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Loops assignments

10/12/2024

Lab cake 1: Looping through Athletes @channel**Objective:** Practice using loops to iterate through a list and display information.
Task: Write a Python program that uses a list of four U.S. women athletes who have competed in the 400 meters at the Olympics. Your program should do the following:

1. Create a list called athletes with the following names:

   - Allyson Felix
   - Sanya Richards-Ross
   - Shaunae Miller-Uibo
   - Phyllis Francis

1. Use a for loop to display each athlete's name along with the lap number they completed. The output should be in the following format:

Lap 1: Allyson Felix has completed their lap!

Lap 2: Sanya Richards-Ross has completed their lap!

Lap 3: Shaunae Miller-Uibo has completed their lap!

Lap 4: Phyllis Francis has completed their lap!

Requirements:

- Do not use the enumerate() function.
- Use a counter variable to keep track of the lap number.

Bonus Challenge:

- Modify your code to display a message at the end that says: "All athletes have completed their laps!"

Submission

Please submit your code in a file named athlete_lap_assignment.py and upload it to gihub. Make sure to test your code to ensure it produces the correct output.

```
 1    # write a Python program that uses a list of four U.S women athletes who have competed in the 400 meters at the Olympics with the following
 2    # create a list called athletes
 3
 4    athletes =["Allison Felix", "Sanya Richards-Ross", "Shaunae Miller-Uibo", "Phyllis Francis"]
 5
 6    # Initialize the lap counter starting at 0. When I did 1 it did not work
 7    lap = 0
 8
 9    # use a for loop to display each athlete's name along with lap number they have completed.
10
11    for athlete in athletes:
12        lap += 1 # using the count method
13        print (f"Lap {lap}: {athlete} has completed their lap!")
14
15    # print the end message
16    print ("\n All athletes have completed their laps!")
17
18
```

PROBLEMS (4)   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   GITLENS

∨ TERMINAL

```
WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python athlete_lap_assignment.py
Lap 1: Allison Felix has completed their lap!
Lap 2: Sanya Richards-Ross has completed their lap!
Lap 3: Shaunae Miller-Uibo has completed their lap!
Lap 4: Phyllis Francis has completed their lap!

 All athletes have completed their laps!
```

Lab cake 2: Reversing a List @channel
Objective: Practice reversing a list and transferring its elements into a new list using loops.
Task: Write a Python program that works with the list called laura_things containing the following items:

- "sewing machine"
- "scissor"
- "cutting mat"
- "television"

Your program should do the following:

1. Create a list called laura_things with the items listed above.
2. Reverse the order of the items in laura_things.
3. Transfer each item from the reversed list into a new list called reversed_things.
4. Print out the new list reversed_things to show that it contains the items in reverse order.

Requirements:

- You must reverse the list using slicing or a loop (do not use Python's built-in reverse methods like reverse()).
- The final output should look like this:
- ['television', 'cutting mat', 'scissor', 'sewing machine']

Bonus Challenge:

- After reversing the list and creating reversed_things, print a message that says: "The list has been successfully reversed!"

Submission

Please submit your code by [insert due date here] in a file named reverse_list_assignment.py. Make sure to test your code to ensure it produces the correct output (edited)

Using the for loop method to reverse the order of the list

```
 7    # 1- create a list called laura_things with the items listed above
 8
 9    laura_things = ["sewing machine", "scissor", "cutting mat", "television"]
10    print (f"The original order from the laura_things list is:\t {laura_things}\n")
11
12    for index in range(len(laura_things)):
13        print (f"Item {index +1} in the list is {laura_things[index]} and is at index: {index}") # trying to replicate what we did in class
14    # 2- reverse the order of the list in laura_things using the loop method
15
16    # 3-4- Empty list to store reversed items and transfer each item from the list into a new list called reversed_things
17
18    reversed_things = []
19    # Loop through the original list in reverse order and append each item
20    for reverse_list in range(len(laura_things)):
21        reversed_things.append(laura_things [::-1][reverse_list])
22
23    print(f" \nThe reversed order from the laura_things list is:\t {reversed_things}\n")
24
25    # using the slicing method
26    #reverse_things = (laura_things[::-1])
27    #print (f"The reverse order from the laura_things list is:\t {reverse_things}")
28
29    print (f" \nThe final output of laura_things list in reversed order is:\n {reversed_things}\n")
30
31    for index in range(len(laura_things)):
32        print (f"Item {index +1} in the reversed list is {reversed_things[index]} and is at index: {index}") # trying to replicate what we did in class
33
34    # 5- Print a message that says 'The list has been successfully reversed!
35
36    print("\nThe list has been successfully reversed!")
37
```

```
WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python reverse_list_assignment.py
The original order from the laura_things list is:         ['sewing machine', 'scissor', 'cutting mat', 'television']

Item 1 in the list is sewing machine and is at index: 0
Item 2 in the list is scissor and is at index: 1
Item 3 in the list is cutting mat and is at index: 2
Item 4 in the list is television and is at index: 3

The reversed order from the laura_things list is:         ['television', 'cutting mat', 'scissor', 'sewing machine']


The final output of laura_things list in reversed order is:
 ['television', 'cutting mat', 'scissor', 'sewing machine']

Item 1 in the reversed list is television and is at index: 0
Item 2 in the reversed list is cutting mat and is at index: 1
Item 3 in the reversed list is scissor and is at index: 2
Item 4 in the reversed list is sewing machine and is at index: 3

The list has been successfully reversed!
```

Using the slicing method to reverse the order of the list

The outcome is the same, but the code had to be changed on line 32. Instead of reversed_things used in loops, it is now reverse_things as it is the value I've assigned to the reverse to make the difference between the 2 programs.

```python
25      # using the slicing method
26      reverse_things = (laura_things[::-1])
27      print (f"The reverse order from the laura_things list is:\t {reverse_things}")
28
29      print (f" \nThe final output of laura_things list in reversed order is:\n {reverse_things}\n")
30
31      #for index in range(len(laura_things)):          You, 1 second ago • Uncommitted changes
32          #print (f"Item {index +1} in the reversed list is {reverse_things[index]} and is at index: {index}") # trying to replicate what we did in class
33
34      # 5- Print a message that says 'The list has been successfully reversed!
35
36      print("\nThe list has been successfully reversed!")
37
```

PROBLEMS (4)   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   GITLENS

⌄ TERMINAL

```
WIN10@DESKTOP-OL1MV38 MINGW64 ~/Documents/CloudFormation/Python (master)
$ python reverse_list_assignment.py
The original order from the laura_things list is:          ['sewing machine', 'scissor', 'cutting mat', 'television']

The reverse order from the laura_things list is:          ['television', 'cutting mat', 'scissor', 'sewing machine']

The final output of laura_things list in reversed order is:
 ['television', 'cutting mat', 'scissor', 'sewing machine']


The list has been successfully reversed!
```