Equivalence Testing in Python

```
codio@virussenior-prefixheroic:~/workspace$ python3 equivalence.py
{1, -3}
{2, -2}
{3, -1}
{0, 4}
-3 : {1, -3}
-2 : {2, -2}
-1 : {3, -1}
0 : {0, 4}
1 : {1, -3}
2 : {2, -2}
3 : {3, -1}
4 : {0, 4}
codio@virussenior-prefixheroic:~/workspace$ 
```

Exploring Linters to Support Testing in Python: Question 1

- What happens when the code is run?

```
codio@virussenior-prefixheroic:~/workspace$ python3 styleLint.py
  File "styleLint.py", line 5
    """ Return factorial of n """
                                ^
IndentationError: expected an indented block
codio@virussenior-prefixheroic:~/workspace$ 
```

- Can you modify this code for a more favourable outcome?

```
1
2    # CODE SOURCE: SOFTWARE ARCHITECTURE WITH PYTHON
3
4    def factorial(n):
5        """ Return factorial of n """
6        if n == 0:
7            return 1
8        else:
9            return n*factorial(n-1)
```

- What amendments have you made to the code
  Indented line 5 by 4 spaces

Exploring Linters to Support Testing in Python: Question 2

Review each of the code errors returned.

```
codio@virussenior-prefixheroic:~/workspace$ python3 pylintTest.py
  File "pylintTest.py", line 26
    print encoded
                 ^
SyntaxError: Missing parentheses in call to 'print'. Did you mean print(encoded)?
codio@virussenior-prefixheroic:~/workspace$
```

```
codio@virussenior-prefixheroic:~/workspace$ python3 pylintTest.py
Traceback (most recent call last):
  File "pylintTest.py", line 7, in <module>
    choice = raw_input("would you like to encode or decode?")
NameError: name 'raw_input' is not defined
codio@virussenior-prefixheroic:~/workspace$
```

Can you correct each of the errors identified by *pylint*?

```
1
2    # SOURCE OF CODE: https://docs.pylint.org/en/1.6.0/tutorial.html
3
4    import string
5
6    shift = 3
7    choice = input("would you like to encode or decode?")
8    word = (input("Please enter text"))
9    letters = string.ascii_letters + string.punctuation + string.digits
10   encoded = ''
11   if choice == "encode":
12     for letter in word:
13       if letter == ' ':
14         encoded = encoded + ' '
15       else:
16         x = letters.index(letter) + shift
17         encoded=encoded + letters[x]
18       if choice == "decode":
19         for letter in word:
20           if letter == ' ':
21             encoded = encoded + ' '
22           else:
23             x = letters.index(letter) - shift
24             encoded = encoded + letters[x]
25
26   print (encoded)
```

Exploring Linters to Support Testing in Python: Question 3

Review the errors returned. In what way does this error message differ from the error message returned by *pylint?*

```
codio@virussenior-prefixheroic:~/workspace$ flake8  pylintTest.py
pylintTest.py:5:1: W293 blank line contains whitespace
pylintTest.py:12:3: E111 indentation is not a multiple of 4
pylintTest.py:14:7: E111 indentation is not a multiple of 4
pylintTest.py:16:7: E111 indentation is not a multiple of 4
pylintTest.py:17:7: E111 indentation is not a multiple of 4
pylintTest.py:17:14: E225 missing whitespace around operator
pylintTest.py:19:7: E111 indentation is not a multiple of 4
pylintTest.py:23:11: E111 indentation is not a multiple of 4
pylintTest.py:24:11: E111 indentation is not a multiple of 4
pylintTest.py:26:14: W292 no newline at end of file
codio@virussenior-prefixheroic:~/workspace$
```

Formatting errors highlighted

Run *flake8* on metricTest.py.

```
codio@virussenior-prefixheroic:~/workspace$ flake8 metricTest.py
metricTest.py:15:6: E999 SyntaxError: invalid syntax
metricTest.py:16:1: E112 expected an indented block
metricTest.py:20:1: E128 continuation line under-indented for visual indent
metricTest.py:21:1: E128 continuation line under-indented for visual indent
metricTest.py:22:1: E128 continuation line under-indented for visual indent
metricTest.py:23:1: E112 expected an indented block
metricTest.py:27:8: E225 missing whitespace around operator
metricTest.py:28:1: E112 expected an indented block
metricTest.py:30:3: E261 at least two spaces before inline comment
metricTest.py:31:8: E225 missing whitespace around operator
metricTest.py:31:17: E225 missing whitespace around operator
metricTest.py:32:1: E112 expected an indented block
metricTest.py:34:3: E261 at least two spaces before inline comment
metricTest.py:34:80: E501 line too long (83 > 79 characters)
metricTest.py:35:2: E201 whitespace after '['
metricTest.py:35:5: E202 whitespace before ']'
metricTest.py:36:8: E225 missing whitespace around operator
metricTest.py:37:1: E112 expected an indented block
metricTest.py:37:8: E225 missing whitespace around operator
metricTest.py:38:1: E112 expected an indented block
metricTest.py:38:3: E261 at least two spaces before inline comment
metricTest.py:39:22: E231 missing whitespace after ','
metricTest.py:40:10: E225 missing whitespace around operator
metricTest.py:41:1: E112 expected an indented block
metricTest.py:41:3: E261 at least two spaces before inline comment
metricTest.py:42:35: E231 missing whitespace after ','
metricTest.py:42:45: E231 missing whitespace after ','
metricTest.py:43:1: E128 continuation line under-indented for visual indent
metricTest.py:44:1: E128 continuation line under-indented for visual indent
metricTest.py:45:10: E225 missing whitespace around operator
metricTest.py:46:1: E112 expected an indented block
metricTest.py:46:3: E261 at least two spaces before inline comment
metricTest.py:48:1: E128 continuation line under-indented for visual indent
metricTest.py:52:1: E112 expected an indented block
metricTest.py:54:24: E231 missing whitespace after ','
metricTest.py:55:1: E112 expected an indented block
metricTest.py:59:1: E112 expected an indented block
metricTest.py:62:1: E112 expected an indented block
metricTest.py:63:13: E225 missing whitespace around operator
metricTest.py:64:1: E112 expected an indented block
metricTest.py:65:10: E225 missing whitespace around operator
metricTest.py:66:1: E112 expected an indented block
metricTest.py:66:12: E225 missing whitespace around operator
metricTest.py:69:1: E112 expected an indented block
metricTest.py:72:1: E112 expected an indented block
```

Can you correct each of the errors returned by *flake8*?

What amendments have you made to the code

Exploring Linters to Support Testing in Python: Question 4

Run *mccabe* on sums.py . What is the result?

```
codio@virussenior-prefixheroic:~/workspace$ python -m mccabe sums.py
("4:0: 'test_sum'", 1)
('If 7', 2)
codio@virussenior-prefixheroic:~/workspace$
```

Run *mccabe* on sums2.py . What is the result?

```
codio@virussenior-prefixheroic:~/workspace$ python -m mccabe sums2.py
("7:0: 'test_sum_tuple'", 1)
("4:0: 'test_sum'", 1)
('If 10', 2)
codio@virussenior-prefixheroic:~/workspace$
```