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1 """
2 tuples_lab.py
3 @author: ITP 150 Student
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5 The tuples lab shows how to create a tuple with different data types,
6 how to unpack a tuple, how to add data to a tuple, how to convert a tuple
7 to a list, how to count values within a tuple. Also by checking the object
8 ID, we can see that adding a new value to a tuple causes the tuple to get
9 a new Object ID which illustrates that a tuple is immutable. In comparison
10 to a list, when a new value is added, the list keeps its object ID which
11 illustrates that a list is mutable.
12 """
13
14
15 print('Task 1. Create a tuple1 with different data types.')
16 tuple1 = ('tuple', False, 3.2, 1)
17 print('Contents of tuple1:', tuple1)
18 print('Object ID for tuple1', id(tuple1))
19
20 print('Task 2. access tuple1 element by its index')
21 print('tuple1 at Index 0 is', tuple1[0])
22
23 print('Task 3. Unpack tuple1 into several different variables.')
24 item1, item2, item3, item4 = tuple1
25 print(item1, item2, item3, item4)
26
27 print('Task 4. Add a new element with a value of 9 to tuple1 and see that \
28 a new Object ID is created.')
29 print('Contents of tuple1', tuple1)
30 print('Object ID for tuple1', id(tuple1))
31 tuple1 = tuple1 + (9,)
32 print('Contents of tuple1', tuple1)
33 print('Object ID for tuple1', id(tuple1))
34 print('Type of tuple1', type(tuple1))
35 print('tuple1 at index 4 -->', tuple1[4])
36
37 print('Task 5. Add new items at specific indexes to tuple1')
38 tuple1 = tuple1[:3] + (15, 20, 25) + tuple1[3:]
39 print('Contents of tuple1 after adding the 15, 20, 25, and first 5 elements \
40 to the end of tuple1\n', tuple1)
41 print('Object ID for tuple1', id(tuple1))
42
43 print('Task 6. Convert tuple1 to list1')
44 list1 = list(tuple1)
45 print('Contents of list1', list1)
46 print('Object ID of list1', id(list1))
47
48 print('Task 7. append an item to ths list')
49 list1.append(30)
50 print('Contents of list1', list1)
51 print('Object ID of list1', id(list1))
52
53 print('Task 8. Create a new tuple1 from the list list1')
54 tuple1 = tuple(list1)
55 print('Contents of tuple1', tuple1)
56 print('Object ID for tuple1', id(tuple1))
57
58 print('Task 9. count the repeated items which is 3.2 in tuple1')
59 count_3point2 = tuple1.count(3.2)
60 print('Count of repeated item 3.2 in tuple1:', count_3point2)
61
62 print('The object id shows what we mean by mutable aka changeable as compared \
63 to immutable aka unchangeable. Mutable data types or objects keep the object \

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64 ID after changing the contents whereas immutable data types or objects do not \
65 keep the same object ID after changing the contents. Remember everything in \
66 Python is technically an object but type shows specifically what kind of \
67 object we are dealing with.')
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