Starter - Lists

These tasks are designed to refresh the reading and research you have undertaken at home prior to this lesson. If you have not completed the R&R assignment then please speak to your teacher before attempting these exercises.

Task 1 - Dry Run

The following algorithm uses an array Values containing four numbers.

Index	Value
1	24
2	13
3	57
4	45

```
Result ←  0
Index ←  0
Repeat
    Index ←  Index + 1
    If Result < Values[Index]
        Then Result ←  Values[Index]
    EndIf
Until Index = 4
```

1. Dry run this algorithm by using the trace table below.

Result	Index
0	0
24	1
24	2
57	3
57	4

1. What is the purpose of this algorithm? So that the highest value is assigned to the variable result.

Task 2

Check and comment on the Python code snippet given below **without** running the code in IDLE.

```
shopping_list = []
finished = False
while not finished:
    shopping_item = input("Enter next item (-1 to end list): ")
    if shopping_item == "-1":
        finished = True
```

```
    else:
        shopping_list.append(shopping_item) #add new item to the list

for index in range(len(shopping_list)):
    print("item {0} is {1}".format(index, shopping_item[index]))
```

1. Replace the 2 slots above containing 'XXXX' with the correct python code.

2. What messages will the user see as the program runs if they enter as input :

   Pea Carrots Ham -1
   "Enter next item (-1 to end list): peas
   "Enter next item (-1 to end list): Carrots
   "Enter next item (-1 to end list): Ham
   "Enter next item (-1 to end list): -1
   item 0 is peas
   item 1 os carrots
   item 2 is ham

3. Suggest improvements to the program:
   -can change the printing loop so that it is more visually friendly.
   -make the program start at 1 and not 0

4. Now key in this python program with your improvements incorporated and test it .

```
shopping_list = []
finished = False
while not finished:
    shopping_item = input("Enter next item (-1 to end list): ")
    if shopping_item == "-1":
        finished = True
    else:
        shopping_list.append(shopping_item) #add new item to the list

for index,shopping_item, in enumerate(shopping_list):
    print("{0}. {1}".format (index+1,shopping_item))
```

Task 3

Convert the pseudo-code in task 1 to python code and run and test it. Do this as follows:

1. Set the list values to those shown in the question and output the value of 'result' at the end of the program run.

```
values = 0,24,13,57,45
result = 0
index = 0
for index in range (4):
    index = index + 1
    if result  < values[index]:
```

```
        result = values[index]

print (result)
```

1. Write down your expected result for the program run and then test it
   expected result is 57 : tested result = 57