Array-Based Stack with Maximum Capacity   X12072_en

Modify the ArrayStack implementation included in the Public Files section of the statement so that the stack's capacity is limited to `maxlen` elements, where `maxlen` is an optional parameter to the constructor (that defaults to `None`). If push is called when the stack is at full capacity, throw a `Full` exception (defined similarly to `Empty`). In order to avoid amortization, the new implementation of ArrayStack should initialize the underlying list to a list with length equal to the stack's maximum capacity.

Write a program that uses the modified ArrayStack class to process a sequence of orders of the form `push element`, `pop`, `top`, `len`, `empty`; performs each order requested if it can be executed; and informs the user accordingly.

Sample input

```
4
push 1
push 4
push 3
push 2
push 5
pop
top
empty
len
pop
pop
empty
```

Sample output

```
Stack size: 1
Stack size: 2
Stack size: 3
Stack size: 4
Stack was full
2 removed
top element: 3
Stack is not empty
Stack size: 3
3 removed
4 removed
Stack is not empty
```

Problem information

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