# Worksheet 2 Lists

**Task 1**

1. ‘Random Clothing Task’ - Complete the following to show the operations implemented on a list of clothing items, initialised as an empty list clothes[]

|  |  |  |
| --- | --- | --- |
| **Operation** | **List** | **Returns** |
| isEmpty() |  |  |
| len() |  |  |
| append(“socks”) |  |  |
| append(“shoes”) |  |  |
| append(“hat”) |  |  |
| append(“socks”) |  |  |
| count(“socks”) |  |  |
| index(“shoes”) |  |  |
| len(clothes) |  |  |
| insert(2, “gloves”) |  |  |
| remove(“socks”) |  |  |
| pop() |  |  |
| remove(“shirt”) |  |  |
| append(“socks”) |  |  |
| append(“shorts”) |  |  |
| len(clothes) |  |  |
| index(“gloves”) |  |  |
| pop(1) |  |  |

**Task 2**

2. An unsorted list contains integers in the range 0-150. The following pseudocode has been written to count and print the number of integers that are in the range 80-100, and then to remove these numbers from the list and print the amended list.

list1 = [34,56,34,26,80,57,98,100,80,64,102,300,35,6,87,88]

count 🡨 0

FOR index 🡨 0 to (len(list1) – 1)

IF (list1[index] >=80) AND (list1[index] <=100) THEN

count 🡨 count + 1

ENDIF

ENDFOR

OUTPUT “Number of integers in range 80-100”, count

FOR index 🡨 0 to (len(list1) – 1)

IF (list1[index] >=80) AND (list1[index] <=100) THEN

item 🡨 list1[index]

list1.remove(item)

ENDIF

ENDFOR

print(list1)

When the program is coded and run, the first part works correctly but it crashes in the second FOR loop with the message

*“if (list1[index] >=80) & (list1[index] <=100):*

*IndexError: list index out of range*

Why does it crash?

Correct the pseudocode.

3. A program is to be written which merges the following two sorted lists **list1** and **list2** into a single sorted list called **mergeList** and prints out all three lists.

list1 = [2,5,15,36,47,56,59,78,156,244,268]

list2 = [18,39,42,43,66,69,100]

(a) Which list functions will be useful in this program?

(b) Write an algorithm to do this in ordinary English. You may find it useful to write the numbers from each list on pieces of paper and do the task manually, or use the bus cards from the previous lesson, split into two sorted lists of uneven length..

(c) Convert the algorithm into pseudocode.

(d) Code and test the program in a programming language of your choice.