Part 1:

Firstly, we make a string variable

AusState="TAS VIC NSW NT QLD WA SA ACT"

Then we split each state name into a list element.

State=AusState.split()

Now let’s check out state list value.

AusState="TAS VIC NSW NT QLD WA SA ACT"  
state=AusState.split()  
print(state)

>>>['TAS', 'VIC', 'NSW', 'NT', 'QLD', 'WA', 'SA', 'ACT']

Next, we use three different ways to split three elements in this list.

AusState="TAS VIC NSW NT QLD WA SA ACT"  
state=AusState.split()  
# remove,pop method and del function  
state.remove("TAS")  
del(state[0])  
state.pop(0)  
print(state)

>>> ['NT', 'QLD', 'WA', 'SA', 'ACT']

Sort the list:

AusState="TAS VIC NSW NT QLD WA SA ACT"  
state=AusState.split()  
state.sort()  
print(state)

>>> ['ACT', 'NSW', 'NT', 'QLD', 'SA', 'TAS', 'VIC', 'WA']

Add new words to the list:

AusState="TAS VIC NSW NT QLD WA SA ACT"  
state=AusState.split()  
# Three ways to add new words  
state.append("Christmas Island")  
state+=["Norfolk Island"]  
state.insert(9,"Cocos Islands")  
print(state)

>>>['TAS', 'VIC', 'NSW', 'NT', 'QLD', 'WA', 'SA', 'ACT', 'Christmas Island', 'Cocos Islands', 'Norfolk Island']

Turn the list of words back into a single string using **join:**

AusState="TAS VIC NSW NT QLD WA SA ACT"  
state=AusState.split()  
state=", ".join(state)  
print(state)

>>>TAS, VIC, NSW, NT, QLD, WA, SA, ACT

Part2:

Nest list and use \* operator to define a nest list:

num=[[1,1],2,3,4] # This is nest list  
print(num)  
  
num1=[[1]\*2,2,3,4] #The “\*” operator in list  
print(num1)

>>> [[1, 1], 2, 3, 4]

[[1, 1], 2, 3, 4]

List slice:

num2=[1,2,3,4,5,6,7]  
print(num2[0:3])  
print(num2[4:])  
print(num2[:4])  
print(num2[2:7:2])

>>> [1, 2, 3]

[5, 6, 7]

[1, 2, 3, 4]

[3, 5, 7]

The “+=” operator :

num2=[1,2,3,4,5,6,7]  
num2+=[8]  
print(num2)

>>>[1, 2, 3, 4, 5, 6, 7, 8]

A list filter:

def isPrimeNumber(num):  
 if num == 0 or num == 1:  
 return False  
 else:  
 for i in range(2,num):  
 if num%i == 0:  
 return False  
 return True  
  
num2=[1,2,3,4,5,6,7]  
for i in range(len(num2)):  
 if isPrimeNumber(num2[i]):  
 print(num2[i])

>>>2

3

5

7

In this example, I make a prime number filter function.

A list operation that is legal but does the "wrong" thing, and not what the programmer expects:

i="University of People"  
i.split()  
print(i)

>>>University of People

I intend to split string variable to list variable, the result is not what I expects.

Correct example:

i="University of People"  
k=i.split()  
print(k)

>>>['University', 'of', 'People']