

Purpose: Lists**Learning outcomes:** 1, 2 and 3

Time: submit before 5pm Friday of Week 9.

Resources: MyLO: lecture notes and tutorial materials

Description:

*The pharmacist from task 8.1PP was so impressed by your work they recommended you to their construction-builder friend. The builder has to assign work to **two groups** of tradesman subcontractors on a fair basis. However, their ancient, 1980s work-allocation program only gives them entire lists of numbers that corresponds to each worker. The builder wants the lists to be broken down into the two groups - one with the odd number workers and one with the even number workers, so he can then allocate work to each group. He also needs to know how many people are in each group.*

Task:

Write a program that defines and uses a **function** called `displayAndCountOddsAndEvens` that takes one named parameter `numbers` which will be a list.

The function should display (i.e print to the output) the contents of the `numbers` list, and then:

- The title: "Odd numbers:" and then all odd numbers in the `numbers` list (one per line) - but only if there are one or more odd numbers
- The title: "Even numbers:" and then all even numbers in the `numbers` list (one per line) - but only if there are one or more even numbers

The function should then return two items - the count of how many odd numbers there were, as well as how many even numbers there were - **note the function does not print out these counts**.

Test Data:

In the main code, you **must** test your function with the following lists - it is ok to alternately define the list and call the function several times for this task.

```
list = [1,2,3,4,5,6,7,8,9,10]
# call your function and print the count results
list = [2,4,6,8,10]
# call your function and print the count results
list = [1,3,5,7,9]
# call your function and print the count results
list = []
# call your function and print the count results
```

Example output:

The list is: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

Odd numbers:

1
3
5
7
9

Even numbers:

2
4
6
8

```
10
There were 5 odds and 5 evens

The list is: [2, 4, 6, 8]
Even numbers:
2
4
6
8
There were 0 odds and 4 evens

The list is: [1, 3, 5, 7]
Odd numbers:
1
3
5
7
There were 4 odds and 0 evens

The list is: []
There were 0 odds and 0 evens
```

Hint

- Look at the `append` method for lists (you may need to create two temporary lists, one for odd numbers and one for even numbers inside your function)
- The modulus (%) operator can be helpful when determining if a number is odd or even
- Look at how you return (and use) multiple items from a function
- Consider the `len` function to help determine how many items are in a list
- As you have to print the *odds* and *evens* results separately, you will need more than one `for` loop.

Submission Details

Upload the following to the MyLO submission folder for this task:

1. The source file (i.e. the text file containing your code)
2. A screenshot of the Python shell window that shows the **execution** results of the source code.

Assessment Criteria & Hints

A completed submission **must**:

1. Include comments about the program purpose and the author of the program (your name)
2. Define a function `displayAndCountOddsAndEvens` at the start of the program using the parameter specified and return the data specified
3. Use meaningful names for variables, starting with a lower case
4. Use the test data specified above in order to verify your function works correctly - include the test data output in your screenshot
5. Submit both the source file and the screenshot