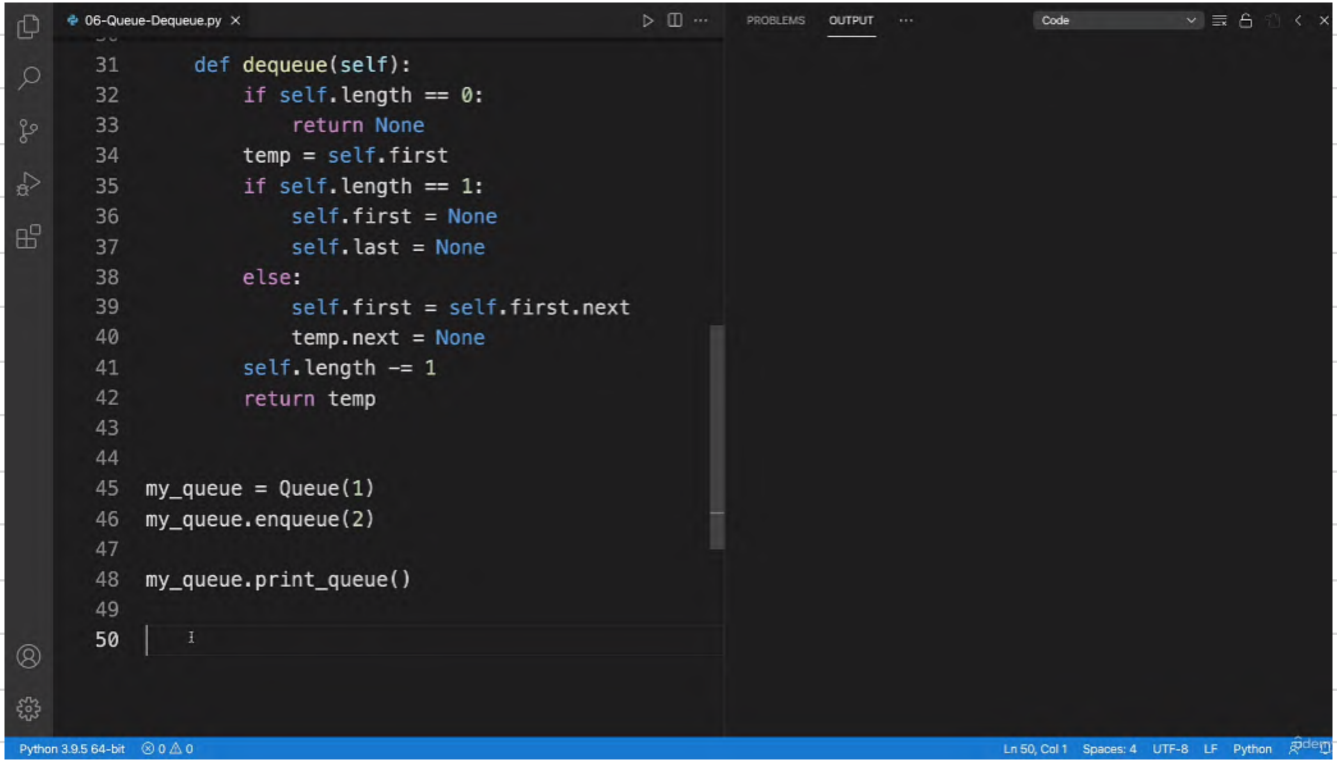
Queue : Dequeue Skenario Percobaan



Queue : Dequeue Skenario Percobaan

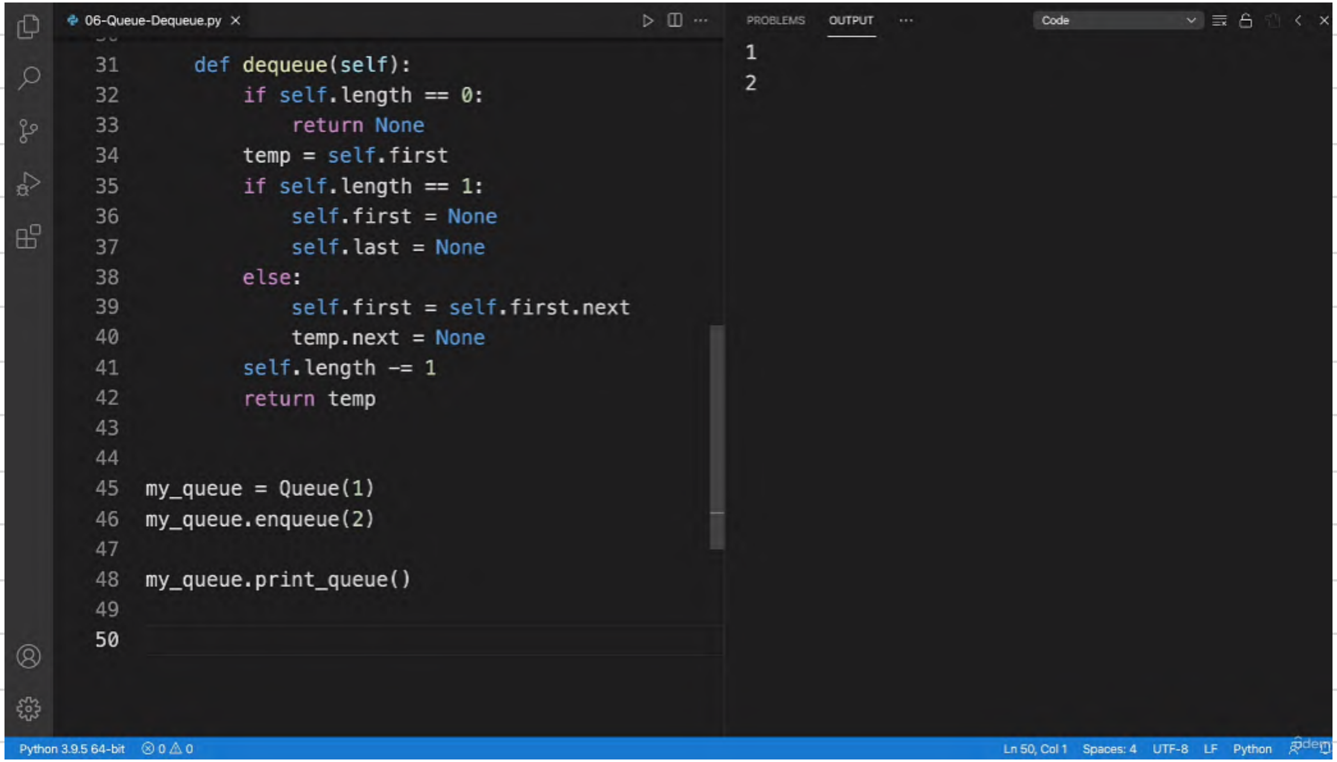


Queue : Dequeue Skenario Percobaan



```
    def dequeue(self):
        if self.length == 0:
            return None
        temp = self.first
        if self.length == 1:
            self.first = None
            self.last = None
        else:
            self.first = self.first.next
            temp.next = None
        self.length -= 1
        return temp


my_queue = Queue(1)
my_queue.enqueue(2)

my_queue.print_queue()

```

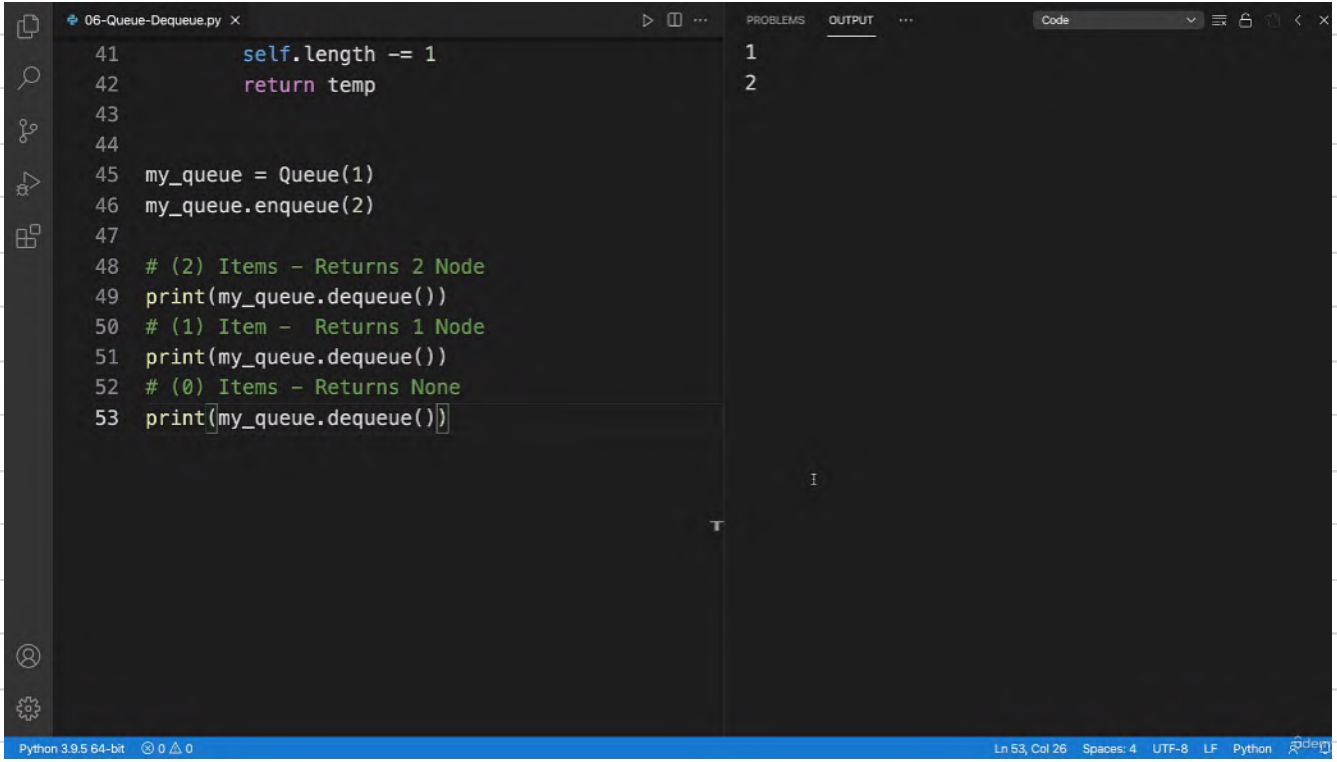
Queue : Dequeue Skenario Percobaan



```python
    def dequeue(self):
        if self.length == 0:
            return None
        temp = self.first
        if self.length == 1:
            self.first = None
            self.last = None
        else:
            self.first = self.first.next
            temp.next = None
        self.length -= 1
        return temp


my_queue = Queue(1)
my_queue.enqueue(2)

my_queue.print_queue()

```

```
1
2
```

Queue : Dequeue Skenario Percobaan

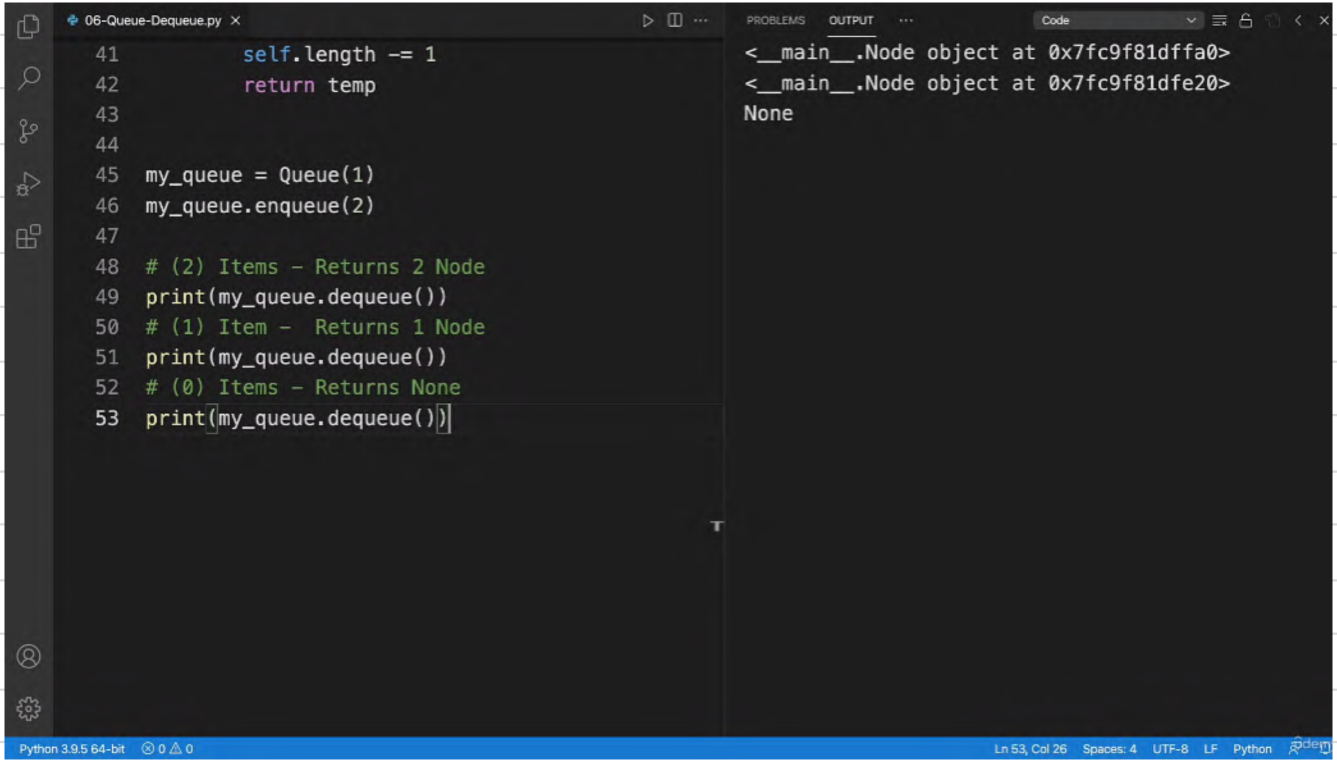


06-Queue-Dequeue.py

```python
        self.length -= 1
        return temp


my_queue = Queue(1)
my_queue.enqueue(2)

# (2) Items - Returns 2 Node
print(my_queue.dequeue())
# (1) Item -  Returns 1 Node
print(my_queue.dequeue())
# (0) Items - Returns None
print(my_queue.dequeue())
```

```
1
2
```

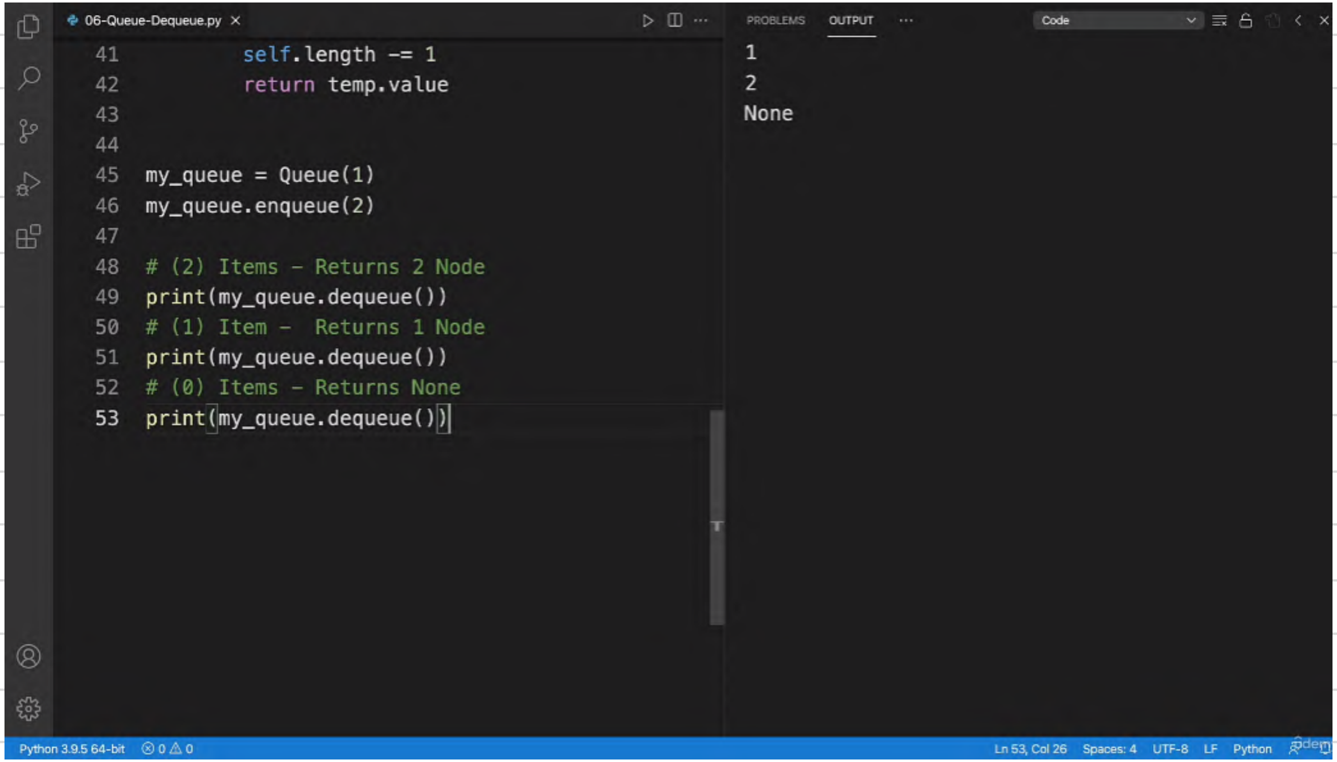
Queue : Dequeue Skenario Percobaan



```python
        self.length -= 1
        return temp


my_queue = Queue(1)
my_queue.enqueue(2)

# (2) Items - Returns 2 Node
print(my_queue.dequeue())
# (1) Item -  Returns 1 Node
print(my_queue.dequeue())
# (0) Items - Returns None
print(my_queue.dequeue())
```

```
<__main__.Node object at 0x7fc9f81dffa0>
<__main__.Node object at 0x7fc9f81dfe20>
None
```

Queue : Dequeue Skenario Percobaan



```python
            self.length -= 1
            return temp.value


my_queue = Queue(1)
my_queue.enqueue(2)

# (2) Items - Returns 2 Node
print(my_queue.dequeue())
# (1) Item -  Returns 1 Node
print(my_queue.dequeue())
# (0) Items - Returns None
print(my_queue.dequeue())
```

```
1
2
None
```

Terima Kasih

Ada **Pertanyaan?**