Python Workshop - Nidhi Ghorpade

Chapter 1 and 2 Quiz:

1. Write an expression that equals to 200. For example, 100 + 100. Trying using more than one operator and submit only one line of code.
   ➔ **50/2*4 or 100+0 or 100/10+10*9 (Again it's pure math so you can try as many as combinations you like).**

2. My phone bill for the last three months has been $35, $40, and $54. What is the average monthly electricity bill over the three-month period? Write an expression to calculate the mean and use `print ()` to view the result.
   ➔ **print ((23 +32+64)/3)**

3. Which of these lines of Python code are well formatted? How would you improve the readability of the codes that don't use good formatting? (Choose all that apply)
   ☐ `print(((3+ 32))+ -15//2)`
   ☒ `print((17 - 6)%(5 + 2))`
   ☒ `print ((1 + 2 + 4) / 13)`
   ☐ `print(4/2 - 7*7)`
   ➔ **Because they use parenthesis in a way that is easy to read and understand.**

4. Now it is your turn to work with variables. The comments in this quiz (the lines that begin with #) have instructions for creating and modifying variables. After each comment write a line of code that implements the instruction.

Note that this code uses scientific notations to define large numbers. `4.445e8` is equal to `4.445 * 10 ** 8` which is equal to `444500000.0`.

The current volume of a water reservoir (in cubic metres)
➔ reservoir_volume = 4.445e8

The amount of rainfall from a storm (in cubic metres)
➔ rainfall = 5e6

decrease the rainfall variable by 10% to account for runoff
➔ **rainfall *= .9**

add the rainfall variable to the reservoir_volume variable
➔ **reservoir_volume += rainfall**

increase reservoir_volume by 5% to account for stormwater that flows
into the reservoir in the days following the storm
➔ **reservoir_volume *= 1.05**

decrease reservoir_volume by 5% to account for evaporation
➔ **reservoir_volume *= 0.95**

subtract 2.5e5 cubic metres from reservoir_volume to account for water
that's piped to arid regions.
➔ **reservoir_volume -= 2.5e5**

print the new value of the reservoir_volume variable
➔ **print (reservoir_volume)**

5. How does changing the value of a variable affect another variable that was defined in terms of it? Let's look at an example.
   We're intentionally not providing a place to execute the code here, because we want to help you practice the important skill of walking through lines of code by hand.
   Each line of code executes in order, one at a time, with control going from one line to the next.

```
>>> carrots = 24
>>> rabbits = 8
>>> crs_per_rab = carrots/rabbits
```

Now we add a new 4th line to this code, that assigns a new value to the rabbits variable:

```
>>> rabbits = 12
```

If we now add this new 5th line of code to the above, what will the output be?

```
>>> print(crs_per_rab)
```

- 0.5
- 2.o
- 3.0
- None of the above

➔ **2.0**

6. In Python 3 what is the output of ½?

➔ **0.5**

7. Guess the correct output of following code.

```
str1 = "PYnative"

print(str1[1:4], str1[:5], str1[4:], str1[0:-1], str1[:-1])
```

- PYn PYnat ive PYnativ vitanYP
- Yna PYnat tive PYnativ vitanYP
- Yna PYnat tive PYnativ PYnativ

8. Python does not support a character type; a single character is treated as strings of length one.

- False
- True

9. List all the python string methods with their definition. You can refer the internet for this.

➔ https://docs.python.org/2.5/lib/string-methods.html

10. Write one line of code giving an example of indexing. For example 'Hello World'[0] returns 'H'. Make any two examples of your own one with normal indexing and other one with reverse indexing.
    - ➔ **Hello_Nidhi [5]**
    - ➔ **my_name = "nidhi"**
      print (my_name[-1])

      //Again, this is just basic, there are so many examples that you can think of. So, there is no exact answer. You can write combination of answers until and unless its logically and syntactically correct.

11. Reverse this 'This is an easy quiz' sentence without using string reverse method.
    - ➔ **example = 'This is an easy quiz'**
      example[::-1]
      print(example)

12. Use slicing techniques with providing 4 different examples each one using different slicing techniques learned in the video.
    - ➔ **Most of you have got this right. The answer is right if you have used different ways to slice a string like using start, stop index together or using start, stepsize index together, etc.**

13. Are strings immutable?
    - ➔ **Strings are not mutable. That is you cannot use indexing to change individual elements of a string!**

14. Change the name of the two strings from 'Hero' to 'Zero' using the slicing and string concatenation method. Use least lines of code as you can.
    - ➔ **name = 'Nidhi'**
      new_name = 'R' + name[1:]
      print(new_name)

15. Write two expressions using format() method and f-string method.

```
> x = 100
> while x < 101:
>     print(f'Current value of x is :{x}')
>     # x = x + 1
>     x += 1
> else:
>         print("X is obviously greater than 5")
```

16. Write code to compare these densities. Is the population of San Francisco more dense than that of Rio de Janeiro? Print `True` if it is and `False` if not.

```
sf_population, sf_area = 864816, 231.89
rio_population, rio_area = 6453682, 486.5

san_francisco_pop_density = sf_population/sf_area
rio_de_janeiro_pop_density = rio_population/rio_area

# Write code that prints True if San Francisco is denser than Rio, and False otherwise
```

➔ **print (san_francisco_pop_density > rio_de_janeiro_pop_density)**

17. Give examples of all the datatypes you learned.
    - ➔ **my_string = 'str'**
    - ➔ **int = 9**
    - ➔ **float = 0.10**

18. What function do you use to find length of a string?
    - ➔ **len () function.**

19. What type does this object have? `"hippo" *12`
    - ➔ **string**

20. Create an example of list, with mixed data types. The answer should be just one line of code.
    - ➔ **my_list = ['nidhi', 007, 90.00]**

21. If list1 = [1,2,3,4,5]. What is the output of list1.pop ()? And what would be the result of list1[1:]?
    - ➔ **output of list1.pop () ------- list1 = [1,2,3,4,5]**
    - ➔ **result of list1[1:] --------- list1 = [2,3,4]**

22. Create a Dictionary where all the keys are strings and values are integers.
    - ➔ **my_dict = {'key1':001,'key2':002,'key3':003}**

23. Create a dictionary within a dictionary and write the code to find the values in the inside dictionary.
    - ➔ **Example has been showed in the videos.**

24. Do dictionaries retain order and are they a sequence?

➔ **No**

25. Given d = { 'k1':[1,2,3]}. What is the output of d['k1'][3]?
    ➔ **It will show an error as we have only elements having index values 0,1,2 in our list.**

26. Are dictionaries immutable?
    ➔ **Yes**
27. Do tuples have lots of methods associated with them?
    ➔ **No**

28. When is the best time to use tuples over lists?
    ➔ **To preserve data integrity while programming.**

29. Are tuples immutable?
    ➔ **Yes**

30. Which of the following is a tuple?

a. [1,2,3]
b. (1,2,[1,2,3])
c. {1,2,4,)
d. None of the above?

31. Write an expression to turn the string 'Mississippi' into a set of unique characters.
    ➔ **mylist = ['m','i','s','s','i','s','s','i','p','p','i']**
    set(mylist)

32. {1,2,3,4} Is this a set?
    ➔ **Yes**

33. What method do you use to add an element to a string?
    ➔ **append() . Also we can use join() or += operator.**

34. What is the result of: set ([1,2,2,3])

a. An error
b. [1,2,3]
c. {1,2,2,3}
d. {1,2,3}

35. What is the output of following lines of code? What would the length be?

```
a = [1, 2, 2, 3, 3, 3, 4, 4, 4, 4]
b = set(a)
```

```
print(len(a) - len(b))
```

➔ **6**

36. Consider:

```
a = [1, 2, 2, 3, 3, 3, 4, 4, 4, 4]
b = set(a)
b.add(5)
b.pop()
```

After executing this code, will the number 5 be a part of the set b?

➔ **No**

37. Define a Dictionary, population,
that provides information
on the world's largest cities.
The key is the name of a city
(a string), and the associated
value is its population in
millions of people.

Key | Value
Shanghai | 17.8
Istanbul | 13.3
Karachi | 13.0
Mumbai | 12.5

➔ **population = { 'Shanghai':17.8, 'Istanbul':'13.3','Karachi':"13.0",'Mumbai':'12.5'}**

You can always find more questions online and try to attempt those too. I tried keeping it basic and less questions. But try finding more quizzes online and try to solve those!

---X---