

Code:

```
Activity/Midterms_Castro.py x
2 usages
1 class Stack:
2     def __init__(self):
3         self.items = []
4
16 usages
5     def push(self, item):
6         self.items.append(item)
7         print("Pushed:", self.items)
8
13 usages
9     def pop(self):
10         return self.items.pop()
11
3 usages
12     def is_empty(self):
13         return self.items == []
14
2 usages
15     def len(self):
16         return len(self.items)
17
1 usage
18     def top(self):
19         if not self.is_empty():
20             return self.items[-1]
21
2 usages
22     def get_items(self):
23         print("Stack content:", self.items)
24
25
26 S = Stack()
27
28 print("Part 1")
29 S.push(5)
30 S.push(3)
31 print("Size:", S.len())
32 print("Popped:", S.pop())
33 print("Is empty:", S.is_empty())
34 print("Popped:", S.pop())
```

```
24
25
26 S = Stack()
27
28 print("Part 1")
29 S.push(5)
30 S.push(3)
31 print("Size:", S.len())
32 print("Popped:", S.pop())
33 print("Is empty:", S.is_empty())
34 print("Popped:", S.pop())
35 print("Is empty:", S.is_empty())
36
37 try:
38     print("Popped:", S.pop())
39 except Exception as e:
40     print(e)
41
42 S.push(7)
43 S.push(9)
44 print("Top element:", S.top())
45 S.push(4)
46 print("Size:", S.len())
47 print("Popped:", S.pop())
48 S.push(6)
49 S.push(8)
50 print("Popped:", S.pop())
51 S.get_items()
52
53 X = Stack()
54 print("\nPart 2")
55 X.push(5)
56 X.push(3)
57 print("Popped:", X.pop())
58 X.push(2)
59 X.push(8)
60 print("Popped:", X.pop())
61 print("Popped:", X.pop())
62 X.push(9)
63 X.push(1)
64 print("Popped:", X.pop())
```

```

38     print("Popped:", S.pop())
39 except Exception as e:
40     print(e)
41
42 S.push(7)
43 S.push(9)
44 print("Top element:", S.top())
45 S.push(4)
46 print("Size:", S.len())
47 print("Popped:", S.pop())
48 S.push(6)
49 S.push(8)
50 print("Popped:", S.pop())
51 S.get_items()
52
53 X = Stack()
54 print("\nPart 2")
55 X.push(5)
56 X.push(3)
57 print("Popped:", X.pop())
58 X.push(2)
59 X.push(8)
60 print("Popped:", X.pop())
61 print("Popped:", X.pop())
62 X.push(9)
63 X.push(1)
64 print("Popped:", X.pop())
65 X.push(7)
66 X.push(6)
67 print("Popped:", X.pop())
68 print("Popped:", X.pop())
69 X.push(4)
70 print("Popped:", X.pop())
71 print("Popped:", X.pop())
72 X.get_items()
73

```

OUTPUT:

```

"C:\Program Files\Python312\python.exe" Z:\DSAL601-IDB2\Activity1Midterms_Castro.py
Part 1
Pushed: [5]
Pushed: [5, 3]
Size: 2
Popped: 3
Is empty: False
Popped: 5
Is empty: True
pop from empty list
Pushed: [7]
Pushed: [7, 9]
Top element: 9
Pushed: [7, 9, 4]
Size: 3
Popped: 4
Pushed: [7, 9, 6]
Pushed: [7, 9, 6, 8]
Popped: 8
Stack content: [7, 9, 6]

```

Part 2

Pushed: [5]

Pushed: [5, 3]

Popped: 3

Pushed: [5, 2]

Pushed: [5, 2, 8]

Popped: 8

Popped: 2

Pushed: [5, 9]

Pushed: [5, 9, 1]

Popped: 1

Pushed: [5, 9, 7]

Pushed: [5, 9, 7, 6]

Popped: 6

Popped: 7

Pushed: [5, 9, 4]

Popped: 4

Popped: 9

Stack content: [5]

Process finished with exit code 0