08 STRINGS

ASG 8.2

Make sure to run the code in the following cell before you start the assignment!!</i>

In [9]:
```
# set up notebook to display multiple output in one cell

from IPython.core.interactiveshell import InteractiveShell
InteractiveShell.ast_node_interactivity = "all"
```

Question #1: What is the result of each of the following?

a. "Python"[3]

b. "Python"[-1]

c. "Python"[0]

d. "Seaborn is a Python data visualization library based on matplotlib."[3:15]

e. "Seaborn is a Python data visualization library based on matplotlib."[-10:-1]

f. "Seaborn is a Python data visualization library based on matplotlib."[:]

g. "A pandas groupby operation involves some combination of splitting the object, applying a function, and combining the results."[:16]

h. "A pandas groupby operation involves some combination of splitting the object, applying a function, and combining the results."[117:]

Answers for Question #1

a. h

b.n

c.P

d.born is a Py

e.atplotlib

f.Seaborn is a Python data visualization library based on matplotlib.

g.A pandas groupby

h.results.

Question #2:

What is the result of each of the following?

a. print('x' in 'matplotlib')

b. print('t' in 'matplotlib')

c. print('plot' in 'matplotlib')

d. print('math' in 'matplotlib')

e. print('math' not in 'matplotlib')

f. print('plot' not in 'matplotlib')

g. print('M' in 'matplotlib')

Answers for Question #2

a. False

b.True

c.True

d.False

e.True

f.False

g.False

Question #3:

What is the result of each of the following?

a. ‘pandas’ > ‘numpy’

b. ‘pandas’ == ‘Pandas’

c. 'pandas' > 'Pandas'

d. 'numpy' == 'numpy'

Answers for Question #3

a.True

b.False

c.True

d.True

Question #4:

a. Define a string that contains the word ***Problem*** and define another string as the word ***Solving***. Combine these two strings to make the phrase ***Problem Solving***. Do this two different ways with regard to getting the space between the two words. Print a blank line when you are done with this part.

b. Define a string that contains the number 4 and a string that contains the number 7. Combine these two strings with the + operator. Print a blank line when you are done with this part.

c. Define an integer as the number 4 and an integer as the number 7. Combine these two integers with the + operator. Print a blank line when you are done with this part.

d. Explain why the output from (b) was different than the output from (c). To do this, assign your string explanation to a variable named explanation_1 and print out that variable. Print a blank line when you are done with this part.

e. Define a string that contains the number **3** and a string that contains the number **14**. Write code that uses these strings to produce the string output **3.14**. Print a blank line when you are done with this part.

f. Multiply the string 5 by the string 4 using the multiplication operator *. Print a blank line when you are done with this part.

g. Multiply the integer 5 by the integer 4 using the multiplication operator *. Print a blank line when you are done with this part.

h. Explain why the output in (f) was different from the output in (g). To do this, assign your string explanation to a variable named explanation_2 and print out that variable. Print a blank line when you are done with this part.

Answers for Question #4

In [23]:
```
# Put Answer to Part (a) here
problem = "Problem "
solving = " Solving"
print(problem+solving[1:])
print(problem[:-1]+solving)
print("\n")

# Put Answer to Part (b) here

number_four = "4"
number_seven = "7"
print(number_four+number_seven)
print("\n")


# Put Answer to Part (c) here
number_four = 4
number_seven = 4
print(number_four+number_seven)
print("\n")


# Put Answer to Part (d) here
explanation_1 = "Part B and C print out different outputs because when concatenating s
print(explanation_1)
print("\n")

# Put Answer to Part (e) here
number_three = "3"
number_fourteen = "14"
print(f"{number_three}.{number_fourteen}")
print("\n")


# Put Answer to Part (f) here
number_five = "5"
number_four = "4"
print(number_five*int(number_four))
print("\n")

# Put Answer to Part (g) here
```

```
number_five = 5
number_four = 4
print(number_five*number_four)
print("\n")

# Put Answer to Part (h) here
explanation_two = "Part F and G print out different outputs because the numbers in par
print(explanation_two)
```

```
Problem Solving
Problem Solving


47


8


Part B and C print out different outputs because when concatenating strings, it just c
ombines the two strings together but does not actually add them together. When the num
bers are integers, they are added together.


3.14


5555


20


Part F and G print out different outputs because the numbers in part F are strings. On
the contrary, part G are integers which do basic multiplication unlike the strings tha
t just repeat.
```

Question #5: Complete the following index and slicing operations after assigning the string 'Concatenate' to the variable **word**.

Note: Write a print statement at the end of each part to output a blank line.

a. Pull out the letter *C* from word.

b. Pull out the first four letters *Conc* from word.

c. Pull out the sixth through 8th letters *ten* from word.

d. Pull out every other letter from word starting with C (i.e. produce *Cnaeae* as your output.)

e. Pull out every third letter from word starting with o (i.e. produce *oane* as your output.)

f. Use indexing and slicing to output word backwards to produce *etanetacnoC*

Answers for Question #5

Note: Before doing Question #5 you may want to read the following handout:

Advanced String Slicing

Source: **Problem Solving with Python** by Peter D. Kazarinoff

In [50]:
```
# Put Answer to Part (a) here
conString = "Concatenate"
print(conString[0])
print("\n")

# Put Answer to Part (b) here
print(conString[0:4])
print("\n")


# Put Answer to Part (c) here
print(conString[5:8])
print("\n")

# Put Answer to Part (d) here
arrayOfString = list(conString)
newWord = ""
for x in range(0, len(arrayOfString),2):
    newWord += conString[x]
print(newWord)
print("\n")

# Put Answer to Part (e) here
arrayOfString = list(conString)
newWord = ""
for x in range(1, len(arrayOfString),3):
    newWord += conString[x]
print(newWord)
print("\n")

# Put Answer to Part (f) here
print(conString[::-1])
```

```
C

Conc

ten

Cnaeae

oane

etanetacnoC
```

Question #6:

Define a string v as ***Lemonade***, define a string w as ***it's***, define a string x as ***really***, define a string y as ***cold!***, and a string z as ***,*** (... i.e as a comma).

a. Combine the strings v, w, x, y, and z to produce the string ***Lemonade, it's really cold!***

Note: Write a print statement at the end of part (a) to output a blank line.

b. Print out the statement ***"Donald Trump said "Lemonade, it's reallyreally cold!"*** *using the variables v, w, x, y, and z.*

(Note:'reallyreally' was intentionally written that way -- do not change it!)

Answers for Question #6

In [56]:
```
# Put Answer to Part (a) here
v = "Lemonade"
w = "it's"
x = "really"
y = "cold"
z = ","
print(f"{v}{z} {w} {x} {y}")
print("\n")
# Put Answer to Part (b) here
print(f"Donald Trump said \"{v}{z} {w} {x}{x} {y}\"")
```

```
Lemonade, it's really cold
```

```
Donald Trump said "Lemonade, it's reallyreally cold"
```

> ***Question #6:***
> *Use the string **functions and packages** and slicing to produce the following words:*
>
> *a. pack*
>
> *b. fun*
>
> *c. age*

Answers for Question #7

In [60]:
```
# Put Answer to Part (a) here
packages  = "packages"
functions = "functions"
print(packages[:4])
print("\n")
# Put Answer to Part (b) here
print(functions[:3])
print("\n")

# Put Answer to Part (c) here
print(packages[4:7])
```

```
pack


fun


age
```

> ***Question #8:*** *city = Elm Grove*
>
> *a. Use the appropriate method on the string city to return the output Elm grove.*
>
> *b. Use the appropriate method on the string city to return the output elm grove.*
>
> *c. Use the appropriate method on the string city to return the output ELM GROVE.*

d. Use the appropriate method on the string city to return the number of time the character 'e' appears in the string city.

Answers for Question #8

In [9]:
```
# Put Answer to Part (a) here
city = "Elm Grove"
print(city.capitalize())
print("\n")
# Put Answer to Part (b) here
print(city.lower())
print("\n")

# Put Answer to Part (c) here
print(city.upper())
print("\n")


# Put Answer to Part (d) here
print(city.lower().count('e'))
# I don't know if you wanted me to include the capital E or not.
#If you did not want me to, then you remove the .lower() function and just make it cit
```

```
Elm grove


elm grove


ELM GROVE


2
```

Question #9:

Note: Write a print statement at the end of each part to output a blank line.

course = " Python for Data Science "

a. print(course)

b. Use the appropriate method on the string course to return a string with the leading and trailing whitespace removed.

c. Use the appropriate method on the string course to return a string with the trailing whitespace removed.

d. Use the appropriate method on the string course to return a string with the leading whitespace removed.

e. Use the appropriate method on the string course to return the string ***FunPythonforDataScienceFun****.*

f. Use the appropriate method on the string course to return the string ***Fun PythonforDataScienceFun****.*

g. Use the appropriate method on the string course to return the string ***FunPythonforDataScience Fun****.*

Answers for Question #9

In [19]:
```
# Put Answer to Part (a) here
course = " Python for Data Science  "
fun = "Fun"
print(course)
print("\n")

# Put Answer to Part (b) here
print(course.strip())
print("\n")

# Put Answer to Part (c) here
print(course.rstrip())
print("\n")

# Put Answer to Part (d) here
print(course.lstrip())
print("\n")

# Put Answer to Part (e) here
no_space_course = ''.join(course.split())
print(f"{fun}{no_space_course}{fun}")
print("\n")


# Put Answer to Part (f) here
no_space_course = ''.join(course.split())
print(f"{fun} {no_space_course}{fun}")
print("\n")
```

```
# Put Answer to Part (g) here
no_space_course = ''.join(course.split())
print(f"{fun}{no_space_course} {fun}")
print("\n")
```

```
 Python for Data Science


Python for Data Science


 Python for Data Science


Python for Data Science


FunPythonforDataScienceFun


Fun PythonforDataScienceFun


FunPythonforDataScience Fun
```

Question #10:

str = 'Python is hard!'

*Use the appropriate method on the string str to return a string that replaces the word **hard** with the word **easy**.*

Answer for Question #10

In [21]:
```
# Put Answer to Question #10 here

str = "Python is hard!"
print(str.replace('hard', 'easy'))
```

```
Python is easy!
```

Note:

- Once you are satisfied with the results, submit your .ipynb notebook and html or PDF file to Canvas.

-Your files should include all output, i.e. run each cell and save your file before submitting.

In [ ]: