

CPSC 1301, Computer Science I Quiz

Quiz 5b

This is a timed test. You have thirty minutes to complete the test. Your deliverable will be a plain text file, that is, an ASCII file with a `.txt` file extension. When you finish the test, upload your deliverable to Canvas. Do not publish your answer to your `git` repository.

You may work with your study partner for this quiz. In fact, working together is strongly encouraged. If you work with a partner, you must each make a separate submission for credit, but you must also include the names of both authors in your submission.

1 Things you need to know

using `range()` for a range of values You can use the `range(from, to)` function to iterate through a range of integers. For example, `range(6, 12)` will iterate like this: 6, 7, 8, 9, 10, 11. Note that the range begins at `from` and ends at one less than `to`. See the printout below.

```
>>> for i in range(6, 12):
...     print(i, end = '\t')
...
6      7      8      9      10     11
```

initialize and create a list You initialize an *empty* list with a name, the assignment operator, and a set of (empty) square brackets, thusly: `mylist = []`. You can then use the `append(value)` method to add values to the end of the list. See the printout below:

```
>>> myList = []
>>> myList.append(3)
>>> myList.append(5)
>>> myList.append(8)
>>> myList.append(13)
>>> print(myList)
[3, 5, 8, 13]
```

changing int to a chr and to a str The integer 42 is simply an integer, and you can add, subtract, multiply, and divide with it. Sometimes, you need it to be a string. and sometimes, you need to convert the integer value to its character representation.¹ For example, the integer 65 is the ASCII value for the character 'A', and the integer 90 is the ASCII value for the character 'Z'. The function `chr(int)` returns the character of the ASCII value it represents. The function `str(int)` returns the numeric value as a string. Note carefully that 65 is an integer, that `chr(65)` is a string, and that `str(65)` is also a string. See the printout below:

```
>>> myA = 65
>>> myZ = 90
>>> myA, chr(myA), str(myA)
```

¹To clarify this, search for “ASCII table” and take a good look at it.

```

(65, 'A', '65')
>>> myZ, chr(myZ), str(myZ)
(90, 'Z', '90')
    # look at the types that are printed
>>> type(myA)
<class 'int'>
>>> type(chr(myA))
<class 'str'>
>>> type(str(myA))
<class 'str'>

```

using random.randint(num) The function `random.randint(low, high)` will give you a random integer between `low` and `high`. You must `import random` first, and call it as `random.randint(begin, end)`. **RTFM** See the printout below:

```

>>> import random
>>> random.randint(4, 8)
7
>>> random.randint(4, 8)
5
>>> random.randint(4, 8)
8
>>> random.randint(4, 8)
4

```

randomizing a list There are multiple ways to randomize a list, but a simple way is to do it like this: First, iterate through the list using *i* as the iteration variable. Second, pick a random integer from 0 to the length of the list, using *r* to hold the random int. Third, swap the *i*th element and the *r*th element. See the printout below.

```

>>> import random
>>> myList = ['a','b','c','d','e','f']
>>> myList
['a', 'b', 'c', 'd', 'e', 'f']
>>> for i in range(len(myList)):
...     r = random.randint(0, len(myList))
...     myList[i], myList[r] = myList[r], myList[i]
...
>>> myList
['c', 'b', 'a', 'd', 'f', 'e']

```

2 Quiz

1. Declare an empty list.
2. Initialize the empty list with the lower cases alphabetical characters `a - z`. Use a `for` loop to do this, do not do it by hand. Print the list.
3. Randomize the list. Print the list. *DO NOT USE ANY BUILT IN FUNCTIONS, LIKE `shuffle()`. DO THIS ALL BY HAND, THE HARD WAY.*

3 Template for quiz

You can use this for your quiz. Name it like `quiz05b_lastname.py`.

```

1 # quiz05b_carter.py
2
3 print("This is quiz05b")
4
5 #part 1, initialize an empty list
6 pass
7
8 #part 2, append to your list the lowercase alphabetical characters 'a' through 'z'
9 #look at the ASCII table to see the range of integers you need
10 #use a for loop to do it, do NOT do it by hand
11 pass
12
13 #part 3, shuffle the list
14 import random
15 pass

```

4 Example output of quiz

I ran my solution three times. This is the result. You should run yours at least three times to see that the randomizer actually works.

```

>quiz05b.py
This is quiz05b
['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n', 'o', 'p', 'q', 'r',
 's', 't', 'u', 'v', 'w', 'x', 'y', 'z']
['m', 'q', 'i', 'y', 'b', 'd', 'e', 'n', 'u', 'c', 'a', 'w', 'l', 'g', 'f', 'p', 's', 'k',
 'j', 'x', 'h', 'v', 'r', 'z', 'o', 't']

```

```

>quiz05b.py
This is quiz05b
['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n', 'o', 'p', 'q', 'r',
 's', 't', 'u', 'v', 'w', 'x', 'y', 'z']
['g', 'k', 'r', 'e', 'b', 'z', 'a', 'v', 't', 'l', 'o', 'j', 'u', 'f', 'p', 'y', 'm', 'h',
 's', 'c', 'd', 'n', 'w', 'q', 'x', 'i']

```

```

>quiz05b.py
This is quiz05b
['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'i', 'j', 'k', 'l', 'm', 'n', 'o', 'p', 'q', 'r',
 's', 't', 'u', 'v', 'w', 'x', 'y', 'z']
['o', 'i', 'f', 'a', 'g', 'c', 'l', 'v', 'n', 'b', 'm', 'd', 'x', 'q', 'k', 'p', 'r', 'e',
 'z', 'h', 'u', 'j', 'w', 'y', 't', 's']

```