COMPUTER SCIENCE AND DA

Data Structures through Python

Stack

Lecture No. 04

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TOPICS TO BE COVERED

1) Multi-Dimensional Array

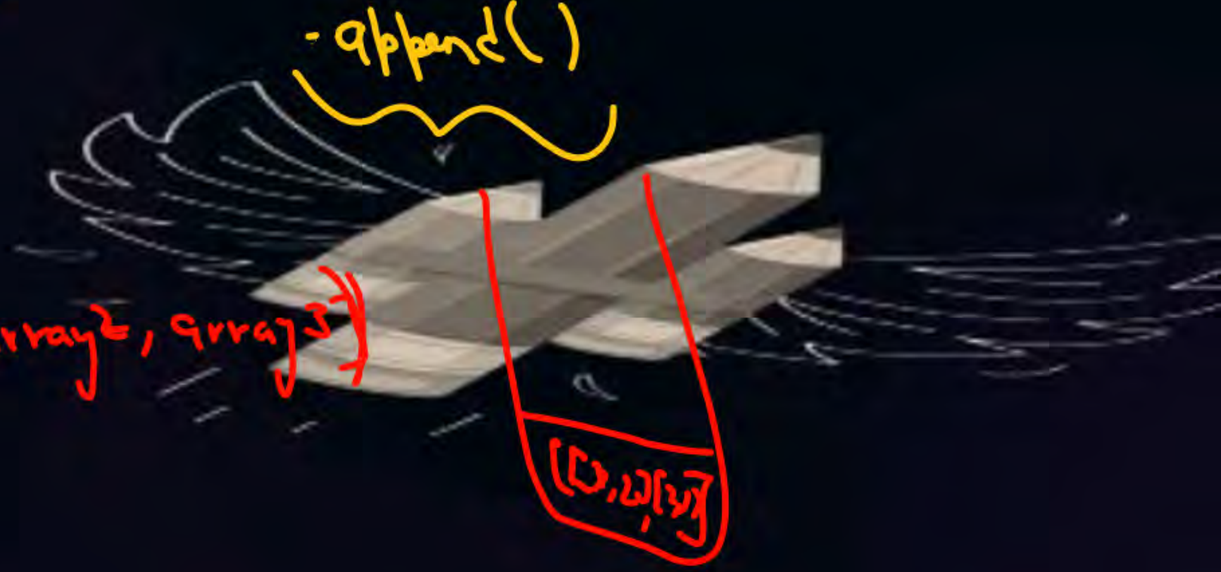
2) Problem

STACK IMPLEMENTATION

Stack Implementation using numpy

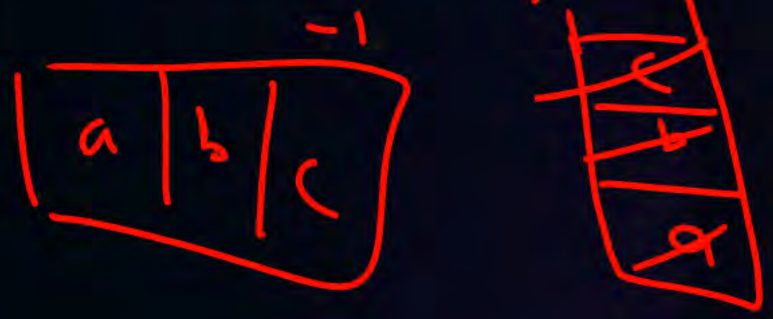
```
import numpy as np
array1 = np.array([[1,2],[3,4]])
array2 = np.array([5,6])
array3 = np.array([7,8])
stack = np.stack(array1, array2, array3)
```

```
ls=[1,4,3]
ls.append(4)
```



STACK IMPLEMENTATION

```
from collections import deque
my_stack = deque()
my_stack.append("a")
my_stack.append("b")
my_stack.append("c")
print(my_stack.pop())   c
print(my_stack.pop())   b
print(my_stack.pop())   a
```



STACK IMPLEMENTATION

```
from queue import LifoQueue

my_stack = LifoQueue(maxsize=5)

my_stack.put("a")
my_stack.put("b")
my_stack.put("c")

my_stack.qsize
my_stack.full
```

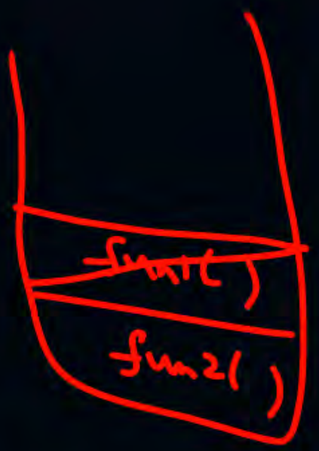
```
my_stack.get()    c
my_stack.get()    b
my_stack.get()    a
```

APPLICATIONS OF STACK

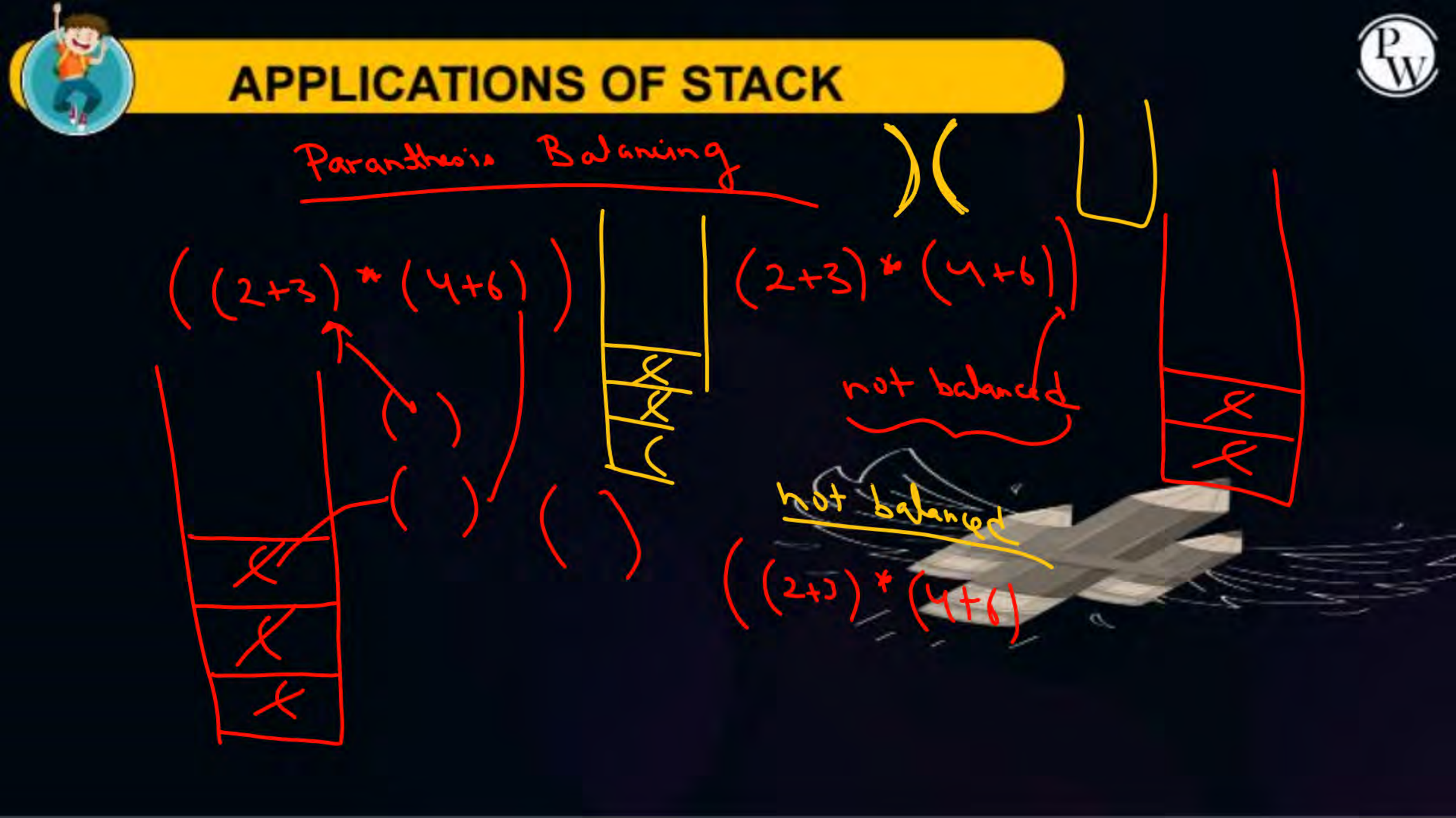
- Undo operation
- Browsing history
- Function calling
- Recursion
- Backtracking
- Parantheis Balancing
- Expression conversion
- Expression Evaluation

```
fun1( )

fun2( ):
    fun1( )
```



APPLICATIONS OF STACK



THANK - YOU