IT314 - Software Engineering LAB 5 - Static Analysis
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Used repository link

1 : getmin.py

```python
1 ▾ def isBalanced(exp):
2       flag = True
3       count = 0
4 ▾     for i in range(len(exp)):
5 ▾         if(exp[i] == '('):
6               count += 1
7 ▾         else:
8               count -= 1
9 ▾         if(count < 0):
10              flag = False
11              break
12 ▾     if(count != 0):
13          flag = False
14      return flag
15 ▾ if __name__ == '__main__':
16
17      exp1 = "(((())()()"
18 ▾     if(isBalanced(exp1)):
19          print("Balanced ")
20 ▾     else:
21          print("Not Balanced ")
22
23      exp2 = "())((())"
24
25 ▾     if(isBalanced(exp2)):
26          print("Balanced ")
27 ▾     else:
28          print("Not Balanced ")
29  |
30
```

Succeeded!! (4102 ms)

Success: no issues found in 1 source file

2 : binarysearch.py

```python
 1  def binarySearch(lst,searchValue):
 2      low, high = 0, len(lst) - 1
 3      while low <= high:
 4          mid = int((low + high)/2)
 5          if lst[mid] == searchValue:
 6              return mid
 7          elif searchValue < lst[mid]:
 8              high = mid - 1
 9          else:
10              low = mid + 1
11      return None
12
13  def isSorted(lst):
14      for i in range(1, len(lst)):
15          if lst[i] < lst[i - 1]:
16              return False
17      return True
18
19  def main()
20      lst = eval(input('Enter a sorted list : '))
21      if not(isSorted(lst)):
22          print('Given list is not Sorted')
23      else:
24          searchVal = eval(input('Enter the value to be searched'))
25          print(searchVal,'found index at',binarySearch(lst,searchVal))
26
27  if __name__ == '__main__':
28      main()
29
```

Failed (exit code: 2) (1017 ms)

```
main.py:19: error: expected ':'  [syntax]
Found 1 error in 1 file (errors prevented further checking)
```

Explanation of errors :

There should be ':' after def main()

3: postfix.py

```python
from stack import Stack
def postfix(exp):
    precedence = {'+':1, '-':2, '*':3, '/':4}
    operand = '0123456789'

    result = ''
    stk = Stack()
    for symbol in exp:
        if symbol == '(':
            stk.push(symbol)
        elif symbol == ')':
            val = stk.pop()
            while val != '(':
                result += val
                val = stk.pop()
        elif symbol in operand:
            result += symbol
        elif symbol in precedence:
            if not(stk.isEmpty()):
                stkTop = stk.top()
            while not(stk.isEmpty()) and stkTop != '(' \
                and precedence [stkTop] >= precedence[symbol]:
                result += stk.pop()
        return result
def main():
    exp = input('Enter the expression in infix notation: ')
    exp = postfix(exp)
    print(exp)

if __name__ == '__main__':
    main()
```

Failed (exit code: 1) (3226 ms)

```
main.py:1: error: Cannot find implementation or library stub for module named "stack"  [import]
main.py:1: note: See https://mypy.readthedocs.io/en/stable/running_mypy.html#missing-imports
Found 1 error in 1 file (checked 1 source file)
```

Explanation of errors :
This error message is saying that in the Python file `main.py`, on line 1, there is an `import` statement that is trying to import a module called `stack`. However, MyPy, a static type checker for Python, is unable to find an implementation or library stub for that module, which means that module doesn't exist

4:postfixexp.py

```python
class Evaluate:
    def __init__(self, capacity):
        self.top = -1
        self.capacity = capacity
        self.array = []

    def isEmpty(self):
        return True if self.top == -1 else False
    def peek(self):
        return self.array[-1]
    def pop(self):
        if not self.isEmpty():
            self.top = 1
            return self.array.pop()
        else:
            return "$"
    def push(self, op):
        self.top += 1
        self.array.append(op)
    def evaluatePostfix(self, exp):
        for i in exp:
            if i.isdigit():
                self.push(i)
            else:
                val1 = self.pop()
                val2 = self.pop()
                self.push(str(eval(val2 + i + val1)))
        return int(self.pop())

#Driver Code

exp = "231*+9-"
```

Succeeded!! (3248 ms)

Success: no issues found in 1 source file

5 : reversestr.py

```
 1 ▾ '''def reverse(str1):
 2        reverseStr = ' '
 3 ▾     for i in range(len(str1)):
 4            reverseStr = str[1] + reverseStr
 5        return reverseStr
 6    '''
 7 ▾ def reverse(str1):
 8 ▾     if str1 == ' ':
 9            return str1
10 ▾     else:
11            return str[1:]` + str1[0]
12    print(reverse("Hello"))
13
```

Failed (exit code: 2) (1328 ms)

```
main.py:11: error: invalid syntax; you likely need to run mypy using Python 3.11 or newer  [syntax]
Found 1 error in 1 file (errors prevented further checking)
```

Explanation of errors :

The error is likely due to the fact that the code uses a feature or syntax that is only available in Python version 3.11 or newer.

6 :

```
13        s = []
14 ▾      for i in range(n):
15            s.append(i)
16
17        A = s.pop()
18        B = s.pop()
19
20 ▾      while (len(s)> 1):
21 ▾          if (knows(A,B)):
22                A = s.pop()
23 ▾          else:
24                B = s.pop()
25
26 ▾      if (len(s) == 0):
27            return -1
28
29        C = s.pop()
30
31 ▾      if (knows(C, B)):
32            C = B
33
34 ▾      if (knows(C, A)):
35            C = A
36
37 ▾      for i in range(n):
38 ▾          if ((i != C) and (knows(C,i) or not knows(i, C))):
39                return -1
40        return C
41
42 ▾ if __name__ == '__main__':
❌ 43      main()
44 |
```

Failed (exit code: 1) (3126 ms)

```
main.py:43: error: Name "main" is not defined  [name-defined]
Found 1 error in 1 file (checked 1 source file)
```

Explanation of errors :
Main is not defined properly