# 235229122-lab10-pavithiran-v

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Programming and Data Structures with Python Lab10. Checking Parenthesis in Expression using Stack

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```python
[2]: class Stack:
         def __init__(self):
             self.items = []

         def is_empty(self):
             return len(self.items) == 0

         def push(self, item):
             self.items.append(item)

         def pop(self):
             if not self.is_empty():
                 return self.items.pop()
             return None

     def check_parentheses(expression):
         stack = Stack()
         opening_brackets = ['[', '(', '{']
         closing_brackets = [']', ')', '}']

         for char in expression:
             if char in opening_brackets:
                 stack.push(char)
             elif char in closing_brackets:
                 if stack.is_empty():
                     return False
                 top = stack.pop()
                 if opening_brackets.index(top) != closing_brackets.index(char):
                     return False

         return stack.is_empty()

     user_expression = input("Enter an expression: ")
     result = check_parentheses(user_expression)
```

```python
if result:
    print("The parentheses in the expression are balanced.")
else:
    print("The parentheses in the expression are not balanced.")
```

Enter an expression:   (x+y)/{x-[x*y]}

The parentheses in the expression are balanced.