Quiz 2

To get credit for this quiz, use the Quiz tool at eee.uci.edu to enter your answers, within the Sunday-to-Tuesday quiz period.

Problem 1 (4 points)

For each of these sequences of statements, what does Python print?

(a) 
\[
p = [2, 4, 6, 8]
\]
\[
print(p[0] + p[2])
\]

(b) 
\[
Restaurant = namedtuple('Restaurant', 'name cuisine phone dish price')
\]
\[
fancy = Restaurant('Taillevent', 'French', '01-11-22-33-44', 'Escargots', 55.00)
\]
\[
fast = Restaurant("McDonald's", 'Burgers', '334-4433', 'Big Mac', 3.95)
\]
\[
print(fast.name, 'serves', fast.cuisine)
\]
\[
print('True or False:', fancy.price > fast.price)
\]

Problem 2 (6 points)

Assume you have the following definitions:

\[
a = 5
\]
\[
Animal = namedtuple('Animal', 'name species age weight')
\]
\[
L = ['Tinker', 'Evers', 'Chance']
\]

What is the data type of each of the following expressions? Choose from int, float, bool, str, list of ________ (specify), or Animal.

(a)  
\[a * 10\]

(b)  
\[3.14159\]

(c)  
\['rhinoceros'\]

(d)  
\[12 * (5 + 1)\]

(e)  
\[len('Hippopotamus')\]

(f)  
\[Animal('Roger', 'rhinoceros', 45, 1500)\]

(g)  
\[Animal('Roger', 'rhinoceros', 45, 1500).age\]

(h)  
\[[2, 4, 6, 8, 10]\]
(i) \[ L \]

(j) \[ L[1] \]

(k) \[
[\text{Animal}('Roger', 'rhinoceros', 45, 1500), \\
\text{Animal}('Harry', 'hippopotamus', 25, 1600), \\
\text{Animal}('Eloise', 'elephant', 49, 4500)]
\]

(l) \[
[\text{Animal}('Marvin', 'marmoset', 5, 6).weight, \\
\text{Animal}('Sally', 'siamang', 25, 15).weight, \\
\text{Animal}('Lenny', 'lemur', 8, 4).weight, \\
\text{Animal}('Casper', 'capuchin', 7, 10).weight]
\]

**Problem 3** (12 points)

The Anteater Grocery Store represents each item in its inventory with:

- a string representing the item’s name, e.g., 'Granny Smith Apples 1 lb.'
- a float representing the item’s price, e.g., 2.50
- an int representing how many of this item are in stock, e.g., 85

(a) (2 points) Define a namedtuple called `Item` to represent grocery items as described above.

(b) (2 points) Write a statement that assigns to the variable `item1` an `Item` representing Campbell’s Chicken Soup, selling for $1.25 per can, with 250 cans in stock.

(c) (2 points) Write a Python expression for the value of the store’s inventory of `item1` (that is, how much money we’d take in if we sold all of that item we have in stock).

(d) (4 points) Suppose we have this list of items:

\[
L = [\text{Item}('pears', 2.50, 20), \\
\text{Item}('plums', 3.25, 40), \\
\text{Item}('oranges', 3.00, 35), \\
\text{Item}('peaches', 2.50, 40)]
\]

Write a Python expression representing the total value of the inventory of the first and last items on the list. For full credit, your expression should work for a list of any length greater than 1.
(e) (2 points) Fill in the blank with a Python statement that alphabetizes the list \( L \) of items (so that for the value of \( L \) in part (d), the print statement below would print “The first item is oranges.” (Your code should work to print the alphabetically first item in \( L \), no matter what items \( L \) contains.)

\[
\text{______________________________}
\]

\[
\text{print('The first item is', L[0].name)}
\]

\[
\text{Problem 4 (5 points)}
\]

For each of these sequences of statements, what does Python print?

(a)

\[
def \text{triple}(n: \text{int}) -> \text{int}:
    ''' Return three times the parameter
    '''
    return n * 3
\]

\[
\text{print('Four')}
\text{print(triple(5))}
\text{print('Score')}
\text{print(triple(2) + triple(10))}
\text{print(triple(3), triple(100))}
\text{print(triple(triple(4)))}
\]

(b)

\[
def \text{print}_\text{n copies}(n: \text{int}, s: \text{str}):
    ''' Print specified number of copies of string
    '''
    print(n * s)
    return
\]

\[
\text{print('Heads')}
\text{print}_\text{n copies}(4, 'Flip')
\text{print('Tails')}
\]
Problem 5 (4 points)

In this Python code:
```python
def double(n: int) -> int:
    ''' Return twice the parameter value '''
    return 2 * n
print(double(13), "should be 26")
```

identify each of the following:
1. function name (in definition)
2. function definition
3. function call (of the function double)
4. argument to a call to double
5. definition of a parameter in double
6. use of a parameter in double
7. return type specification
8. docstring comment ("purpose statement")

(On a paper exam, you could circle portions of the code and draw arrows. Electronically, just copy the list and, after each item, copy the text that applies.)

Problem 6 (8 points)

(a) What are the advantages of dividing our code into functions?

(b) Why is it a good idea to avoid duplicate code in our programs?

Problem 7 (1 point)

Yes or no: You got a score of “check” (46) on a lab assignment. Your roommate, who has a different TA, got a score of “check-plus” (57) and as far as you can tell (by comparing notes after submitting your work) your submission was about the same as your roommate’s. Should you be worried about your grade in the course because your TA seems to be a harder grader than your roommate’s TA?