

Problem 4: Given a Stack having some elements stored in it. Can you implement a Queue using the given Stack? **Using two Stacks where push operation is $O(N)$.**

```
class QueueUsingStack:
```

```
    def __init__(self):
```

```
        self.stack1 = []
```

```
        self.stack2 = []
```

```
    def enqueue(self, value):
```

```
        self.stack1.append(value)
```

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

```
        if not self.stack1 and not self.stack2:
```

```
            raise Exception("Queue is empty (underflow)")
```

```
        if not self.stack2:
```

```
            while self.stack1:
```

```
                self.stack2.append(self.stack1.pop())
```

```
        return self.stack2.pop()
```

```
queue = QueueUsingStack()
```

```
queue.enqueue(10)
```

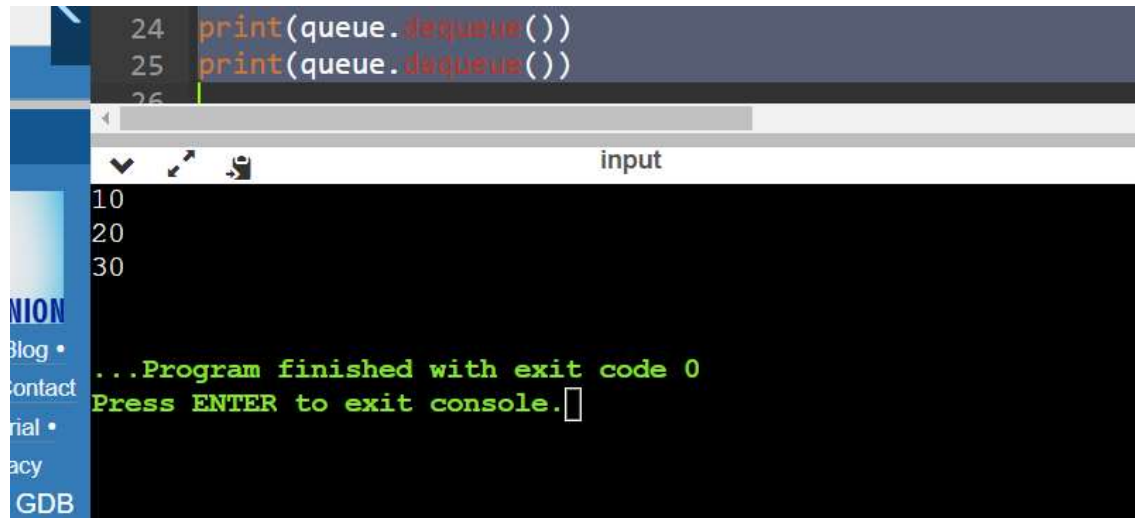
```
queue.enqueue(20)
```

```
queue.enqueue(30)
```

```
print(queue.dequeue())
```

```
print(queue.dequeue())
```

```
print(queue.dequeue())
```



The screenshot shows a code editor with three lines of Python code: `print(queue.dequeue())` on lines 24, 25, and 26. Below the code editor is a terminal window titled "input" which displays the numbers 10, 20, and 30 on separate lines. At the bottom of the terminal, a green message states "...Program finished with exit code 0" followed by "Press ENTER to exit console." with a cursor. On the left side of the image, a blue sidebar contains the text "NION", "Blog •", "contact", "rial •", "acy", and "GDB".

```
24 print(queue.dequeue())
25 print(queue.dequeue())
26
input
10
20
30
...Program finished with exit code 0
Press ENTER to exit console.
```