Study

Read Session 20, chapter 20.0, 20.1, 20.2:

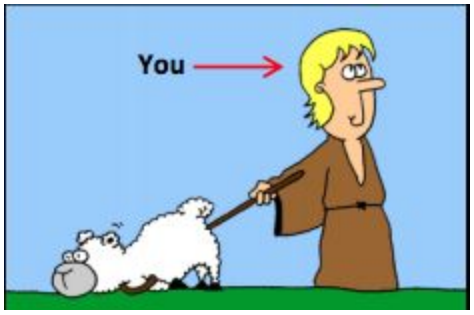
http://www.ict.ru.ac.za/Resources/cspw/thinkcspy3/thinkcspy3.pdf

And then do exercises: 20.8.1

Serious exercises

Exercise 1

You are a shepherd who owns a flock of sheep



Each of your sheep of your flock has different size:

2.1 Create a list to represent the sizes of your flock, using list, and print all of your flock size, expected screen output:

```
>>>
Hello, my name is Hiep and these are my ship sizes
[5, 7, 300, 90, 24, 50, 75]
```

2.2. At the end of each month, you have to choose one and only one sheep to shear and thus you want to choose the biggest one to maximize your profit. Write a program to search for the biggest sheep in your list:

```
>>>
Hello, my name is Hiep and these are my ship sizes
[5, 7, 300, 90, 24, 50, 75]

Now my biggest sheep has size 300 let's shear it
```

2.3. When your biggest sheer, its size will return to the default size, which is 8.
Print out your sheepw size after shearing the biggest one:
Hint: Google “Python List index function”

```
>>>
Hello, my name is Hiep and here is my flock
[5, 7, 300, 90, 24, 50, 75]

Now my biggest sheep has size 300 let's shear it

After shearing, here is my flock
[5, 7, 8, 90, 24, 50, 75]
```

2.4 In the following month, EVERY sheep in your flock grow, they have their size increased by 50. Print them out
Hint: Ask TA if you need help

```
>>>
Hello, my name is Hiep and here is my flock
[5, 7, 300, 90, 24, 50, 75]

Now my biggest sheep has size 300 let's shear it

After shearing, here is my flock
[5, 7, 8, 90, 24, 50, 75]

One month has passed, now here is my flock
[55, 57, 58, 140, 74, 100, 125]
```

2.5. Let do this for 4 months (or as long as you want):

```
>>>
Hello, my name is Hiep and here is my flock
[5, 7, 300, 90, 24, 50, 75]
```

```
MONTH 1 :
One month has passed, now here is my flock
[55, 57, 350, 140, 74, 100, 125]
Now my biggest sheep has size 350 let's shear it
After shearing, here is my flock
[55, 57, 8, 140, 74, 100, 125]

MONTH 2 :
One month has passed, now here is my flock
[105, 107, 58, 190, 124, 150, 175]
Now my biggest sheep has size 190 let's shear it
After shearing, here is my flock
[105, 107, 58, 8, 124, 150, 175]

MONTH 3 :
One month has passed, now here is my flock
[155, 157, 108, 58, 174, 200, 225]
Now my biggest sheep has size 225 let's shear it
After shearing, here is my flock
[155, 157, 108, 58, 174, 200, 8]
```

2.6 After day by day shearing sheep, you became bored. You want to sell your flock to travel the world. In order to have fair trade, you must now calculate the total size of your sheep and then the expected money you can get from your flock before going to the market. Write a program to calculate the total size of your sheep as well as the money you would have. Expected screen output:

```
>>>
Hello, my name is Hiep and here is my flock
[5, 7, 300, 90, 24, 50, 75]

Now my biggest sheep has size 300 let's shear it
After shearing, here is my flock
[5, 7, 8, 90, 24, 50, 75]

MONTH 1 :
One month has passed, now here is my flock
[55, 57, 58, 140, 74, 100, 125]
Now my biggest sheep has size 140 let's shear it
After shearing, here is my flock
[55, 57, 58, 8, 74, 100, 125]

MONTH 2 :
One month has passed, now here is my flock
[105, 107, 108, 58, 124, 150, 175]
Now my biggest sheep has size 175 let's shear it
After shearing, here is my flock
[105, 107, 108, 58, 124, 150, 8]

MONTH 3 :
One month has passed, now here is my flock
[155, 157, 158, 108, 174, 200, 58]

My flock has size in total: 1010
I would get 1010 * 2$ = 2020$
```

Exercise 2

Given the following dictionary:

```
inventory = {
    'gold' : 500,
    'pouch' : ['flint', 'twine', 'gemstone'],
    'backpack' : ['xylophone', 'dagger', 'bedroll', 'bread loaf']
}
```

Try to do the followings:

- Add a `key` to inventory called `'pocket'`.
- Set the value of `'pocket'` to be a **list** consisting of the strings `'seashell', 'strange berry', and 'lint'`.
- Then `.remove('dagger')` from the list of items stored under the **'backpack'** key.
- Add 50 to the number stored under the **'gold'** key.

Exercise 3:

Create a new dictionary called `prices` using `{}` format like the example above.

Put these values in your `prices` dictionary:

- `"banana": 4,`
- `"apple": 2,`
- `"orange": 1.5,`
- `"pear": 3`

Create another dictionary called `stock` using {}:

Put these values in your `stock` dictionary

- `"banana": 6,`
- `"apple": 0,`
- `"orange": 32,`
- `"pear": 15`

- Loop through each key in `prices`. For each key, print out the key along with its price and stock information. Print the answer in the following format:

- `apple`
- `price: 2`
- `stock: 0`

- `pear`
- `price: 3`
- `stock: 15`

- Let's determine how much money you would make if you sold all of your food.
    - Create a variable called `total` and set it to zero.
    - Loop through the prices dictionaries. For each key in `prices`, multiply the number in prices by the number in `stock`. Print that value into the terminal and then add it to total.
    - Finally, outside your loop, print total.

Exercise 3:

Implement quiz program:

```
Answer the following algebra question:
If x = 8, then what is the value of  4(x + 3) ?
1. 35
2. 36
3. 40
4. 44
Your choice: 3
:(
huynqs-MacBook-Pro-259:session4 admin$ python quiz.py
Answer the following algebra question:
If x = 8, then what is the value of  4(x + 3) ?
1. 35
2. 36
3. 40
4. 44
Your choice: 4
Bingo
```

Exercise 4:

Implement quiz program with more than 1 quiz, and correct answer count:

```
huynqs-MacBook-Pro-259:session4 admin$ python quiz.py
Answer the following algebra question:
If x = 8, then what is the value of  4(x + 3) ?
1. 35
2. 36
3. 40
4. 44
Your choice: 1
:(
Estimate this answer (exact calculation not needed):
Jack scored these marks in 5 math tests: 49, 81, 72, 66 and 52. What is the mea
n?
1. About 55
2. About 65
3. About 75
4. About 85
Your choice: 2
Bingo
You correctly answer 1 out of 2 questions
```