Section 6.9 of your textbook ("Debugging") lists three possibilities to consider if a function is not working.

Three possibilities to consider if a function is not working are:

1. There is something wrong with the arguments the function is getting; a precondition is violated

2. There is something wrong with the function; a postcondition is violated

3. There is something wrong with the return value or the way it is being used

2. Describe each possibility in your own words.

1. There is something wrong with the arguments the function is getting; a precondition is violated: This means that when calling the function the arguments gotten is not what is expected by the function. for example if the function is expecting three arguments and you provide two arguments then their will be error or you provide four arguments instead of three. Or the function is expecting integers as arguments and you provide string then there will be error. in summary it means that given unexpected arguments to the function.

2. There is something wrong with the function; a postcondition is violated: This means that while writing the body of the function there is an error in the code. It may be that the function is using recursion and their is no base case and as such it will run into a runtime error. Or also there is a base case but the base case can never be reached. It can also be tat their is a wrong computation in the code while solving a mathematical calculation for example when dividing by zero.

3. There is something wrong with the return value or the way it is being used: In this case it means that you returned what you did not intend to return. for example you perform a computation and store it in local variable as result but returned the argument passed as return statement instead of the local variable called result, in this case the code will run but their will be semantic error.

Define "precondition" and "postcondition" as part of your description.

Precondition: Precondition an be defined as a requirement that needs to be satisfied by the caller before the function start and it is usually in the arguments passed to the function. This means that you should satisfy the arguments needed by the function before its runs and their is no error in the name of the function being called.

Postcondition: Postcondition can be defined as the condition that needs to be satisfied by the function before it ends. That means that their should be a base case when recursion is being used and the base case must be reached before ending the program. And also their is no error in your computation such as dividing by zero and other mathematical computation when used.

Create your own example of each possibility in Python code. List the code for each example, along with sample output from trying to run it.

1. There is something wrong with the arguments the function is getting; a precondition is violated

Answer:

def mult(x, y, z):

multiplied = x \* y \* z

return multiplied

print(mult(3, 5))

Output:

C:\Users\Saheed Ibrahim\Documents\UoPeople\CS1101-01\python practice\week 4>python discussion\_unit4\_precondition.py

Traceback (most recent call last):

File "C:\Users\Saheed Ibrahim\Documents\UoPeople\CS1101-01\python practice\week 4\discussion\_unit4\_precondition.py", line 5, in <module>

print(mult(3, 5))

TypeError: mult() missing 1 required positional argument: 'z'

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2. There is something wrong with the function; a postcondition is violated

Answer:

def division(x, y):

result = x / y

return result

print(division(3, 0))

Output:

File "C:\Users\Saheed Ibrahim\Documents\UoPeople\CS1101-01\python practice\week 4\discussion\_unit4\_postcondition.py", line 5, in <module>

print(division(3, 0))

File "C:\Users\Saheed Ibrahim\Documents\UoPeople\CS1101-01\python practice\week 4\discussion\_unit4\_postcondition.py", line 2, in division

result = x / y

ZeroDivisionError: division by zero

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3. There is something wrong with the return value or the way it is being used