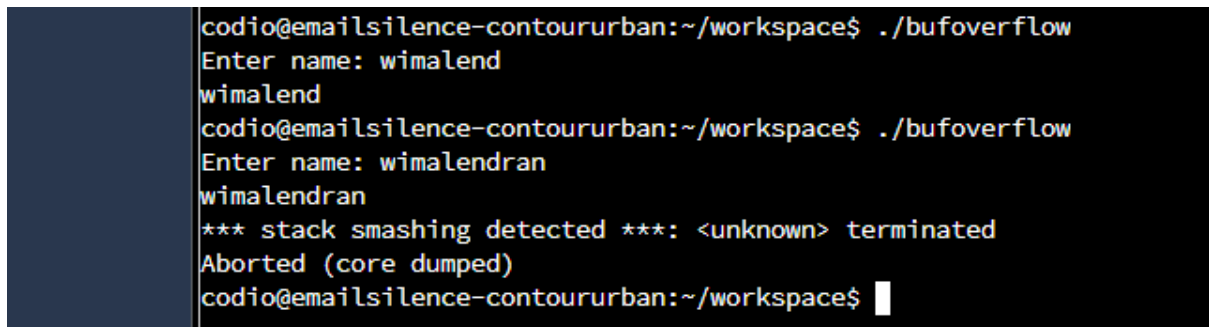# Codio Activity - Exploring Python tools and feature:

Part 1

```c
#include <stdio.h>

int main(int argc, char **argv)
{
    char buf[8];              // buffer for eight characters
    printf("Enter name: ");
    gets(buf);                // read from stdio (sensitive
function!)
    printf("%s\n", buf);      // print out data stored in buf
    return 0;                 // 0 as return value
}
```

Run the code with by entering a string of 10 or more characters.

```
codio@emailsilence-contoururban:~/workspace$ ./bufoverflow
Enter name: wimalend
wimalend
codio@emailsilence-contoururban:~/workspace$ ./bufoverflow
Enter name: wimalendran
wimalendran
*** stack smashing detected ***: <unknown> terminated
Aborted (core dumped)
codio@emailsilence-contoururban:~/workspace$
```

What happens?
The program repeats back the entered name and returns a "stack smashing detected" message.

What does the output message mean?
 A buffer overflow occurred. This happens when the user input exceeds the buffer capacity. The above code can cause the buffer to overflow if the user enters more than 8 characters. In such a case, the compiler will throw the stack smashing detected error.

Part 2:

```
buffer=[None]*10

for i in range (0,11):

    buffer[i]=7

print(buffer)
```

Run the code.
What is the result?

```
codio@brokencarbon-congophone:~/workspace$ python3 Overflow.py
Traceback (most recent call last):
  File "Overflow.py", line 3, in <module>
    buffer[i]=7
IndexError: list assignment index out of range
codio@brokencarbon-congophone:~/workspace$ []
```

Install pylint using pip3 install pylint

```
codio@brokencarbon-congophone:~/workspace$ pip3 install pylint
Collecting pylint
  Downloading https://files.pythonhosted.org/packages/03/09/7b710f4aab
c1b60402ec9d694f/pylint-2.13.9-py3-none-any.whl (438kB)
    100% |████████████████████████████████| 440kB 2.7MB/s
Collecting typing-extensions>=3.10.0; python_version < "3.10" (from py
  Using cached https://files.pythonhosted.org/packages/45/6b/44f7f8fle
```

Run pylint on your Overflow.py file. What is the result? Does this tell you how to fix the error above?

```
codio@brokencarbon-congophone:~/workspace$ pylint Overflow.py
************* Module Overflow
Overflow.py:4:0: C0303: Trailing whitespace (trailing-whitespace)
Overflow.py:5:0: C0304: Final newline missing (missing-final-newline)
Overflow.py:1:0: C0103: Module name "Overflow" doesn't conform to snake_case naming style (invalid-name)
Overflow.py:1:0: C0114: Missing module docstring (missing-module-docstring)


------------------------------------------------------------------
Your code has been rated at 0.00/10 (previous run: 0.00/10, +0.00)
```

It does not. did not help in identifying the logical issue.