

Q 1. Implement a stack using a list in Python. Include the necessary methods such as push, pop, and isEmpty.

In [1]:

```
1 class Stack:
2     def __init__(self):
3         self.stack = []
4
5     def push(self, item):
6         self.stack.append(item)
7
8     def pop(self):
9         if not self.is_empty():
10            return self.stack.pop()
11        else:
12            raise IndexError("Stack is empty. Cannot perform pop operation.")
13
14    def is_empty(self):
15        return len(self.stack) == 0
```

In [2]:

```
1 stack = Stack()
2 print(stack.is_empty()) # True
3
4 stack.push(15)
5 stack.push(25)
6 stack.push(40)
7
8 print(stack.is_empty()) # False
9
10 print(stack.pop()) # 40
11 print(stack.pop()) # 25
12 print(stack.pop()) # 15
13
14 print(stack.is_empty()) # True
15
16 # Attempting to pop from an empty stack will raise an IndexError
17 # stack.pop()
```

True
False
40
25
15
True

In []:

1

