

CODE:

```
ArrayStack.py  main.py x  myfile.txt  practice.py

1  from ArrayStack import ArrayStack as Stack
2
3
4  1 usage
5  def reverse_file(file_path):
6      stack = Stack()
7      with open(file_path, 'r') as file:
8          for line in file:
9              stack.push(line.rstrip('\n'))
10     with open(file_path, 'w') as file:
11         while not stack.is_empty():
12             file.write(stack.pop() + '\n')
13
14     1 usage
15     def is_matched(expression):
16         matching_symbols = {'(': ')', '[': ']', '{': '}'}
17         for char in expression:
18             if char in matching_symbols.values():
19                 S.push(char)
20             elif char in matching_symbols.keys():
21                 if S.is_empty() or S.pop() != matching_symbols[char]:
22                     return False
23         return S.is_empty()
24
25     S = Stack()
26     reverse_file(r'Z:\DSAL601-IDB2\MIDTERMS\Activity3Midterms_Castro\myfile.txt')
27     user_input = input("Enter an expression to check for balanced symbols: ")
28
29     if is_matched(user_input):
30         print('The symbols are balanced')
31     else:
32         print('The symbols are not balanced')
33
34
35
```

```

1 usage
1 class ArrayStack:
2     def __init__(self):
3         self.data = []
4
5     def __len__(self):
6         return len(self.data)
7
8     5 usages
8     def is_empty(self):
9         return len(self) == 0
10
11     2 usages
11     def push(self, val):
12         self.data.append(val)
13
14     def top(self):
15         if self.is_empty():
16             raise Exception('Stack is empty')
17         return self.data[-1]
18
19     2 usages
19     def pop(self):
20         if self.is_empty():
21             raise Exception('Stack is empty')
22         return self.data.pop()

```



24

25

OUTPUT:

```
"C:\Program Files\Python312\python.exe" Z:\DSAL601-IDB2\MIDTERMS\Activity3Midterms_Castro\main.py
Enter an expression to check for balanced symbols: (5 + 3) * (3-2)
The symbols are balanced
```

```
Process finished with exit code 0
```

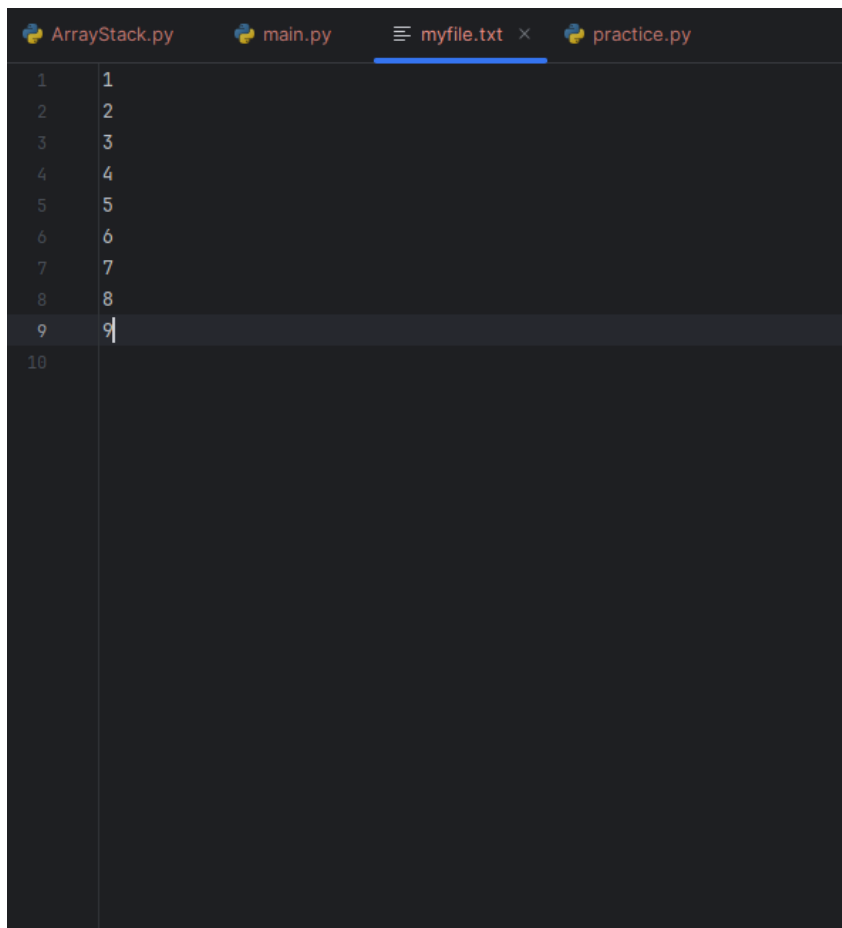
```
|
```

```
"C:\Program Files\Python312\python.exe" Z:\DSAL601-IDB2\MIDTERMS\Activity3Midterms_Castro\main.py
Enter an expression to check for balanced symbols: (5 + 3))
The symbols are not balanced
```

```
Process finished with exit code 0
```

```
|
```

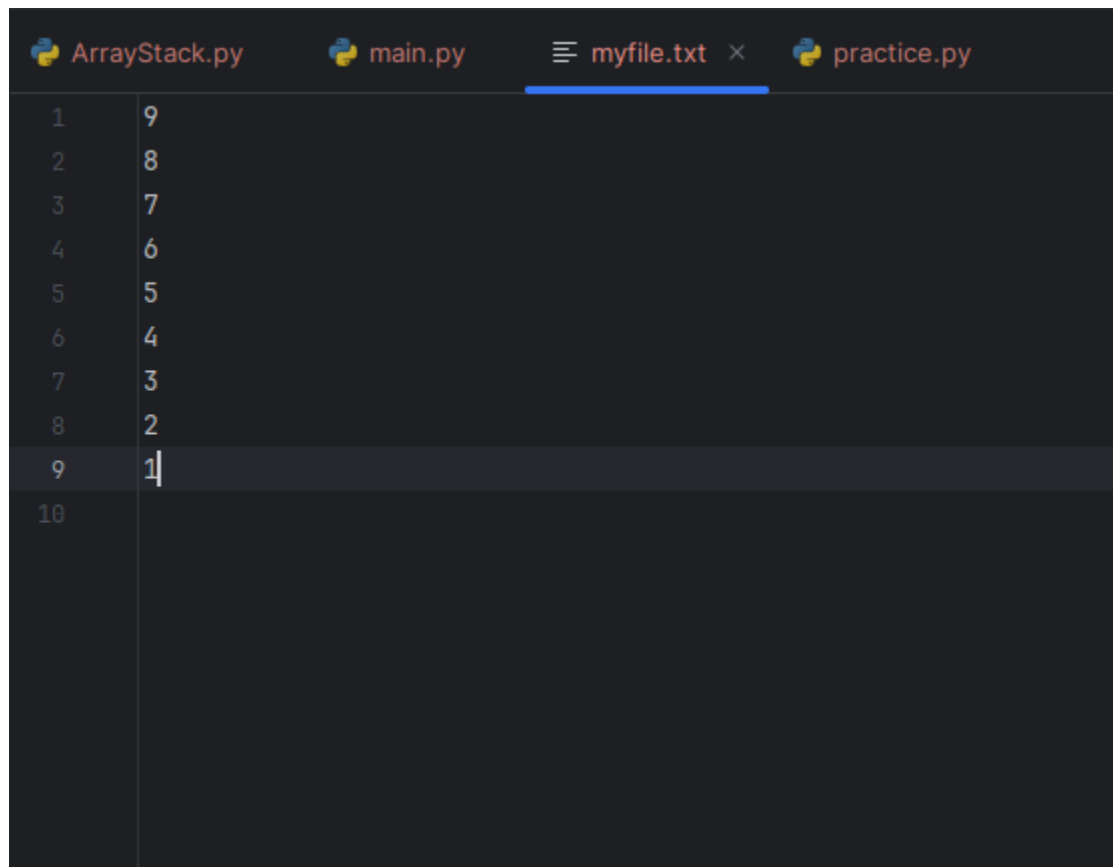
BEFORE TXT



The screenshot shows a code editor with four tabs: ArrayStack.py, main.py, myfile.txt (active), and practice.py. The active tab, myfile.txt, contains a list of numbers from 1 to 10, each on a new line. The text is as follows:

```
1 1
2 2
3 3
4 4
5 5
6 6
7 7
8 8
9 9
10
```

AFTER TXT



The image shows a code editor window with four tabs: 'ArrayStack.py', 'main.py', 'myfile.txt', and 'practice.py'. The 'myfile.txt' tab is active and displays a list of numbers from 1 to 10. The numbers 1 through 8 are already present, and the number 1 is being entered at index 9. The number 10 is at the bottom of the list.

Index	Value
1	9
2	8
3	7
4	6
5	5
6	4
7	3
8	2
9	1
10	