



Study

Read Chapter 5, section 5.1, 5.3, 5.5, 5.6, 5.7 and 5.10 of “How to Think Like a Computer Scientist: Learning with Python 3”:

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

And then answer the following questions:

1. What is Boolean? Write down 3 different expression that results a Boolean type (i.e. 5 == 6)
2. What is a flow chart? Draw flow chart for the following code snippet: (you can draw on a paper, take a picture of it)

```
if name == "Huy be":  
    print("Hand some")  
elif name == "Huy big":  
    even_more_handsome = True  
else:  
    webbrowser.open("https://www.youtube.com/watch?v=04854XqcfCY")
```

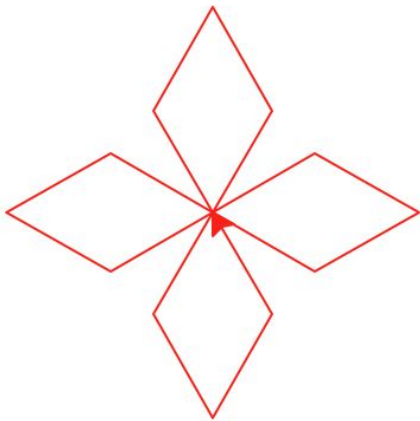
3. What is nested conditionals? Write a piece of code that uses nested conditionals



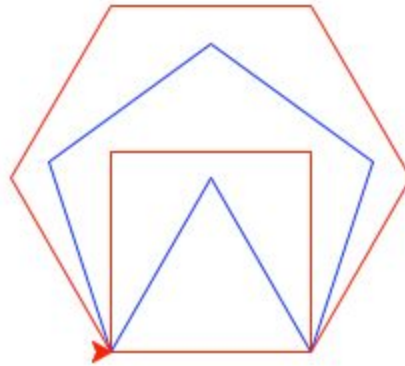
Turtle exercises

Using turtle to draw the following shapes:

1.



2.





Serious exercises

1. Write a program that asks user their height (cm) and weight (kg), and then calculate their BMI (Body Mass Index):

$$\text{BMI} = \text{mass (kg)} / (\text{height(m)} \times \text{height(m)})$$

Note: you must do the conversion from cm to m before calculation

Then based on the BMI, tell them that they are:

- Severely underweight if BMI < 16
- Underweight if BMI is between 16 and 18.5
- Normal if BMI is between 18.5 and 25
- Overweight if BMI is between 25 and 30
- Obese if BMI is more than 30

2. Write a program that

a. Asks users enter a number and then calculates factorial of n: $(1 * 2 * 3 * \dots * n)$

3. Study how to print without moving to a new line

Each time we call `print(...)` to print out something, python will automatically move to a new line, for example, the following snippet:

```
print("Hello")
print(",my name")
print("is B-max")
```

will result:

```
Hello
,my name
is B-max
```

Your task: Try to search and learn how to print without moving to new line,:

```
print("Hello", ...)
print(",my name", ...)
print("is B-max", ...)
```

"..." is the piece of code you would add

so that the result would be

Hello, my name is B-max

4. Print out the following patterns, remember that the number of columns and rows can be changed later, so try to write programs that can scale

- a. 20 x 1 stars:

```
* * * * * * * * * * * * * * * * * *
```

- b. n stars (n is entered by users)

Enter a number: 17

```
* * * * * * * * * * * * * * * *
```

- c. 9 stars and xs in total

```
x * x * x * x * x
```

- d. n stars and xs in total (n is entered by users)

Enter a number: 13

```
x * x * x * x * x * x * x
```

- e. You can use **print()**, (yes, print with **nothing inside the parentheses** **()**) to move to a new line, try it

- f. 7 x 3 stars

```
* * * * * * *
* * * * * * *
* * * * * * *
```

- g. n x m stars (n, m are entered by users)

Enter n: 5

Enter m: 3

```
* * * * *
* * * * *
* * * * *
```




Tools preparation

Watch the homework submission tutorial