

## WK04\MyListClass.py

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1 class MyList:
2     '''
3     Custom list class that handles input of a single list or a sequence of other data types.
4     Includes methods for appending and removing data, as well as a length member that maintains
5     the list length as an integer.
6     Includes the __str__ method, returning the contents of the array member for use with
7     Python's print() function.
8     '''
9     def __init__(self, *args):
10         if isinstance(args[0], list):
11             self.array = args[0]
12             index = 0
13             while True:
14                 try:
15                     i = self.array[index]
16                     index += 1
17                 except IndexError:
18                     break
19             except:
20                 print('Error in __init__ method while counting length of input array')
21                 break
22         else:
23             self.array = []
24             index = 0
25             while True:
26                 try:
27                     self.array += [args[index]]
28                     index += 1
29                 except IndexError:
30                     break
31             except:
32                 print('Error in __init__ method while assigning multiple args to the MyList
33                 object instance')
34                 break
35             self.length = index
36
37     def my_append(self, val):
38         self.array += [val]
39         self.length += 1
40
41     def my_remove(self, val):
42         i = 0
43         while i <= self.length-1:
44             if self.array[i] == val and i > self.length//2:
45                 j = i
46                 while j < self.length-1:
47                     self.array[j], self.array[j+1] = self.array[j+1], self.array[j]
48                     j += 1
```

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46         self.array = self.array[:-1]
47         self.length -=1
48         return
49     elif self.array[i] == val and i <= self.length//2:
50         j = i
51         while j > 0:
52             self.array[j], self.array[j-1] = self.array[j-1], self.array[j]
53             j -= 1
54         self.array = self.array[1:]
55         self.length -=1
56         return
57     i += 1
58
59     def __str__(self):
60         return f"[{', '.join(map(str, self.array))}]"
61
62 arr = [1,3,5,6,8,9,12,13,None,15,17,18,24,True,36,47,58,3,98,'432',4,3,42,'fdsa']
63 z = MyList(arr)
64
65 print(f'{Starting array, "arr":':<35} {arr}')
66 print(f'{MyList using "arr":':<35} {z}')
67
68 remove = 1
69 z.my_remove(remove)
70 print(f'{Removing ' + str(remove) + ':':<35} {z}')
71
72 remove = 24
73 z.my_remove(remove)
74 print(f'{Removing ' + str(remove) + ':':<35} {z}')
75
76 remove = 'fdsa'
77 z.my_remove(remove)
78 print(f'{Removing ' + str(remove) + ':':<35} {z}')
79
80 apnd = 1111
81 z.my_append(apnd)
82 print(f'{Appending ' + str(apnd) + ':':<35} {z}')
83
84 print(f'{Final list:':<35} {z}')
```