

IT314 - Software Engineering LAB 5 - Static Analysis

Name : Pulkit Khandelwal

ID : 202001120

Used repository [link](#)

Tool used MYPY

1 : getmin.py

```
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

```
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

```
1 from stack import Stack
2 def postfix(exp):
3     precedence = {'+':1, '-':2, '*':3, '/':4}
4     operand = '0123456789'
5
6     result = ''
7     stk = Stack()
8     for symbol in exp:
9         if symbol == '(':
10             stk.push(symbol)
11         elif symbol == ')':
12             val = stk.pop()
13             while val != '(':
14                 result += val
15                 val = stk.pop()
16         elif symbol in operand:
17             result += symbol
18         elif symbol in precedence:
19             if not(stk.isEmpty()):
20                 stkTop = stk.top()
21                 while not(stk.isEmpty()) and stkTop != '(' \
22                     and precedence [stkTop] >= precedence[symbol]:
23                     result += stk.pop()
24             return result
25 def main():
26     exp = input('Enter the expression in infix notation: ')
27     exp = postfix(exp)
28     print(exp)
29
30 if __name__ == '__main__':
31     main()
32
```

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

```
1 class Evaluate:
2     def __init__(self, capacity):
3         self.top = -1
4         self.capacity = capacity
5         self.array = []
6
7     def isEmpty(self):
8         return True if self.top == -1 else False
9
10    def peek(self):
11        return self.array[-1]
12
13    def pop(self):
14        if not self.isEmpty():
15            self.top -= 1
16            return self.array.pop()
17        else:
18            return "$"
19
20    def push(self, op):
21        self.top += 1
22        self.array.append(op)
23
24    def evaluatePostfix(self, exp):
25        for i in exp:
26            if i.isdigit():
27                self.push(i)
28            else:
29                val1 = self.pop()
30                val2 = self.pop()
31                self.push(str(eval(val2 + i + val1)))
32        return int(self.pop())
33
34 #Driver Code
35
36 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:] + str[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