

Unit 5: Recursion & Lists

Activity 2: Programming with Lists

In this lesson, you will learn how to use **lists** in programs, including how to store values in lists.

Objectives:

- Describe the basics of **lists** in programs
- Write programs that use and edit **lists**

Defining Lists

Lists are defined using the brackets, []. To create an empty list, use a statement such as **mylist = []** with nothing between the brackets.

The list *elements* (values between the brackets) are addressed using square brackets after the list name, such as **mylist[3]**, which refers to the fourth element in **mylist**. The first element in **mylist** is referred to as **mylist[0]**.

Teacher Tip: When programming in Python, indexing starts at zero. For the fifth element in the list **mylist** use the command **mylist[4]**.

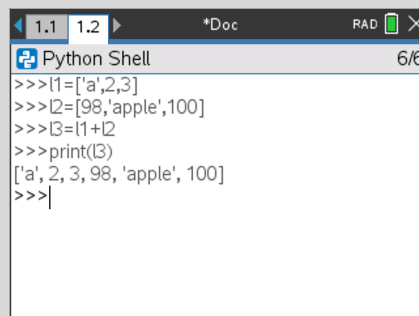
Editing Lists

Add elements to a list by storing a value in the position immediately after the last value of the list using the **.append()** command. For example, if a list contains three elements such as [12, 7, 2] then you can **append** an element to this list to store a value in list element number [3]. Entering **mylist.append(17)**, results in **mylist = [12, 7, 2, 17]**. The **.append()** command adds one element at a time to the end of a list.

Knowing how many elements are in a list is very helpful. **len(listname)** tells how many elements are in the list (the dimension of the list).

Lists can be created and edited in a program or in the Python shell.

Teacher Tip: With TI-Nspire™ CX Python, merge or combine two lists by using the **+** sign. The elements of the second list append to the end of the first list. It returns the merged list:



```
Python Shell 6/6
>>>l1=['a',2,3]
>>>l2=[98,'apple',100]
>>>l3=l1+l2
>>>print(l3)
['a', 2, 3, 98, 'apple', 100]
>>>|
```