

CMDA 3634

Lab 03 Report

Russell J. Hewett

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Part A

1. Use the `listings` package to include your output (`output_pt.a.txt`) in your pdf. You will need to copy `output_pt.a.txt` to the reports directory.

ANSWER:

```
Test 0: Pass
Test 1: Pass
Test 2: Pass
Test 3: Pass
Test 4: Pass
Test 5: Pass
Test 6: Pass
Test 7: Pass
All Tests: Pass
```

2. The `axpy` routine no longer uses the return value, as the return variable is an argument to the function. How can we make use of the function return value to get some use out of it?

ANSWER: We can return an error code, indicating success or failure. We could also return a reference to the return value, allowing the routine to be used as an argument to another function, but this could have some unintended side-effects.

3. For these routines, give one reason why we might choose to pass only the structures by pointer and not the scalar values?

ANSWER: We are not modifying the values in the scalar arguments. Also, they are small so creating copies of them does not impose excessive overhead.

4. Other than the instructor or TAs, who did you receive assistance from on this assignment?

ANSWER: No one.

Part B

1. Use the `listings` package to include your output (`output_pt.b.txt`) in your pdf. You will need to copy `output_pt.b.txt` to the reports directory.

ANSWER:

```
21, 62, 27, 90, 59, 63, 26
Sum 0-127 = 6711
Mean 0-127 = 52.429688
Sum 0-31 = 1643
```

Mean 0–31 = 51.343750
Sum 32–63 = 1677
Mean 32–63 = 52.406250
Sum 64–95 = 1619
Mean 64–95 = 50.593750
Sum 96–127 = 1772
Mean 96–127 = 55.375000

2. Call your `sum` function with a value for `N` that is larger than the number of entries in the array. What happens when you compile? When you run? What is happening here?

ANSWER: This compiles with no issue. There is no compile-time check for array out of bounds. When we run there is a segmentation fault for attempting to access a stack array out of bounds, triggered by the system detecting the out of bounds access attempt. This is a system security mechanism.

3. Other than the instructor or TAs, who did you receive assistance from on this assignment?

ANSWER: No one.