

①

```
def push_with_priority(stack, priority, element):
```

```
    temp_stack = [] # provided in question
```

```
    # 1) Move elnts to temp_stack while maintaining priority
```

```
    while True:
```

```
        if len(stack) < 1: break
```

```
        elif stack[-1][0] > priority: break
```

```
        else: temp_stack.append(stack.pop())
```

```
    # 2) Insert the new element with its priority
```

```
    stack.append((priority, element))
```

```
    # 3) Move the elements back from temp_stack to
```

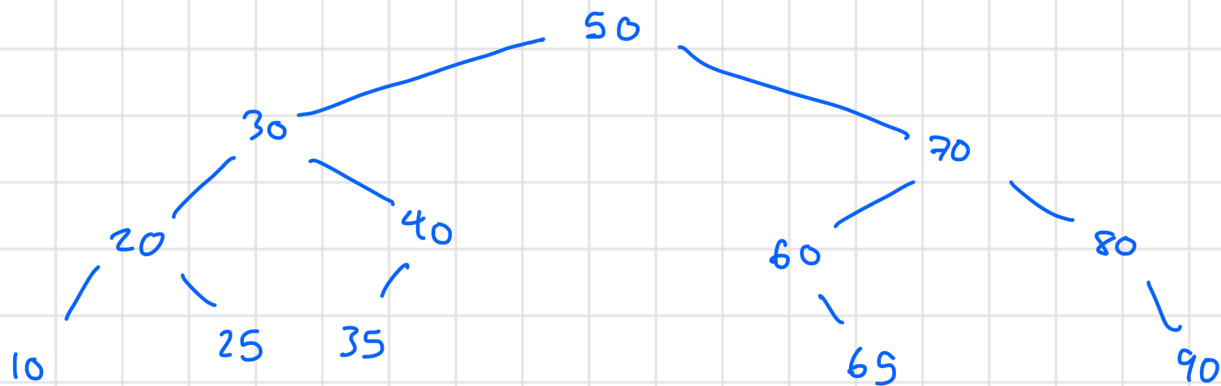
```
    # stack to maintain their order
```

```
    while len(temp_stack) > 0: stack.append(temp_stack.pop())
```

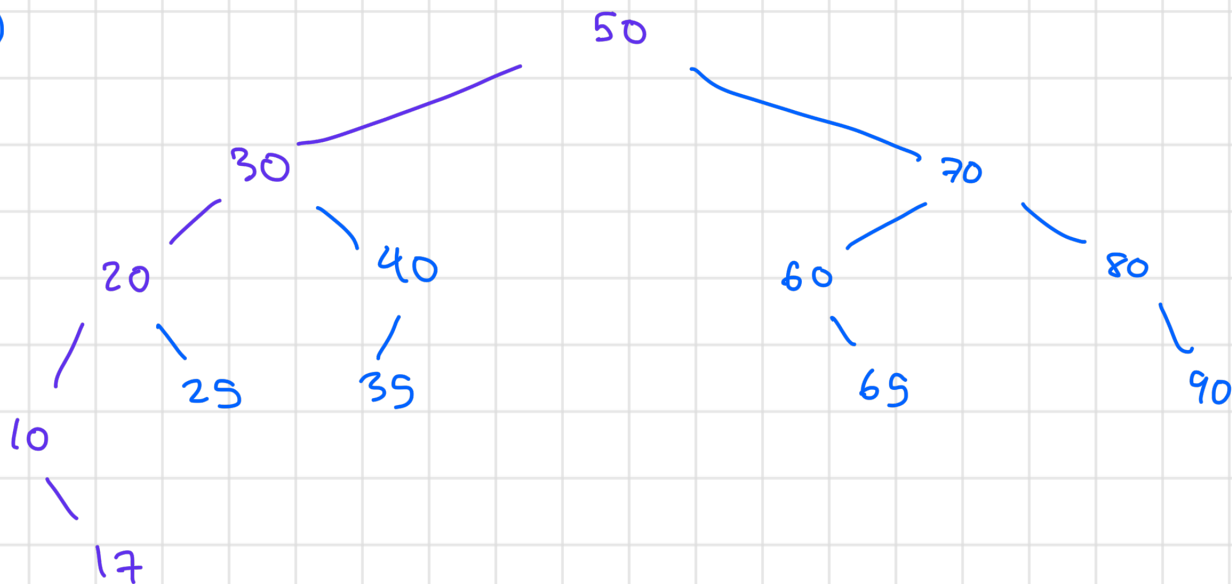
```
    return stack
```

②

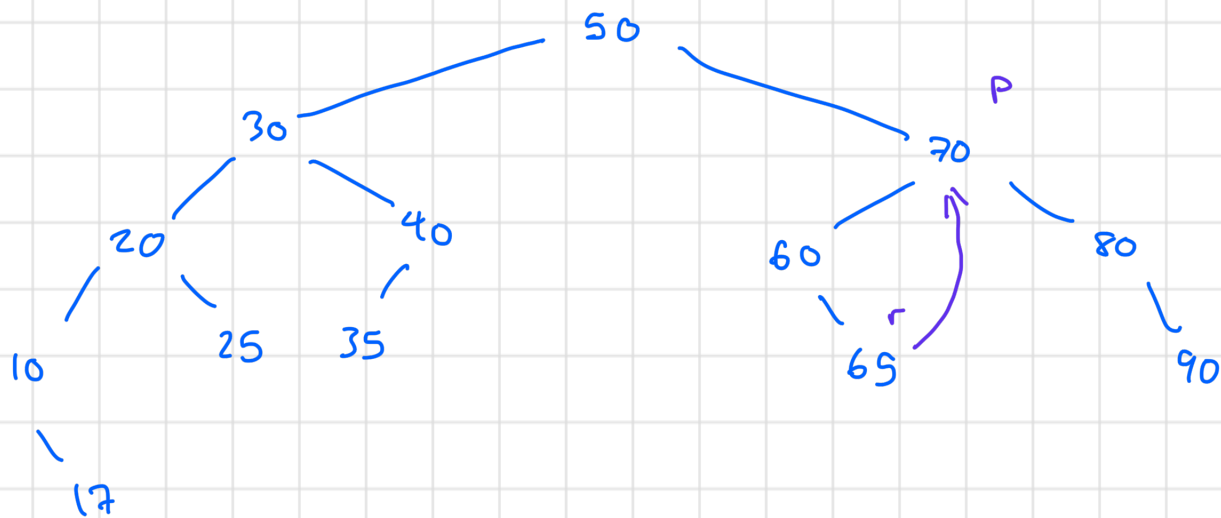
a)

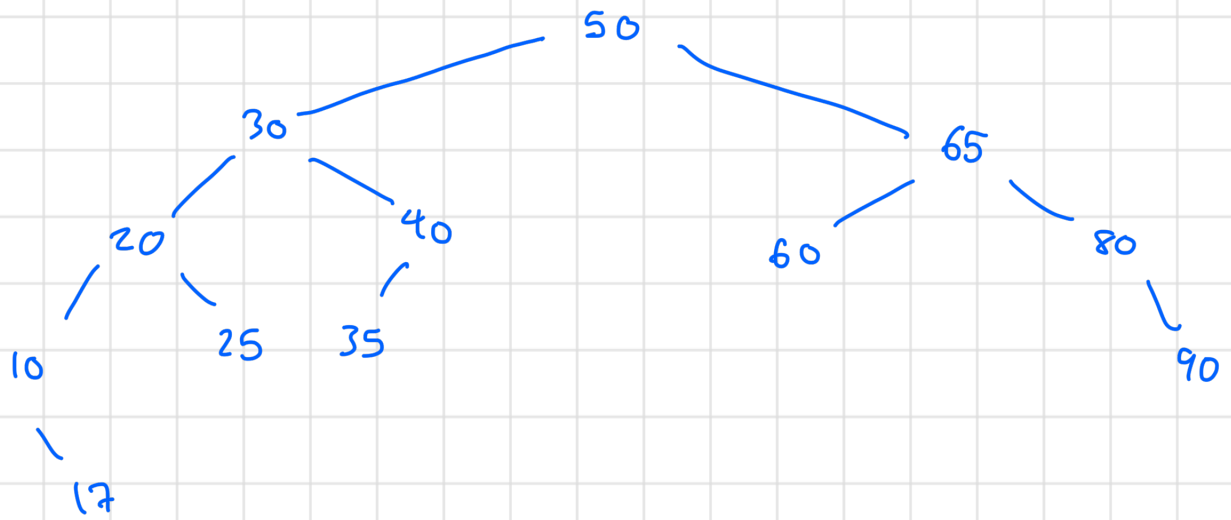
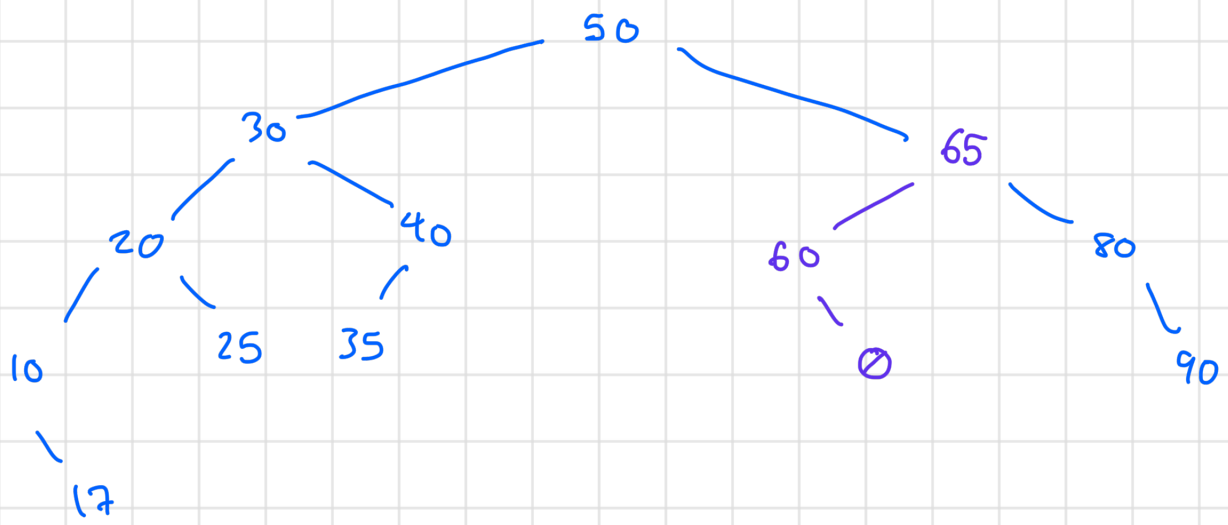


b)



c)





3

Task 1:

Step	Pivot	Left Partition	Right Partition
Init. Arr.	—	—	—
1	-5	[]	[8, -3, 7, -1, 10, 2]
2	2	[-3, -1]	[8, 7, 10]
3	-1	[-3]	[]
4	10	[8, 7]	[]
5	7	[]	[8]
Final Arr.	—	—	—

Task 2:

the missing line is:

$$S[i+j] = S2[j]$$