

5. Build an Array With Stack Operations

You are given an integer array `target` and an integer `n`.

You have an empty stack with the two following operations:

- "Push": pushes an integer to the top of the stack.
- "Pop": removes the integer on the top of the stack.

You also have a stream of the integers in the range $[1, n]$.

Use the two stack operations to make the numbers in the stack (from the bottom to the top) equal to `target`. You should follow the following rules:

- If the stream of the integers is not empty, pick the next integer from the stream and push it to the top of the stack.
- If the stack is not empty, pop the integer at the top of the stack.
- If, at any moment, the elements in the stack (from the bottom to the top) are equal to `target`, do not read new integers from the stream and do not do more operations on the stack.

Return the stack operations needed to build `target` following the mentioned rules. If there are multiple valid answers, return any of them.

Code:

```
def buildArray(target,n):
```

```
    operations=[]
```

```
    current=1
```

```
    for number in target:
```

```
        while current < number:
```

```
            operations.append("Push")
```

```
            operations.append("Pop")
```

```
            current += 1
```

```
        operations.append("Push")
```

```
        current+=1
```

```
    return operations
```

```
target=[1,3]
```

```
n=3
```

```
print(buildArray(target,n))
```

```
target=[1,2,3]
```

```
n=
```

```
print(buildArray(target,n))
```

```
target=[1,2]
```

```
n=4
```

```
print(buildArray(target,n))
```

```
target=[2,3,4]
```

```
n=4
```

```
print(buildArray(target,n))
```

output:

```
PS C:\Users\karth>
PS C:\Users\karth> & C:/Users/karth/AppData/Local/Programs/Python/Python312/python.exe c:/Users/karth/OneDrive/Desktop/daa.py
['Push', 'Push', 'Pop', 'Push']
['Push', 'Push', 'Push']
['Push', 'Push']
['Push', 'Pop', 'Push', 'Push', 'Push']
PS C:\Users\karth>
```

Time complexity:

$F(n)=O(n \log n)$