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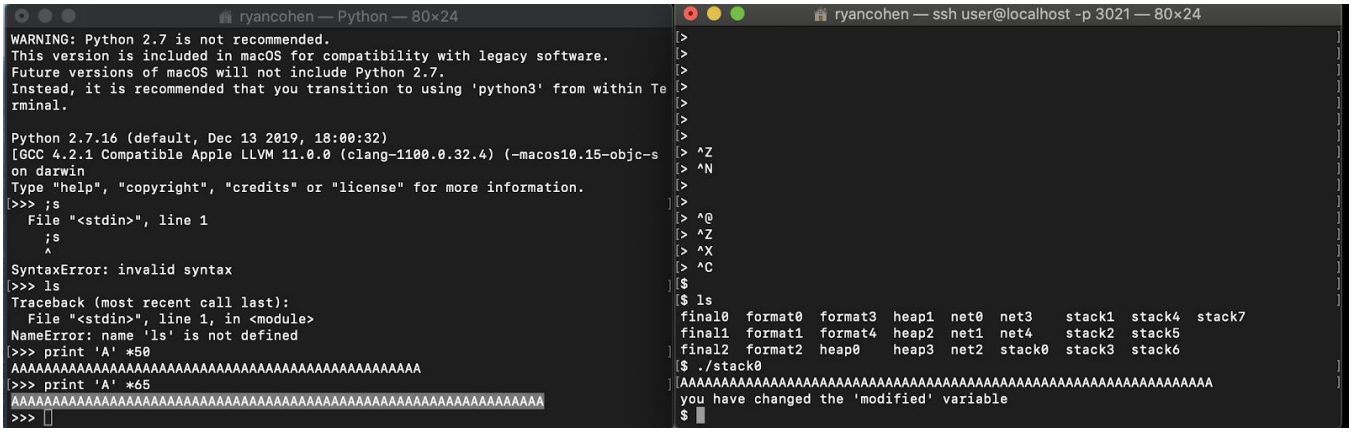
Lab Writeup

1. Source Code:

```
1   #include <stdlib.h>
2   #include <unistd.h>
3   #include <stdio.h>
4
5   int main(int argc, char **argv)
6   {
7     volatile int modified;
8     char buffer[64];
9
10    modified = 0;
11    gets(buffer);
12
13    if(modified != 0) {
14        printf("you have changed the 'modified' variable\n");
15    } else {
16        printf("Try again?\n");
17    }
18  }
```

First thing I did was run the program. When running the program with or without arguments it will wait for a response. When typing in a response, it would say “Try Again?”. Looking at the code I knew from Line 14 I had to change the modified variable. To do that I had to perform a buffer overflow of over 64 as seen in line 8.



As seen in the screenshot, how I did that was to print a random character such as ‘A’ 64 times and then break the limit by printing ‘A’ one more time. I performed that process in python and then copied it over to the program on the right window, which I ssh’d into. At the end, I got the message “you have changed the ‘modified’ variable” correctly solving the problem.

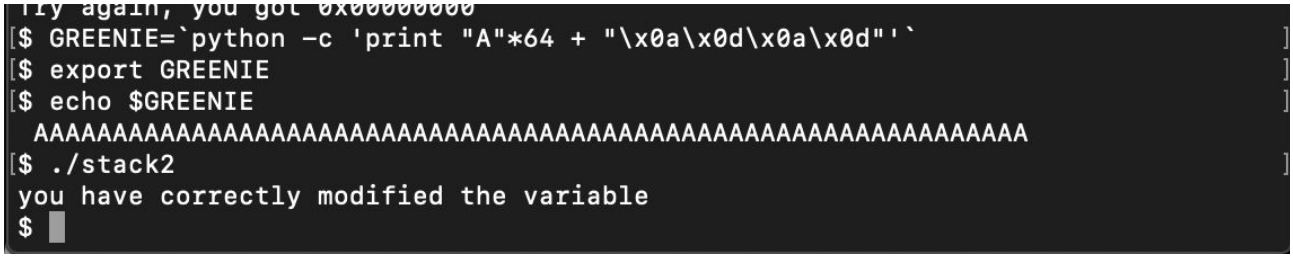
Important commands used:

print ‘A’ *65

3. Source Code:

```
#include <stdlib.h>
#include <unistd.h>
#include <stdio.h>
#include <string.h>

int main(int argc, char **argv)
{
  volatile int modified;
  char buffer[64];
  char *variable;

  variable = getenv("GREENIE");

  if(variable == NULL) {
      errx(1, "please set the GREENIE environment variable\n");
  }

  modified = 0;

  strcpy(buffer, variable);

  if(modified == 0x0d0a0d0a) {
      printf("you have correctly modified the variable\n");
  } else {
      printf("Try again, you got 0x%08x\n", modified);
  }
```

For this program when I first ran it, I got the error “please set the GREENIE environmental variable”. After researching how to do that, I set GREENIE to something random and then ran the program again. It then gave me the message “Try again, you got 0x00000000, modified. Looking at the code of the program it looked very similar to the rest of the problems where the variable modified had to be changed. Taking a similar approach to the last problem I took python and set the GREENIE variable to overflow the buffer and then plus the 0x0d0a0d0a at the line so then modified would be the right variable.



With that, I got the correct message to appear “you have correctly modified the variable”.

Important Commands Used:

GREENIE= `python -c ‘print “A”*64 + ‘\x0a\x0d\x0a\x0d”’`

export GREENIE

echo $GREENIE