Network Scripting Lab 8

# **Introduction:**

*This lab introduces you to take a closer look at software testing. To deepen your understanding of Python you are required to attempt all activities and questions presented within this Lab. This lab will not have examples provided; it is practice for your assessment.*

# **Activity 1 – White Box Testing**

Use the following code:

'''

You must create a gradebook program which inputs four grades

for a student, calculates the average, and advises of their final grade.

'''

mark\_1 = int(input("Please enter first grade: "))

mark\_2 = int(input("Please enter first grade: "))

mark\_3 = int(input("Please enter first grade: "))

mark\_4 = int(input("Please enter first grade: "))

mark\_average = (mark\_1 + mark\_2 + mark\_3 + mark\_4) / 4

if mark\_average > 93 and mark\_average < 100:

    print("The student received an A.")

if mark\_average > 85 and mark\_average < 92:

    print("The student received a B.")

if mark\_average > 77 and mark\_average < 84:

    print("The student received a C.")

if mark\_average > 70 and mark\_average < 76:

    print("The student received a D")

else:

    print("The student received an F")

1. Create a white box testing plan use the template on blackboard for the above program; ensure that you use boundary testing and error guessing. Create the test cases before you run the code.
2. In the conclusion of your testing plan, state how you would go about fixing the noted issues (you do not have to fix the code).

# **Activity 2 – Debugging**

1. Firstly, go through the debugging introduction exercises ([here](https://www.cs.uky.edu/~keen/help/debug-tutorial/debug.html)).

Use the following code:

'''

This code will take a value and convert it into multiple types.

'''

varValue = '1.0'

print(varValue)

print("Turning varValue into a float")

varValue = float(varValue)

print(varValue)

print("Turning varValue into a integer")

varValue = int(varValue)

print(varValue)

print("Turning varValue into a back into a string")

varValue = str(varValue)

print(varValue)

print("Turning varValue into a list")

varValue = list(varValue)

print(varValue)

print("All done!")

1. Use a debugger and take a screenshot to show that varValue is:
   1. A string at line 6:
   2. A float at line 9:
   3. An int at line 12:
   4. A string at line 15:
   5. A list at line 18:

# **Activity 3 – Reflection**

**Provide written responses to the questions below. Answers to these questions can be located in the corresponding topic presentation for this session.**

1. Explain why you would test flowcharts and/or pseudocode before writing code.
2. Which testing methodology listed above do you believe is better for testing non-code algorithms?
3. Is it important to document your testing plan and activities? Why?
4. Should a standard exist for testing within an organization? Why/Why Not?
5. Do you think it is better that you test, or someone else tests your code/algorithm? Why?