

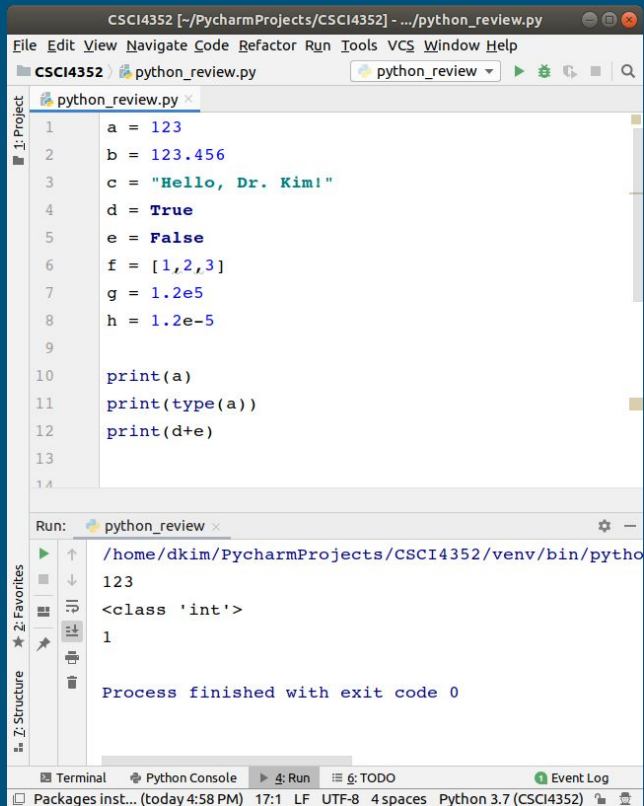


Python Review

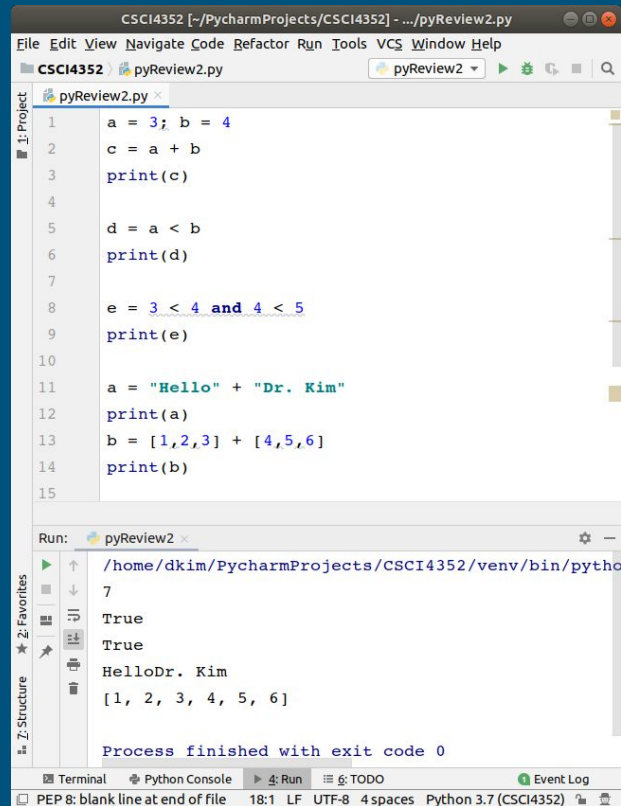
Aka. Python in 5 minutes
By Dr. Dongchul Kim



Variable and Operators




```
CSCI4352 [~/PycharmProjects/CSCI4352] - .../python_review.py
File Edit View Navigate Code Refactor Run Tools VCS Window Help
CSCI4352 python_review.py python_review
python_review.py x
1 a = 123
2 b = 123.456
3 c = "Hello, Dr. Kim!"
4 d = True
5 e = False
6 f = [1,2,3]
7 g = 1.2e5
8 h = 1.2e-5
9
10 print(a)
11 print(type(a))
12 print(d+e)
13
14
Run: python_review x
/home/dkim/PycharmProjects/CSCI4352/venv/bin/python
123
<class 'int'>
1
Process finished with exit code 0
Terminal Python Console Run TODO Event Log
Packages inst... (today 4:58 PM) 17:1 LF UTF-8 4 spaces Python 3.7 (CSCI4352)
```



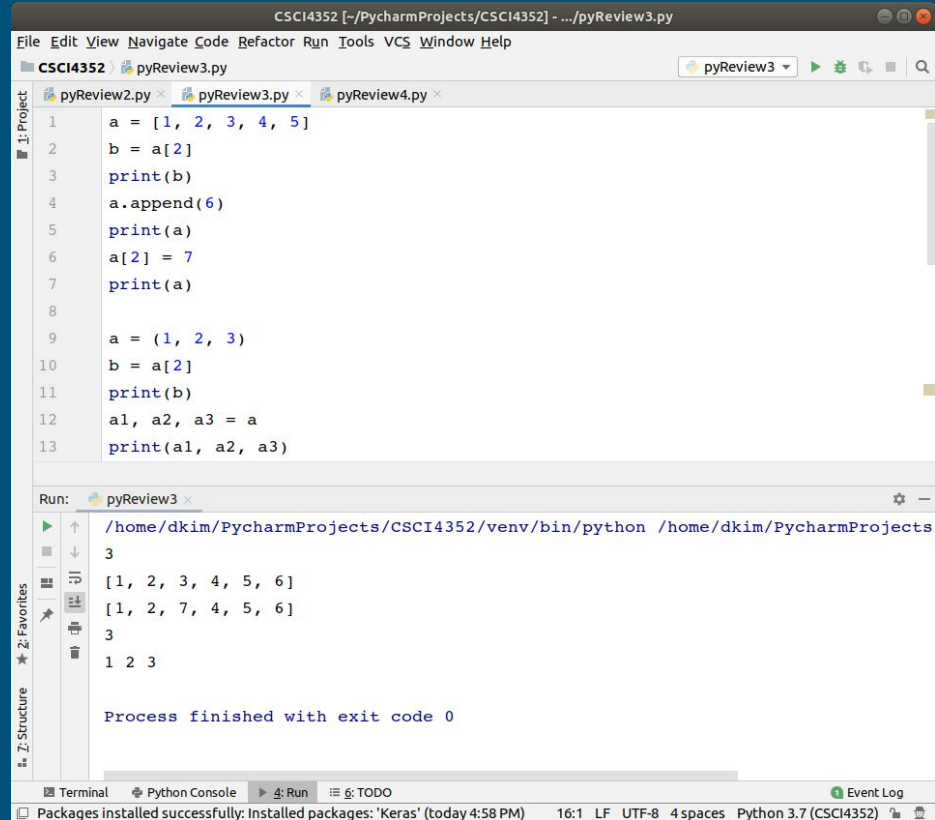
```
CSCI4352 [~/PycharmProjects/CSCI4352] - .../pyReview2.py
File Edit View Navigate Code Refactor Run Tools VCS Window Help
CSCI4352 pyReview2.py pyReview2
pyReview2.py x
1 a = 3; b = 4
2 c = a + b
3 print(c)
4
5 d = a < b
6 print(d)
7
8 e = 3 < 4 and 4 < 5
9 print(e)
10
11 a = "Hello" + "Dr. Kim"
12 print(a)
13 b = [1,2,3] + [4,5,6]
14 print(b)
15
Run: pyReview2 x
/home/dkim/PycharmProjects/CSCI4352/venv/bin/python
7
True
True
HelloDr. Kim
[1, 2, 3, 4, 5, 6]
Process finished with exit code 0
Terminal Python Console Run TODO Event Log
PEP 8: blank line at end of file 18:1 LF UTF-8 4 spaces Python 3.7 (CSCI4352)
```

Python Operator Precedence

Precedence	Operator Sign	Operator Name
Highest	**	Exponentiation
	+X, -X, ~X	Unary positive, unary negative, bitwise negation
	*, /, //, %	Multiplication, division, floor, division, modulus
	+, -	Addition, subtraction
	<<, >>	Left-shift, right-shift
	&	Bitwise AND
	^	Bitwise XOR
		Bitwise OR
	==, !=, <, <=, >, >=, is, is not	Comparison, identity
	not	Boolean NOT
	and	Boolean AND
Lowest	or	Boolean OR



List and Tuple



The screenshot shows the PyCharm IDE interface with a Python script named `pyReview3.py` open. The code defines a list `a`, a tuple `a`, and a tuple `a`, and prints their elements and the list after modification.

```
1 a = [1, 2, 3, 4, 5]
2 b = a[2]
3 print(b)
4 a.append(6)
5 print(a)
6 a[2] = 7
7 print(a)
8
9 a = (1, 2, 3)
10 b = a[2]
11 print(b)
12 a1, a2, a3 = a
13 print(a1, a2, a3)
```

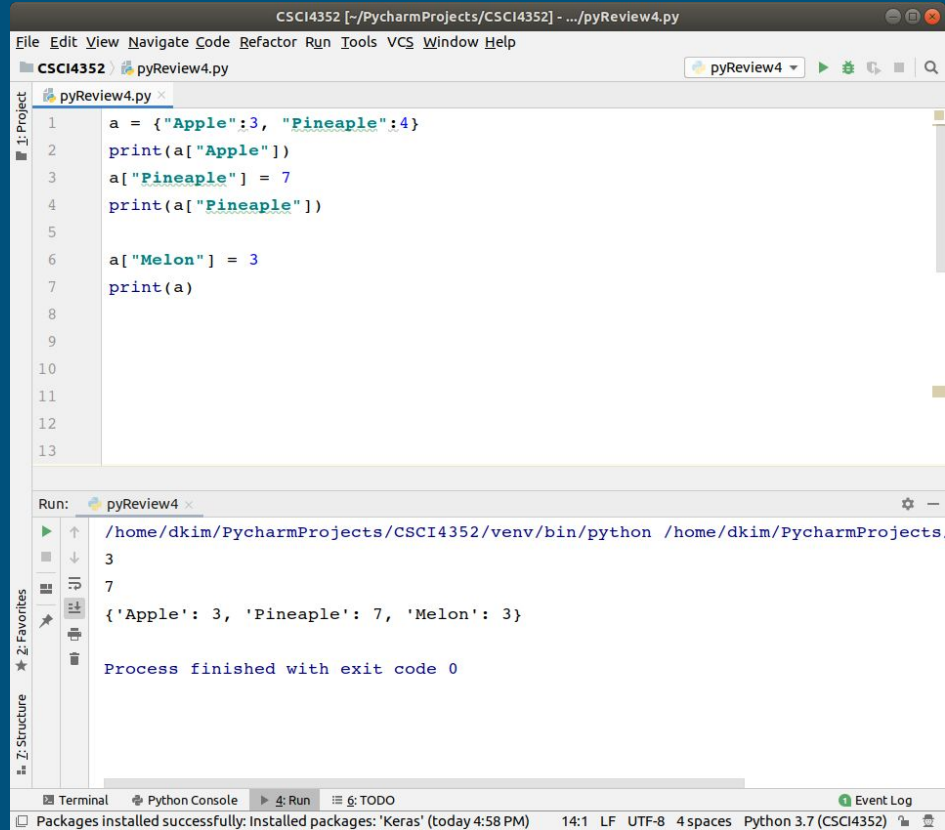
The Run console shows the output of the script:

```
/home/dkim/PycharmProjects/CSCI4352/venv/bin/python /home/dkim/PycharmProjects
3
[1, 2, 3, 4, 5, 6]
[1, 2, 7, 4, 5, 6]
3
1 2 3

Process finished with exit code 0
```

The status bar at the bottom indicates that packages were installed successfully, including 'Keras' (today 4:58 PM), and shows the current file encoding as UTF-8 and the Python version as 3.7 (CSCI4352).

Dictionary



The screenshot shows a PyCharm IDE window titled "CSCI4352 [-/PycharmProjects/CSCI4352] - .../pyReview4.py". The editor displays the following Python code:

```
1 a = {"Apple":3, "Pineapple":4}
2 print(a["Apple"])
3 a["Pineapple"] = 7
4 print(a["Pineapple"])
5
6 a["Melon"] = 3
7 print(a)
8
9
10
11
12
13
```

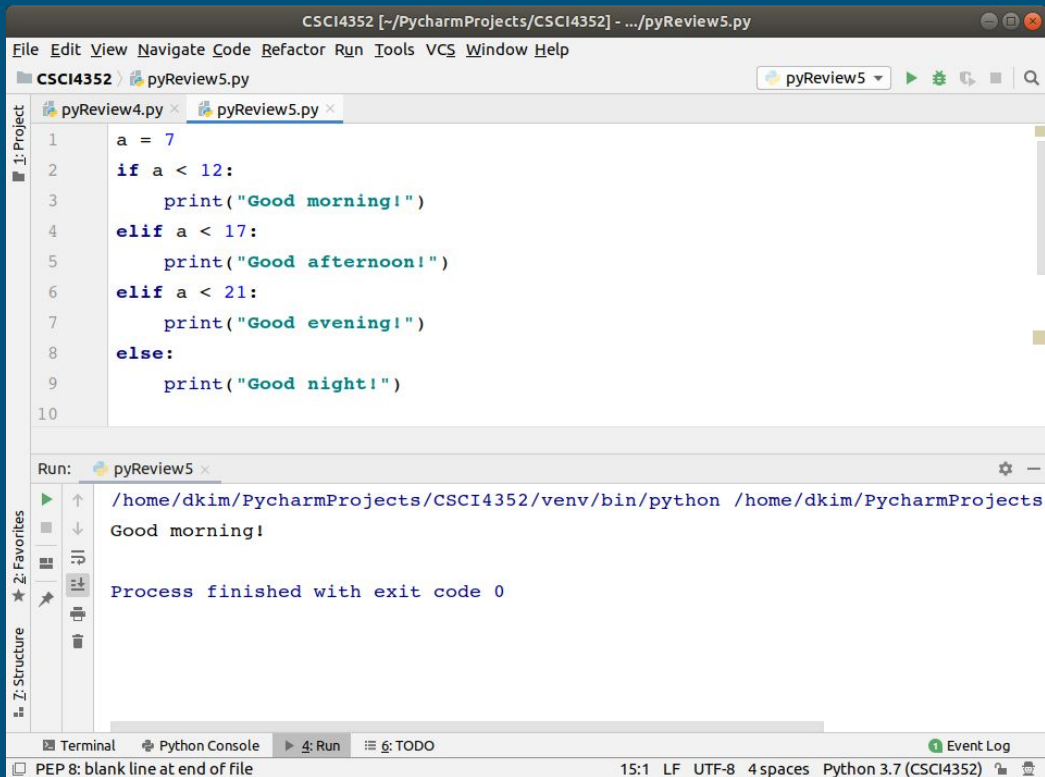
Below the editor, the "Run" console shows the execution output:

```
/home/dkim/PycharmProjects/CSCI4352/venv/bin/python /home/dkim/PycharmProjects...
3
7
{'Apple': 3, 'Pineapple': 7, 'Melon': 3}

Process finished with exit code 0
```

The status bar at the bottom indicates: "Terminal Python Console Run TODO Event Log" and "Packages installed successfully: Installed packages: 'Keras' (today 4:58 PM) 14:1 LF UTF-8 4 spaces Python 3.7 (CSCI4352)".

if



The screenshot shows a PyCharm IDE window titled "CSCI4352 [-~/PycharmProjects/CSCI4352] - .../pyReview5.py". The main editor displays the following Python code:

```
1 a = 7
2 if a < 12:
3     print("Good morning!")
4 elif a < 17:
5     print("Good afternoon!")
6 elif a < 21:
7     print("Good evening!")
8 else:
9     print("Good night!")
10
```

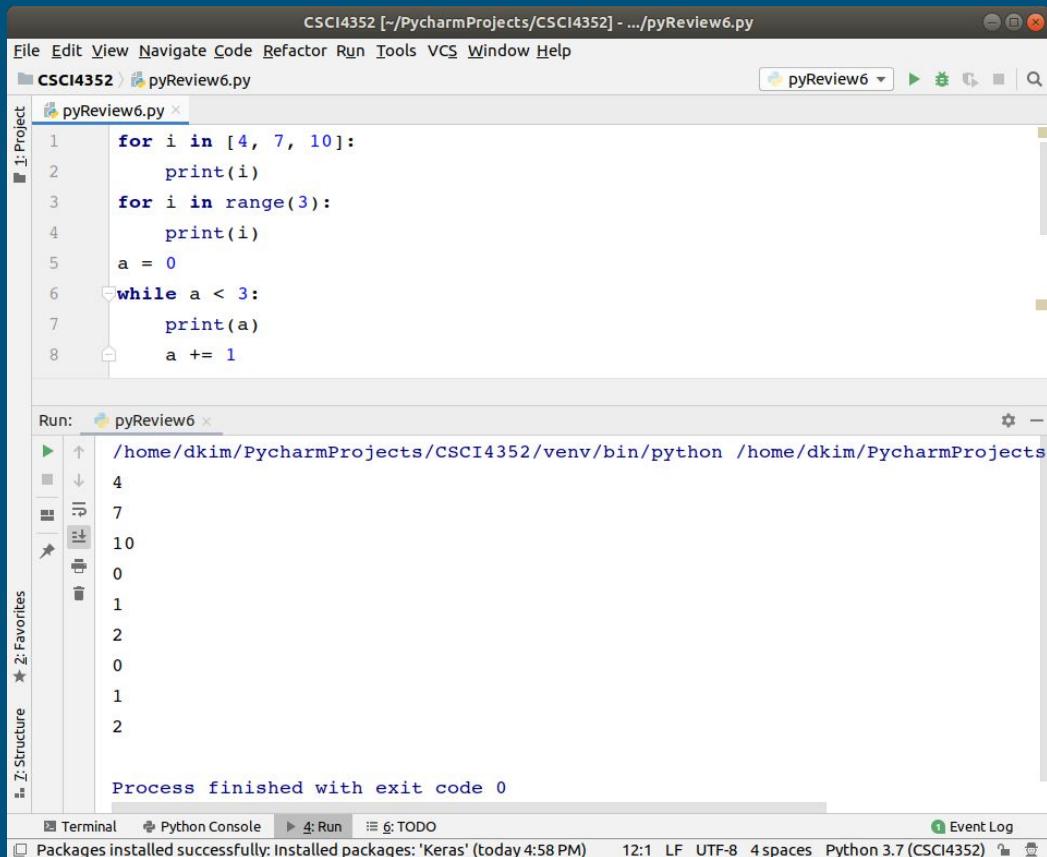
Below the editor, the "Run" console shows the output of the script:

```
Run: pyReview5 x
/home/dkim/PycharmProjects/CSCI4352/venv/bin/python /home/dkim/PycharmProjects/...
Good morning!

Process finished with exit code 0
```

The status bar at the bottom indicates "PEP 8: blank line at end of file", "15:1 LF UTF-8 4 spaces Python 3.7 (CSCI4352)", and "Event Log".

Loop



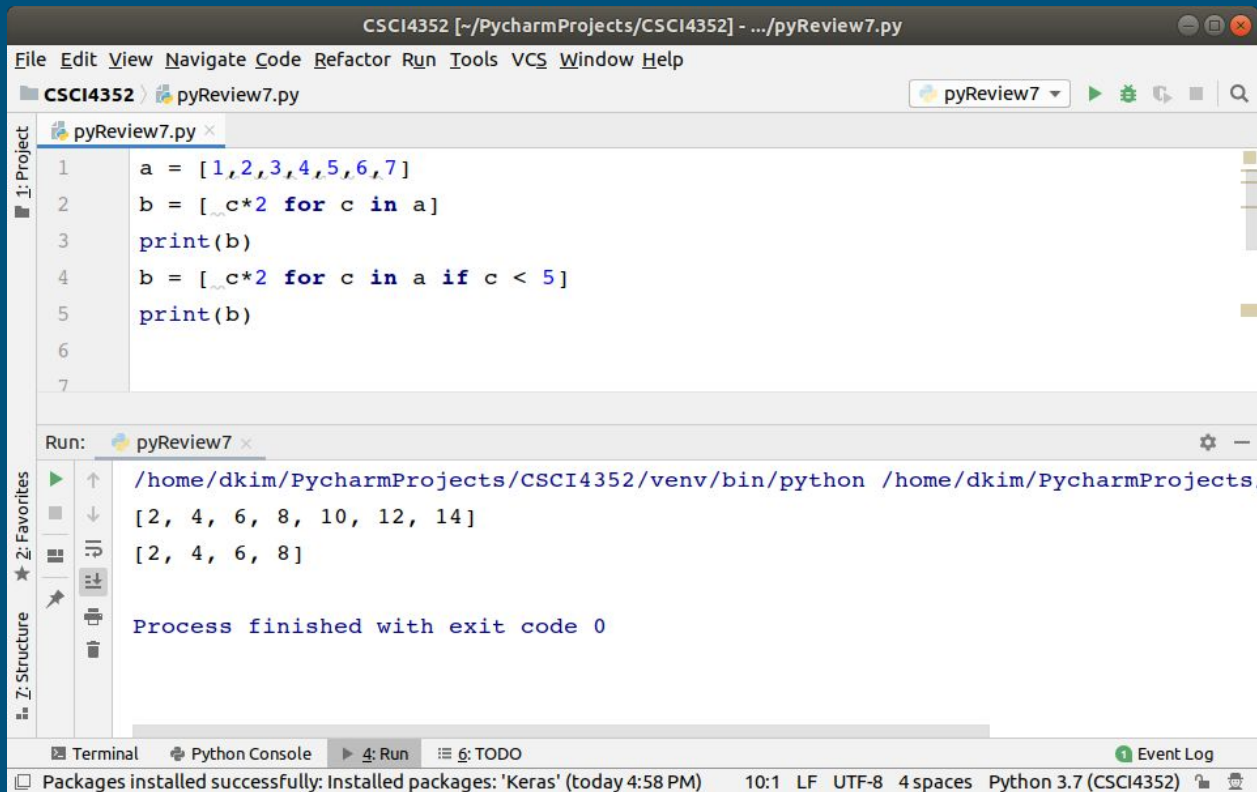
```
CSCI4352 [-~/PycharmProjects/CSCI4352] - .../pyReview6.py
File Edit View Navigate Code Refactor Run Tools VCS Window Help
CSCI4352 > pyReview6.py
pyReview6
1 for i in [4, 7, 10]:
2     print(i)
3 for i in range(3):
4     print(i)
5 a = 0
6 while a < 3:
7     print(a)
8     a += 1

Run: pyReview6 x
/home/dkim/PycharmProjects/CSCI4352/venv/bin/python /home/dkim/PycharmProjects
4
7
10
0
1
2
0
1
2

Process finished with exit code 0

Terminal Python Console Run TODO Event Log
Packages installed successfully: Installed packages: 'Keras' (today 4:58 PM) 12:1 LF UTF-8 4 spaces Python 3.7 (CSCI4352)
```

Comprehension



The screenshot shows the PyCharm IDE interface. The main editor window displays a Python file named `pyReview7.py` with the following code:

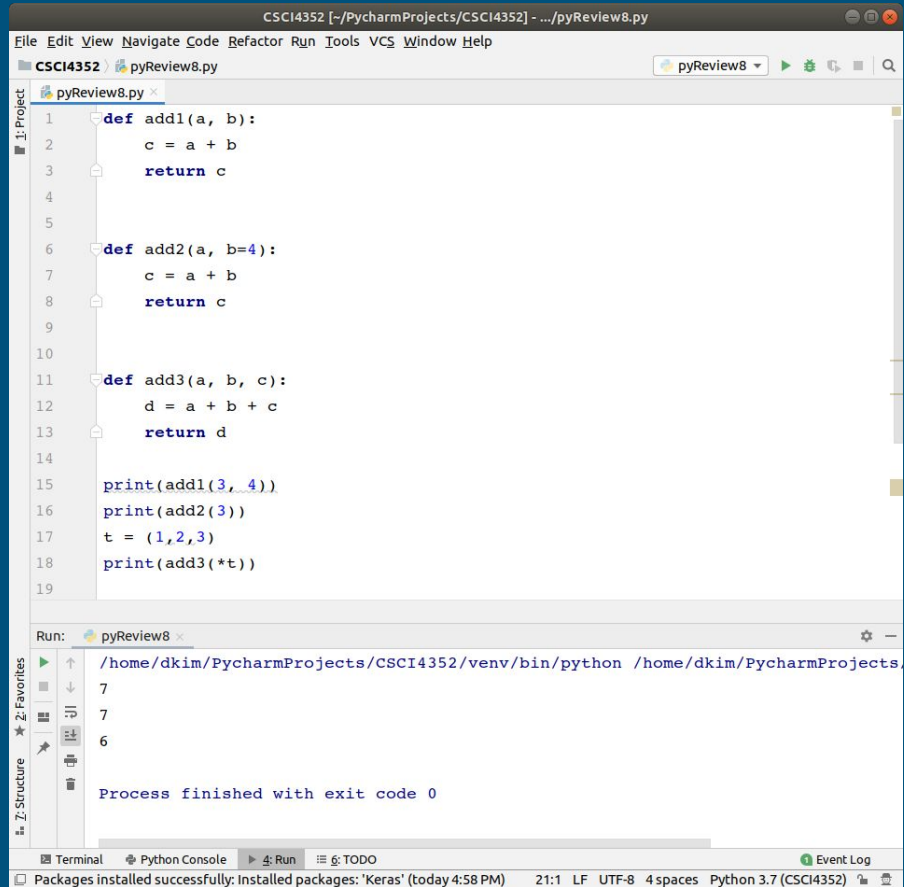
```
1 a = [1,2,3,4,5,6,7]
2 b = [_c*2 for c in a]
3 print(b)
4 b = [_c*2 for c in a if c < 5]
5 print(b)
6
7
```

Below the editor, the Run console shows the output of the script:

```
Run: pyReview7 x
/home/dkim/PycharmProjects/CSCI4352/venv/bin/python /home/dkim/PycharmProjects
[2, 4, 6, 8, 10, 12, 14]
[2, 4, 6, 8]
Process finished with exit code 0
```

The status bar at the bottom indicates that packages were installed successfully, including 'Keras' (today 4:58 PM), and shows the current file encoding as UTF-8 with 4 spaces, and the Python version as Python 3.7 (CSCI4352).

Function



```
CSCI4352 [-~/PycharmProjects/CSCI4352] - .../pyReview8.py
File Edit View Navigate Code Refactor Run Tools VCS Window Help
CSCI4352 pyReview8.py
pyReview8.py
1 def add1(a, b):
2     c = a + b
3     return c
4
5
6 def add2(a, b=4):
7     c = a + b
8     return c
9
10
11 def add3(a, b, c):
12     d = a + b + c
13     return d
14
15 print(add1(3, 4))
16 print(add2(3))
17 t = (1, 2, 3)
18 print(add3(*t))
19

Run: pyReview8 x
/home/dkim/PycharmProjects/CSCI4352/venv/bin/python /home/dkim/PycharmProjects
7
7
6

Process finished with exit code 0

Terminal Python Console Run TODO Event Log
Packages installed successfully: Installed packages: 'Keras' (today 4:58 PM) 21:1 LF UTF-8 4 spaces Python 3.7 (CSCI4352)
```

Class

```
CSCI4352 [~/PycharmProjects/CSCI4352] - .../pyReview9.py
File Edit View Navigate Code Refactor Run Tools VCS Window Help
CSCI4352 / pyReview9.py pyReview9
pyReview9.py
1 class Parent:
2     def __init__(self, a):
3         self.a = a
4     def add(self, b):
5         print(self.a + b)
6     def multiply(self, b):
7         print(self.a * b)
8
9 p = Parent(3)
10 p.add(4)
11 p.multiply(4)
12
13
14
15
16
17
Run: pyReview9
/home/dkim/PycharmProjects/CSCI4352/venv/bin/python3
7
12
Process finished with exit code 0
Terminal Python Console Run TODO Event Log
PEP 8: blank line at end of.. 18:1 LF UTF-8 4 spaces Python 3.7 (CSCI4352)
```

```
CSCI4352 [~/PycharmProjects/CSCI4352] - .../pyReview10.py
File Edit View Navigate Code Refactor Run Tools VCS Window Help
CSCI4352 / pyReview10.py pyReview10
pyReview10.py
1 class Parent:
2     def __init__(self, a):
3         self.a = a
4     def add(self, b):
5         print(self.a + b)
6     def multiply(self, b):
7         print(self.a * b)
8
9 class Child(Parent):
10     def subtract(self, b):
11         print(self.a - b)
12     def divide(self, b):
13         print(self.a / b)
14
15 c = Child(4)
16 c.add(3)
17 c.multiply(3)
18 c.subtract(3)
19 c.divide(3)
20
Run: pyReview10
/home/dkim/PycharmProjects/CSCI4352/venv/bin/python3
7
12
1
1.3333333333333333
Process finished with exit code 0
Terminal Python Console Run TODO Event Log
PEP 8: blank line at end of... 23:1 LF UTF-8 4 spaces Python 3.7 (CSCI4352)
```

Lab 4

Run the example codes and capture screens with outputs.

Submit python files (.py or .ipynb) and captured images of outputs and code in blackboard.