CS778-EthiCS, Wk2

B.Cornish, Sept 2024

P6: Python Practice (Overtime)

Pairwise Exercise 1a: Input and output operations.

Write a program that asks for a name at runtime and then greets that person.

In [5]:
```
def intro():
    name = input("Enter your name: ")
    print(f"Hello, {name}!")  # hmm. formatted string literal - this is new to me  :-P
```

In [6]:
```
intro()
```

```
Hello, Butthead!
```

Pairwise Exercise 1b: Revise the program above to give a Brady Bunch style greeting

(e.g."Marsha, Marsha, Marsha")

In [11]:
```
def intro3():
    name = input("Enter your name: ")
    name = ", " + name
    print("Hello" + name*3 + "!")
```

In [13]:
```
intro3()
```

```
Hello, JimBobJones, JimBobJones, JimBobJones!
```

Pairwise Exercise 2: Numeric/mathematical operations.

Write a program that asks for two numbers at runtime and prints the sum and product.

In [16]:
```
def mathBits1():
    """ Requests TWO numbers and computes sum and product.
    """
    print("Input to numbers to compute sum and product:")
    num1 = input("Number 1: ")
    num2 = input("Number 1: ")
    print(f"Sum = {int(num1)+int(num2)}")
    print(f"Product = {int(num1)*int(num2)}")

mathBits1()
```

```
Input to numbers to compute sum and product:
Sum = 79
Product = 1530
```

Pairwise Exercise 3: Write a program that asks for a number during the runtime,

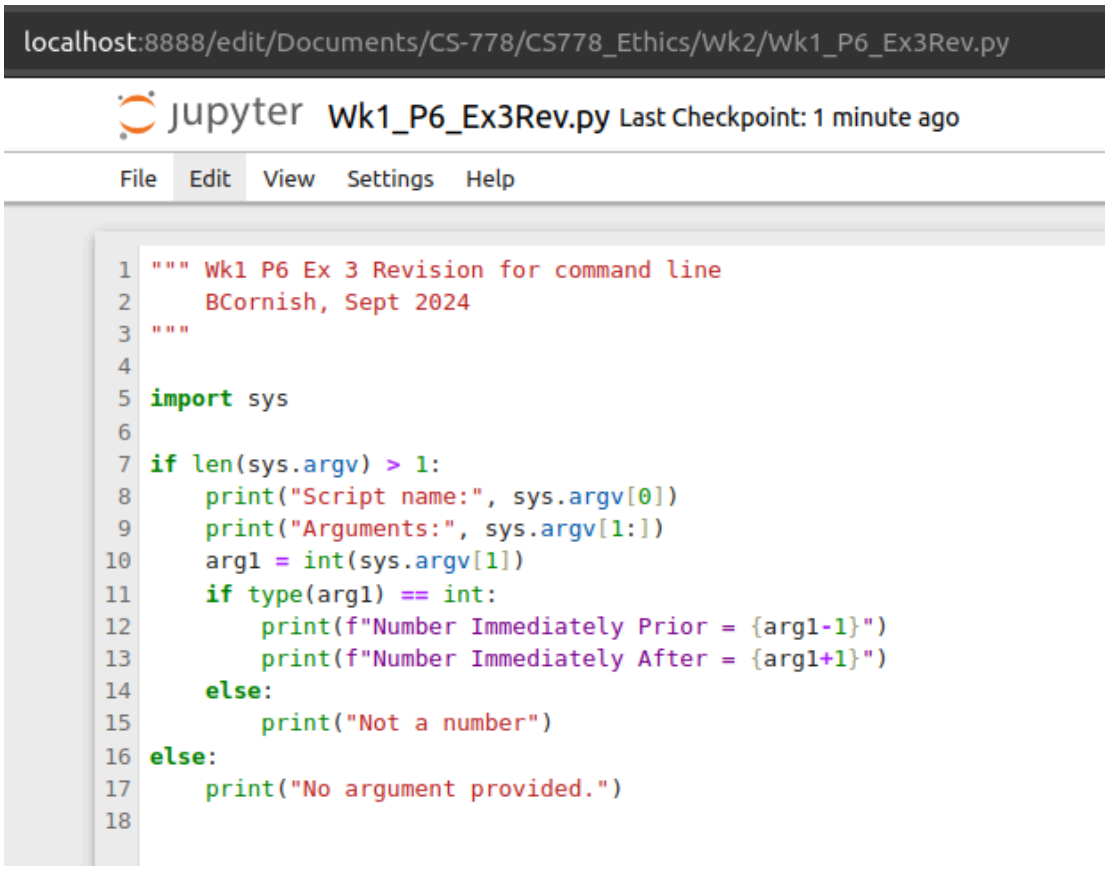
and prints the number preceding and following it.

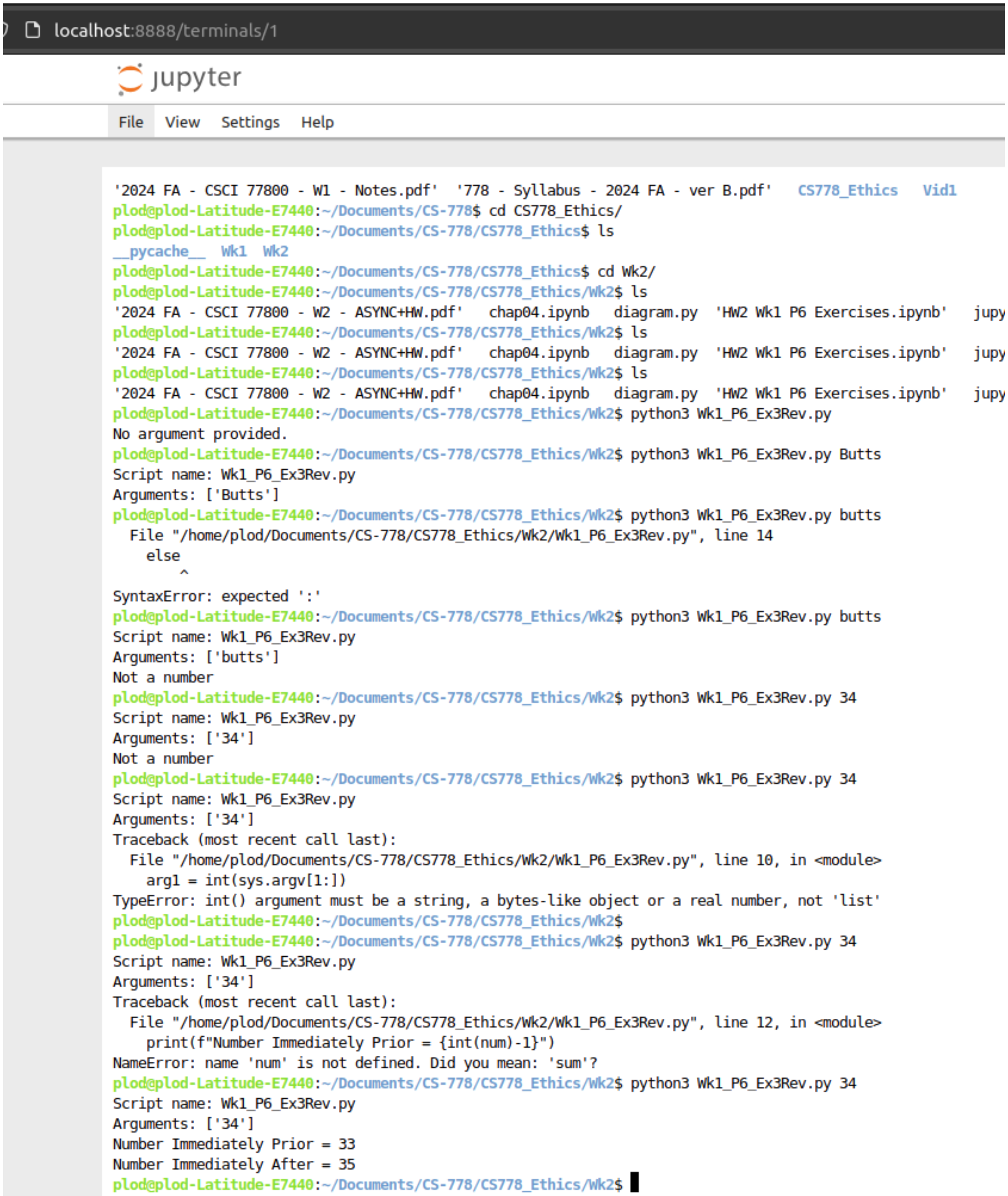
In [17]:
```
def numBeforeAfter():
    """ Requests TWO numbers and prints the numbers preceding and following.
    """
    num = input("Input a number: ")
    print(f"Number Immediately Prior = {int(num)-1}")
    print(f"Number Immediately After = {int(num)+1}")

numBeforeAfter()
```

```
Number Immediately Prior = 55
Number Immediately After = 57
```

Pairwise Exercise 3, Cont'd:

a. PAIRWISE REVISION: Write a program that pulls a number from the command line and does exactly what the previous example did.


localhost:8888/edit/Documents/CS-778/CS778_Ethics/Wk2/Wk1_P6_Ex3Rev.py
jupyter
Wk1_P6_Ex3Rev.py
Last Checkpoint: 1 minute ago
File
Edit
View
Settings
Help
""" Wk1 P6 Ex 3 Revision for command line
BCornish, Sept 2024
"""
import sys
if len(sys.argv) > 1:
print("Script name:", sys.argv[0])
print("Arguments:", sys.argv[1:])
arg1 = int(sys.argv[1])
if type(arg1) == int:
print(f"Number Immediately Prior = {arg1-1}")
print(f"Number Immediately After = {arg1+1}")
else:
print("Not a number")
else:
print("No argument provided.")



```
localhost:8888/terminals/1
jupyter
File  View  Settings  Help

'2024 FA - CSCI 77800 - W1 - Notes.pdf'  '778 - Syllabus - 2024 FA - ver B.pdf'   CS778_Ethics   Vid1
plod@plod-Latitude-E7440:~/Documents/CS-778$ cd CS778_Ethics/
plod@plod-Latitude-E7440:~/Documents/CS-778/CS778_Ethics$ ls
__pycache__   Wk1   Wk2
plod@plod-Latitude-E7440:~/Documents/CS-778/CS778_Ethics$ cd Wk2/
plod@plod-Latitude-E7440:~/Documents/CS-778/CS778_Ethics/Wk2$ ls
'2024 FA - CSCI 77800 - W2 - ASYNC+HW.pdf'   chap04.ipynb   diagram.py  'HW2 Wk1 P6 Exercises.ipynb'   jupy
plod@plod-Latitude-E7440:~/Documents/CS-778/CS778_Ethics/Wk2$ ls
'2024 FA - CSCI 77800 - W2 - ASYNC+HW.pdf'   chap04.ipynb   diagram.py  'HW2 Wk1 P6 Exercises.ipynb'   jupy
plod@plod-Latitude-E7440:~/Documents/CS-778/CS778_Ethics/Wk2$ ls
'2024 FA - CSCI 77800 - W2 - ASYNC+HW.pdf'   chap04.ipynb   diagram.py  'HW2 Wk1 P6 Exercises.ipynb'   jupy
plod@plod-Latitude-E7440:~/Documents/CS-778/CS778_Ethics/Wk2$ python3 Wk1_P6_Ex3Rev.py
No argument provided.
plod@plod-Latitude-E7440:~/Documents/CS-778/CS778_Ethics/Wk2$ python3 Wk1_P6_Ex3Rev.py Butts
Script name: Wk1_P6_Ex3Rev.py
Arguments: ['Butts']
plod@plod-Latitude-E7440:~/Documents/CS-778/CS778_Ethics/Wk2$ python3 Wk1_P6_Ex3Rev.py butts
  File "/home/plod/Documents/CS-778/CS778_Ethics/Wk2/Wk1_P6_Ex3Rev.py", line 14
    else
        ^

SyntaxError: expected ':'
plod@plod-Latitude-E7440:~/Documents/CS-778/CS778_Ethics/Wk2$ python3 Wk1_P6_Ex3Rev.py butts
Script name: Wk1_P6_Ex3Rev.py
Arguments: ['butts']
Not a number
plod@plod-Latitude-E7440:~/Documents/CS-778/CS778_Ethics/Wk2$ python3 Wk1_P6_Ex3Rev.py 34
Script name: Wk1_P6_Ex3Rev.py
Arguments: ['34']
Not a number
plod@plod-Latitude-E7440:~/Documents/CS-778/CS778_Ethics/Wk2$ python3 Wk1_P6_Ex3Rev.py 34
Script name: Wk1_P6_Ex3Rev.py
Arguments: ['34']
Traceback (most recent call last):
  File "/home/plod/Documents/CS-778/CS778_Ethics/Wk2/Wk1_P6_Ex3Rev.py", line 10, in <module>
    arg1 = int(sys.argv[1:])
TypeError: int() argument must be a string, a bytes-like object or a real number, not 'list'
plod@plod-Latitude-E7440:~/Documents/CS-778/CS778_Ethics/Wk2$
plod@plod-Latitude-E7440:~/Documents/CS-778/CS778_Ethics/Wk2$ python3 Wk1_P6_Ex3Rev.py 34
Script name: Wk1_P6_Ex3Rev.py
Arguments: ['34']
Traceback (most recent call last):
  File "/home/plod/Documents/CS-778/CS778_Ethics/Wk2/Wk1_P6_Ex3Rev.py", line 12, in <module>
    print(f"Number Immediately Prior = {int(num)-1}")
NameError: name 'num' is not defined. Did you mean: 'sum'?
plod@plod-Latitude-E7440:~/Documents/CS-778/CS778_Ethics/Wk2$ python3 Wk1_P6_Ex3Rev.py 34
Script name: Wk1_P6_Ex3Rev.py
Arguments: ['34']
Number Immediately Prior = 33
Number Immediately After = 35
plod@plod-Latitude-E7440:~/Documents/CS-778/CS778_Ethics/Wk2$
```

Pairwise Exercise 4: Manually convert a string containing a 4-digit hexadecimal number

(e.g., hex_num = “0xABCD”) into decimal.

In [62]:
```python
def hexToDec():
    """ Converts a four digit hex number to decimal
    """

    hexIn = input("Enter a FOUR-digit hex number (ommit the 0x tag): ")
    hexIn = hexIn.upper() # convert to all upper case
    answer = 0  # decimal answer
```

```
    if len(hexIn) > 4:
        print("Invalid input: max 4 digit number allowed.")
    elif len(hexIn) <= 4:
        padding = 4 - len(hexIn)
        for i in range(padding):
            hexIn = "0" + hexIn

        for i in range(4):
            value = 0
            digit = hexIn[i]

            match digit:
                case 'A':
                    value = 10
                case 'B':
                    value = 11
                case 'C':
                    value = 12
                case 'D':
                    value = 13
                case 'E':
                    value = 14
                case 'F':
                    value = 15
                case _:
                    value = int(digit)

            answer += value * 16**(3-i)

    print(f"Decimal equivalent: {answer}")


## Run program
hexToDec()
```

```
Decimal equivalent: 4831
```

Pairwise Exercise 5: Write a program that determines if a number is even or odd.

In [67]:

```
def oddEven():
    """ Converts a four digit hex number to decimal
    """

    numIn = input("Enter a whole number: ")
    numIn = int(numIn) # convert to in

    if (numIn % 2) == 0:
        print("Number is EVEN")
    else:
        print("Number is ODD")


oddEven()
```

```
Number is ODD
```

Pairwise Exercise 6: Write a program that prints the classic left aligned, right triangle from small to large

In [66]:
```
def starTri(size):
    for i in range(size):
        print('*'*i)

starTri(7)
```

```
*
**
***
****
*****
******
```

In [ ]:
```

```