Crystal Hollis

GISC 2335 Programming for GIS
3/18/2025

Week 5 Lab 4

Lab materials saved on GitHub in GISC2335_ProgrammingForGIS/WeeklyContent/week5

https://github.com/crystaljhollis/DallasCollege_Portfolio/tree/45cba4dfeee2744b8d6d6902ea73696b0bbf2d8a/GISC2335_ProgrammingForGIS/WeeklyContent/week5

WORK WITH NUMBERS

```
PROBLEMS    OUTPUT    DEBUG CONSOLE    TERMINAL    PORTS    python

Python 3.12.3 (tags/v3.12.3:f6650f9, Apr  9 2024, 14:05:25) [MSC v.1938 64 bit (AMD64)]
 on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> # 1. Start Visual Studio Code
>>> # 2. Activate Interactive Interpreter. In the terminal, type: python or py
>>> # Type the code and enter: >>> 12 + 17
>>> 12 + 17
29
>>> # 3. Run code: >>> 10 / 3
>>> 10 / 3
3.3333333333333335
>>> # The 5 indicates it reached the limit of decimal places.
>>> # 4. Run code: >>> 10 / 5
>>> 10 / 5
2.0
>>> # Division results in float
>>> # 5. Run code: >>> 2 ** 5
>>> 2 ** 5
32
>>> # 6. Run code: >>> 10 // 3
>>> 10 // 3
3
>>> # Floor Division Operator
```

WORK WITH STRINGS

```
PROBLEMS 2   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   python

>>> # WORK WITH STRINGS
>>> # 1. Run code: >>> print("Hello World")
>>> print("Hello World")
Hello World
>>> # String of characters. Make consistent use of '' and "" marks
>>> # 2. Run code: >>> print('Let's go!')
>>> print('Let's go!')
  File "<stdin>", line 1
    print('Let's go!')
          ^^^^^^
SyntaxError: invalid syntax. Perhaps you forgot a comma?
>>> # 3. Run code: >>> print("Let's go!")
>>> print("Let's go!")
Let's go!
>>> # 4. Run code: >>> z = "Alphabet Soup"
>>> #              >>> print(z[7])
>>> z = "Alphabet Soup"
>>> print(z[7])
t
>>> # 5. Run code: >>> print(z[-1])
>>> print(z[-1])
p
>>> # Letter p from soup. Slicing
>>> # 6. Run code: >>> print(z[0])
>>> print(z[0])
A
>>> # 7. Run code: >>> print([0:8])
>>> print(z[0:8])
Alphabet
```

```
>>> # Returns index 0 to index 8
>>> # 8. Run code: >>> name = "Geographic Information Systems"
>>> #              >>> name.find ("Info")
>>> name = "Geographic Information Systems"
>>> name.find ("Info")
11
>>> # 11 is index number of letter I. Spaces counted as characters
>>> 
Ln 73, Col 1 (62 selected)   Spaces: 4   UTF-8   CRLF   {} Python   3.12.3
```

WORK WITH VARIABLES

```
>>> # WORK WITH VARIABLES
>>> # 1. Run code: >>> x = 12
>>> #              >>> print(x)
>>> x = 12
>>> print(x)
12
>>> # 2. Run code: >>> x = 12
>>> #              >>> y = x / 4
>>> #              >>> print(y)
>>> x = 12
>>> y = x / 4
>>> print(y)
3.0
>>> # Variables store different data types like numbers, strings,
>>> # lists, tuples, dictionaries, files, etc.
>>> # 3. Run code: >>> k = 'This is a string'
>>> #              >>> print(k)
>>> k = 'This is a string'
>>> print(k)
This is a string
>>> 
Ln 93, Col 28 (70 selected)  Spaces: 4  UTF-8  CRLF  {} Python  3.12.3
```

WORK WITH LISTS

```
>>> # WORK WITH LISTS
>>> # 1. Run code: >>> w = ["Apple", "Banana", "Cantaloupe", "Durian"]

>>> #              >>> print(w)
>>> w = ["Apple", "Banana", "Cantaloupe", "Durian"]
>>> print(w)
['Apple', 'Banana', 'Cantaloupe', 'Durian']
>>> # 2. Run code: >>> print(w[0])
>>> print(w[0])
Apple
>>> # Indexing
>>> # 3. Run code: >>> print(w[-1])
>>> print(w[-1])
Durian
>>> #4. Run code: >>> print(w[1:-1])
>>> print(w[1:-1])
['Banana', 'Cantaloupe']
>>> 
Ln 114, Col 1 (14 selected)  Spaces: 4  UTF-8  CRLF  {} Python  3.12.3
```

USE FUNCTIONS

```
>>> # USE FUNCTIONS
>>> # Standard functions complete list dir(_builtins_)
>>> # 1. Run code: >>> d = pow (2, 3)
>>> #              >>> print(d)
>>> d = pow (2, 3)
>>> print(d)
8
>>> # Power function pow () instead of exponential operator
>>> # 2. Run code: >>> print(dir(__builtins__))
Error', 'BytesWarning', 'ChildProcessError', 'ConnectionAbortedError', 'Connect
ionError', 'ConnectionRefusedError', 'ConnectionResetError', 'DeprecationWarnin
g', 'EOFError', 'Ellipsis', 'EncodingWarning', 'EnvironmentError', 'Exception',
 'ExceptionGroup', 'False', 'FileExistsError', 'FileNotFoundError', 'FloatingPo
intError', 'FutureWarning', 'GeneratorExit', 'IOError', 'ImportError', 'ImportW
arning', 'IndentationError', 'IndexError', 'InterruptedError', 'IsADirectoryErr
or', 'KeyError', 'KeyboardInterrupt', 'LookupError', 'MemoryError', 'ModuleNotF
oundError', 'NameError', 'None', 'NotADirectoryError', 'NotImplemented', 'NotIm
plementedError', 'OSError', 'OverflowError', 'PendingDeprecationWarning', 'Perm
issionError', 'ProcessLookupError', 'RecursionError', 'ReferenceError', 'Resour
ceWarning', 'RuntimeError', 'RuntimeWarning', 'StopAsyncIteration', 'StopIterat
ion', 'SyntaxError', 'SyntaxWarning', 'SystemError', 'SystemExit', 'TabError',
'TimeoutError', 'True', 'TypeError', 'UnboundLocalError', 'UnicodeDecodeError',
 'UnicodeEncodeError', 'UnicodeError', 'UnicodeTranslateError', 'UnicodeWarning
', 'UserWarning', 'ValueError', 'Warning', 'WindowsError', 'ZeroDivisionError',
 '_', '__build_class__', '__debug__', '__doc__', '__import__', '__loader__', '_
_name__', '__package__', '__spec__', 'abs', 'aiter', 'all', 'anext', 'any', 'as
cii', 'bin', 'bool', 'breakpoint', 'bytearray', 'bytes', 'callable', 'chr', 'cl
assmethod', 'compile', 'complex', 'copyright', 'credits', 'delattr', 'dict', 'd
ir', 'divmod', 'enumerate', 'eval', 'exec', 'exit', 'filter', 'float', 'format'
                                    Ln 131, Col 1 (92 selected)   Spaces: 4   UTF-8   CRLF   {}
```

```
, 'frozenset', 'getattr', 'globals', 'hasattr', 'hash', 'help', 'hex', 'id', 'i
nput', 'int', 'isinstance', 'issubclass', 'iter', 'len', 'license', 'list', 'lo
cals', 'map', 'max', 'memoryview', 'min', 'next', 'object', 'oct', 'open', 'ord
', 'pow', 'print', 'property', 'quit', 'range', 'repr', 'reversed', 'round', 's
et', 'setattr', 'slice', 'sorted', 'staticmethod', 'str', 'sum', 'super', 'tupl
e', 'type', 'vars', 'zip']
>>> 
```

```
>>> # 3. Run code: >>> e = abs(-12.729)
>>> #              >>> print(e)
>>> e = abs(-12.729)
>>>
>>> e = abs(-12.729)
>>> print(e)
12.729
>>> # 4. Enter: >>> type(
>>> # Syntax pop-up
```

```
>>> # 5. Run code: >>> type(123)
>>> type(123)
<class 'int'>
>>> # Input value's type is an integer
>>> # 6. Run code: >>> type(1.23)
>>> type(1.23)
<class 'float'>
>>> # Input value's type is a floating-point number
>>> # 7. Run code: >>> type("GIS")
>>> type("GIS")
<class 'str'>
>>> # Input value's type is a string
>>> # 8. Enter: >>> round(
>>> # Syntax pop-up, contianing function's parameters: number and ndigits
>>> # ndigits can be set to None
>>> # (number, ndigits=None)
>>> # Round a number to a given precision in decimal digits
>>> # 9. Run code: >>> round(1.234567, 4)
>>> round(1.234567, 4)
1.2346
>>> # 10. Run code: >>> round(1.234567)
>>> round(1.234567)
1
>>> 
Ln 171, Col 14   Spaces: 4   UTF-8   CRLF   {} Python   3.12.3
```

USE METHODS

```
>>> # USE METHODS
>>> # 1. Run code: >>> topic = "Geographic Information Systems"
>>> #              >>> topic.count("i")
>>> topic = "Geographic Information Systems"
>>> topic.count("i")
2
>>> # Output: 2 because that's how many lower case i are in the input string
>>> # Case sensitive
>>> # 2. Run code: >>> topic.split(" ")
>>> topic.split(" ")
['Geographic', 'Information', 'Systems']
>>> # splits the string
```

```
>>> # 3. Run code:
>>> # >>> path = "C:/data/part1/final"
>>> # >>> pathlist = path.split("/")
>>> # >>> lastpath = pathlist[-1]
>>> # >>> print(lastpath)
>>> path = "C:/data/part1/final"
>>> pathlist = path.split("/")
>>> lastpath = pathlist[-1]
>>> print(lastpath)
final
>>> # 4. Run code:
>>> # >>> mylist = ["A", "B", "C"]
>>> # >>> mylist.append("D")
>>> # >>> print(mylist)
>>> mylist = ["A", "B", "C"]
>>> mylist.append("D")
>>> print(mylist)
['A', 'B', 'C', 'D']
>>> 
```

USE MODULES

```
>>> # USE MODULES
>>> # 1. Run the following code:
>>> # >>> import math
>>> # >>> h = math.floor (7.89)
>>> # >>> print(h)
>>> import math
>>> h = math.floor (7.89)
>>> print(h)
7
>>> # 2. Run the following code:
>>> # >>> print(dir(math))
>>> print(dir(math))
['__doc__', '__loader__', '__name__', '__package__', '__spec__', 'acos', 'acosh', 'asin', 'asinh
', 'atan', 'atan2', 'atanh', 'cbrt', 'ceil', 'comb', 'copysign', 'cos', 'cosh', 'degrees', 'dist
', 'e', 'erf', 'erfc', 'exp', 'exp2', 'expm1', 'fabs', 'factorial', 'floor', 'fmod', 'frexp', 'f
sum', 'gamma', 'gcd', 'hypot', 'inf', 'isclose', 'isfinite', 'isinf', 'isnan', 'isqrt', 'lcm', '
ldexp', 'lgamma', 'log', 'log10', 'log1p', 'log2', 'modf', 'nan', 'nextafter', 'perm', 'pi', 'po
w', 'prod', 'radians', 'remainder', 'sin', 'sinh', 'sqrt', 'sumprod', 'tan', 'tanh', 'tau', 'tru
nc', 'ulp']
```

```
>>> # 3. Run the following code:
>>> # >>> print(math.radians.__doc__)
>>> print(math.radians.__doc__)
Convert angle x from degrees to radians.
>>> # 4-5. Locate complete list of modules in Python manuals
>>> # In IDLE, click Help > Python Docs.
>>> # At docs.python.org/3.11/
>>> # i.e. random module > uniform() function
>>> # 6. Return to Interpreter
```

```
>>> # 7. Run the following code:
>>> # >>> import random
>>> # >>> j = random.uniform(0, 100)
>>> # >>> print(j)
>>> import random
>>> j = random.uniform(0, 100)
>>> print(j)
52.44800550444629
```

The rest of the lab materials are saved in additional scripts in Data/EX04

Python scripts saved in

GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04

https://github.com/crystaljhollis/DallasCollege_Portfolio/tree/main/GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04

SAVE PYTHON CODE AS SCRIPTS

path.py lab4.py 2

data > Ex04 > path.py > ...

```
# 3. In the script window, type the following code:
# path = "C:/data/part1/final"
# pathlist = path.split("/")
# lastpath = pathlist[-1]
# print(lastpath)

path = "C:/data/part1/final"
pathlist = path.split("/")
lastpath = pathlist[-1]
print(lastpath)
```

PROBLEMS 2 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5> & C:/Users/CrystalHollis/AppData/Local/Programs/Python/Python312/python.exe c:/ProgrammingProjects/GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04/path.py
final
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5>
```

python
Python

WRITE CONDITIONAL STATEMENTS

```python
# Crystal Hollis
# GISC 2335 GIS Programming
# 3/18/2025
# Week 5 Lab 4

# WRITE CONDITIONAL STATEMENTS
# 1. In the Python Shell, click File > New File.
# 2. Write the following code to generate a random number between 1 and 6:
# import random
# p = random.randint(1, 6)
# print(p)

import random
p = random.randint(1, 6)
print(p)

# 3. Save the script as branching.py to the C:\PythonPro\Ex04 folder.
# 4. Run the script to confirm that it works correctly.

# 5. Replace line 3 with the following:
#if p == 6:
# 6. Write the following line of code following the if statement:
# print("You win!" )
# 8. In the branching.py script, place your pointer at the end of the line
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5> & C:/Users/C
rystalHollis/AppData/Local/Programs/Python/Python312/python.exe c:/ProgrammingProjects
/GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04/branching.py
6
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5>
```

python
Python

branching.py

data > Ex04 > branching.py > ...

```python
# WRITE CONDITIONAL STATEMENTS
# 1. In the Python Shell, click File > New File.
# 2. Write the following code to generate a random number between 1 and 6:
# import random
# p = random.randint(1, 6)
# print(p)
# 3. Save the script as branching.py to the C:\PythonPro\Ex04 folder.
# 4. Run the script to confirm that it works correctly.
# 5. Replace line 3 with the following:
#    if p == 6:
# 6. Write the following line of code following the if statement:
# print("You win!" )

import random
p = random.randint(1, 6)
if p == 6:
    print("You win!")


# 8. In the branching.py script, place your pointer at the end of the line
# of code that reads print("You win!"), and press Enter.
# 9. Press Backspace to remove the indentation.
# 10. For the next lines of code, enter the following:
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5> & C:/Users/CrystalHollis/AppData/Local/Programs/Python/Python312/python.exe c:/ProgrammingProjects/GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04/branching.py
6
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5> & C:/Users/CrystalHollis/AppData/Local/Programs/Python/Python312/python.exe c:/ProgrammingProjects/GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04/branching.py
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5>
```

python
Python

branching.py

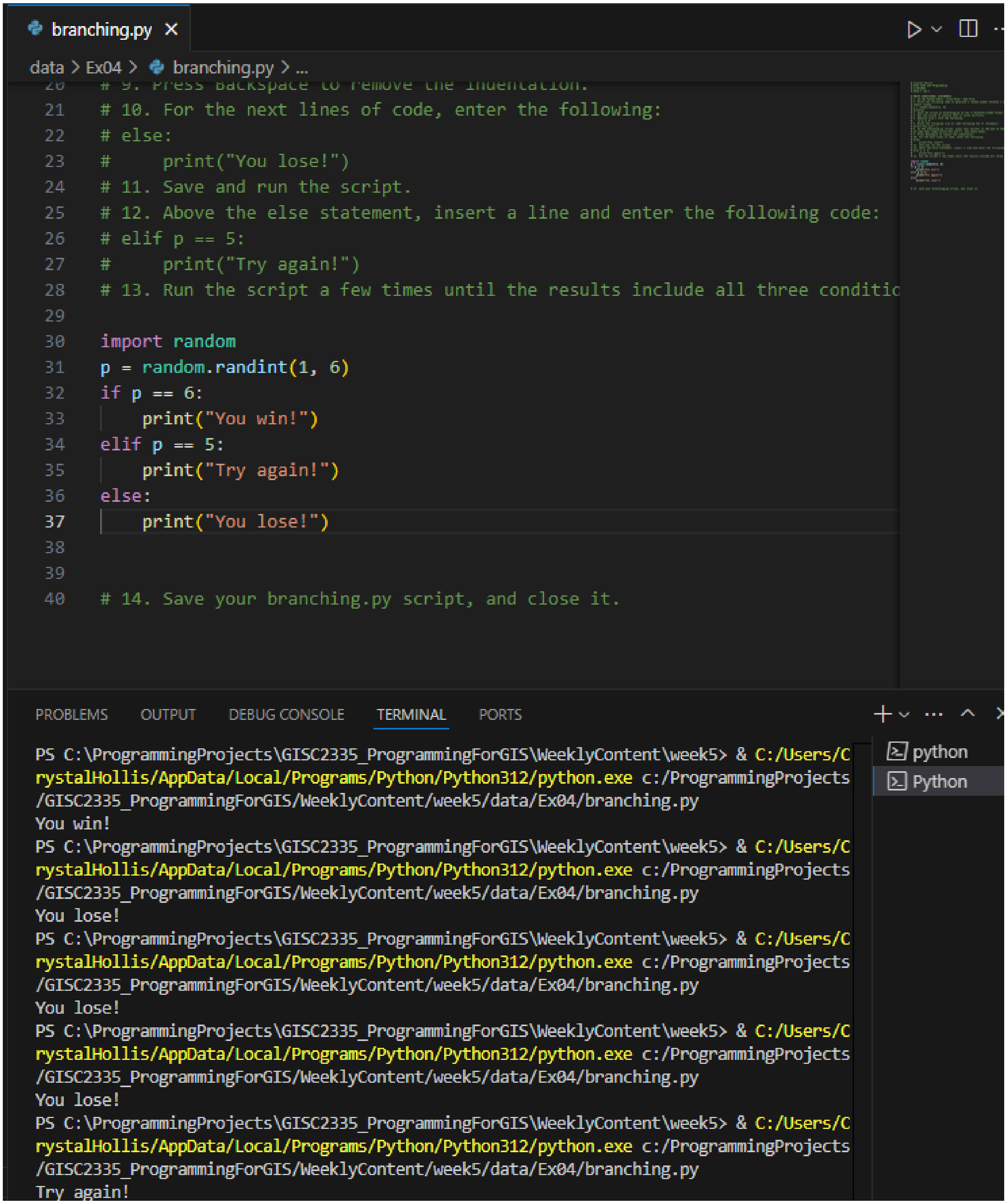
data > Ex04 > branching.py > ...

```python
# 5. Replace line 5 with the following:
#     if p == 6:
# 6. Write the following line of code following the if statement:
# print("You win!" )
# 8. In the branching.py script, place your pointer at the end of the line
# of code that reads print("You win!"), and press Enter.
# 9. Press Backspace to remove the indentation.
# 10. For the next lines of code, enter the following:
# else:
#     print("You lose!")
# 11. Save and run the script.

import random
p = random.randint(1, 6)
if p == 6:
    print("You win!")
else:
    print("You lose!")



# 12. Above the else statement, insert a line and enter the following code:
# elif p == 5:
#     print("Try again!")
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5> & C:/Users/C
rystalHollis/AppData/Local/Programs/Python/Python312/python.exe c:/ProgrammingProjects
/GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04/branching.py
6
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5> & C:/Users/C
rystalHollis/AppData/Local/Programs/Python/Python312/python.exe c:/ProgrammingProjects
/GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04/branching.py
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5> & C:/Users/C
rystalHollis/AppData/Local/Programs/Python/Python312/python.exe c:/ProgrammingProjects
/GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04/branching.py
You lose!
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5>
```

python
Python



```python
# 9. Press backspace to remove the indentation.
# 10. For the next lines of code, enter the following:
# else:
#     print("You lose!")
# 11. Save and run the script.
# 12. Above the else statement, insert a line and enter the following code:
# elif p == 5:
#     print("Try again!")
# 13. Run the script a few times until the results include all three conditic

import random
p = random.randint(1, 6)
if p == 6:
    print("You win!")
elif p == 5:
    print("Try again!")
else:
    print("You lose!")


# 14. Save your branching.py script, and close it.
```

```
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5> & C:/Users/C
rystalHollis/AppData/Local/Programs/Python/Python312/python.exe c:/ProgrammingProjects
/GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04/branching.py
You win!
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5> & C:/Users/C
rystalHollis/AppData/Local/Programs/Python/Python312/python.exe c:/ProgrammingProjects
/GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04/branching.py
You lose!
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5> & C:/Users/C
rystalHollis/AppData/Local/Programs/Python/Python312/python.exe c:/ProgrammingProjects
/GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04/branching.py
You lose!
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5> & C:/Users/C
rystalHollis/AppData/Local/Programs/Python/Python312/python.exe c:/ProgrammingProjects
/GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04/branching.py
You lose!
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5> & C:/Users/C
rystalHollis/AppData/Local/Programs/Python/Python312/python.exe c:/ProgrammingProjects
/GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04/branching.py
Try again!
```

USE LOOP STRUCTURES

while_loop.py

data > Ex04 > while_loop.py > ...

```python
# GISC 2335 GIS Programming
# Week 5 Lab 4
# 3/18/2025

# USE LOOP STRUCTURES
# 1. In the Python Shell, click File > New File.
# 2. Save the script as while_loop.py to the C:\PythonPro\Ex04 folder.
# Write the following code:
# i = 0
# while i <= 10:
#     print(i)
#     i += 1
# 3. Run the script.
# 4. Save and close your while_loop.py script.

i = 0
while i <= 10:
    print(i)
    i += 1
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5> & C:/Users/CrystalHollis/AppData/Local/Programs/Python/Python312/python.exe c:/ProgrammingProjects/GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04/while_loop.py
0
1
2
3
4
5
6
7
8
9
10
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5>
```

python
Python

for_loop.py

data > Ex04 > for_loop.py > ...

```python
# Crystal Hollis
# GISC 2335 GIS Programming
# Week 5 Lab 4
# 3/18/2025

# USE LOOP STRUCTURES

# 5. Create a new script, and save it as for_loop.py to the C:\PythonPro\Ex04
# 6. Write the following code:
# numbers = [1, 2, 3, 4, 5]
# for number in numbers:
#     print(number)
# 7. Run the script.

numbers = [1, 2, 3, 4, 5]
for number in numbers:
    print(number)

# 8. Save and close your for_loop.py script.
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5> & C:/Users/C
rystalHollis/AppData/Local/Programs/Python/Python312/python.exe c:/ProgrammingProjects
/GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04/for_loop.py
1
2
3
4
5
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5>
```

python
Python

for_loop.py break_loop.py

data > Ex04 > break_loop.py > ...

```python

# USE LOOP STRUCTURES

# 9. Create a new script, and save it as break_loop.py to the Ex04 folder.
# 10. Write the following code:
# from math import sqrt
# for i in list(range(1000, 0, -1)):
#     root = sqrt(i)
#     if root == int(root):
#         print(i)
#         break
# 11. Run the script. The result prints 961.

from math import sqrt
for i in list(range(1000, 0, -1)):
    root = sqrt(i)
    if root == int(root):
        print(i)
        break

```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5> & C:/Users/CrystalHollis/AppData/Local/Programs/Python/Python312/python.exe c:/ProgrammingProjects/GISC2335_ProgrammingForGIS/WeeklyContent/week5/data/Ex04/break_loop.py
961
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5>
```

python
Python

COMMENT SCRIPTS

for_loop.py break_loop.py

data > Ex04 > break_loop.py > ...

```python
# Crystal Hollis
# GISC 2335 GIS Programming
# Week 5 Lab 4
# 3/18/2025
# Description: This script demonstrates how to break a loop

```

for_loop.py × break_loop.py ●

data > Ex04 > break_loop.py > ...

```python

# COMMENT SCRIPTS
# 1. In the break_loop.py script, place your pointer at the beginning of the
# Name: <your name>
# Date: <current date>
# Description: This script demonstrates how to break a loop

# 2. At the end of the line if root == int(root), enter a few spaces and the
# This evaluates whether the root is an integer.
# 3. In the break_loop.py script, select and highlight the last three lines
# 4. In IDLE, click Format > Comment Out Region. In Visual Studio Code, comm
# 5. In IDLE, To make the code active again, select and highlight the commen
# In Visual Studio Code, just go back to Edit > Toggle Line Comment to remov

from math import sqrt
for i in list(range(1000, 0, -1)):
    root = sqrt(i)
    # if root == int(root):  # This evaluates whether the root is an integer
    #     print(i)
    #     break

# 6. Save your break_loop.py script.
```

for_loop.py break_loop.py ●

data > Ex04 > break_loop.py > ...

```python

# COMMENT SCRIPTS
# 1. In the break_loop.py script, place your pointer at the beginning of the
# Name: <your name>
# Date: <current date>
# Description: This script demonstrates how to break a loop

# 2. At the end of the line if root == int(root), enter a few spaces and ther
# This evaluates whether the root is an integer.
# 3. In the break_loop.py script, select and highlight the last three lines c
# 4. In IDLE, click Format > Comment Out Region. In Visual Studio Code, comme
# 5. In IDLE, To make the code active again, select and highlight the comment
# In Visual Studio Code, just go back to Edit > Toggle Line Comment to remove

from math import sqrt
for i in list(range(1000, 0, -1)):
    root = sqrt(i)
    if root == int(root):  # This evaluates whether the root is an integer
        print(i)
        break

# 6. Save your break_loop.py script.
```

CHECK FOR ERRORS

```
>>> # CHECK FOR ERRORS
>>> # 1. Return to the Python Shell.
>>> # 2. Run the following code, in which print is intentionally misspelled:
>>> # >>> pint("Hello World!")
>>> pint("Hello World!")
Traceback (most recent call last):
  File "<stdin>", line 1, in <module>
NameError: name 'pint' is not defined. Did you mean: 'print'?
>>> # 3. Try a small variation of your print statement by running the following code:
>>> # >>> print("Hello World!)
>>> print("Hello World!)
  File "<stdin>", line 1
    print("Hello World!)
          ^
SyntaxError: unterminated string literal (detected at line 1)
>>> 
```

branching.py 1

data > Ex04 > branching.py > ...

```python
# 14. Save your branching.py script, and close it.

# CHECK FOR ERRORS
# 4. Open your branching.py script from earlier in the exercise.
# 5. Place your pointer at the end of the third line of code and remove the c
# if p == 6
# 6. In IDLE, Click Run > Check Module.
# In Visual Studio Code this is Run > Start Debugging

import random
p = random.randint(1, 6)
if p == 6
    print("You win!")
elif p == 5:
    print("Try again!")
else:
    print("You lose!")
```

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
    run()
  File "c:\Users\CrystalHollis\.vscode\extensions\ms-python.debugpy-2025.4.1-win32-x64
\bundled\libs\debugpy\launcher/../..\debugpy/..\debugpy\server\cli.py", line 351, in r
un_file
    runpy.run_path(target, run_name="__main__")
  File "c:\Users\CrystalHollis\.vscode\extensions\ms-python.debugpy-2025.4.1-win32-x64
\bundled\libs\debugpy\_vendored\pydevd\_pydevd_bundle\pydevd_runpy.py", line 309, in r
un_path
    code, fname = _get_code_from_file(run_name, path_name)
                  ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "c:\Users\CrystalHollis\.vscode\extensions\ms-python.debugpy-2025.4.1-win32-x64
\bundled\libs\debugpy\_vendored\pydevd\_pydevd_bundle\pydevd_runpy.py", line 283, in _
get_code_from_file
    code = compile(f.read(), fname, "exec")
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5\data\Ex0
4\branching.py", line 39
    if p == 6
             ^
SyntaxError: expected ':'
PS C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5>
```

python
Python
Python Deb...

Ln 36, Col 54 Spaces: 4 UTF-8 CRLF {} Python 3.12.3

branching.py

data > Ex04 > branching.py > ...

```python

# CHECK FOR ERRORS
# 4. Open your branching.py script from earlier in the exercise.
# 5. Place your pointer at the end of the third line of code and remove the
# if p == 6
# 6. In IDLE, Click Run > Check Module.
# In Visual Studio Code this is Run > Start Debugging
# 7. Correct the syntax error by placing a colon at the end of the if state
# 8. Now introduce a different error by placing a typo in the randint() fun
# p = random.randinr(0, 6)

import random
p = random.randinr(0, 6)
```

Exception has occurred: AttributeError

```
module 'random' has no attribute 'randinr'
  File
"C:\ProgrammingProjects\GISC2335_ProgrammingForGIS\WeeklyContent\week5\data\Ex04\br
line 42, in <module>
    p = random.randinr(0, 6)
        ^^^^^^^^^^^^^^
AttributeError: module 'random' has no attribute 'randinr'
```