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)

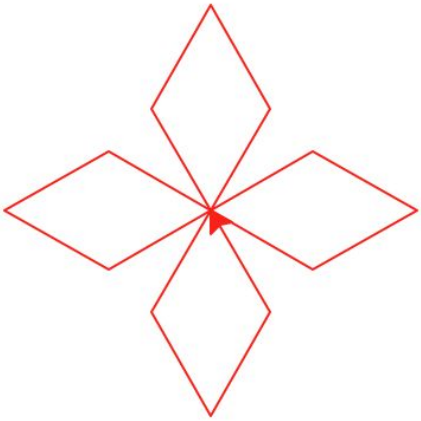
```
if name == "Huy be":
    print("Hand some")
elif name == "Huy big":
    even_more_handsome = True
else:
    webbrowser.open("https://www.youtube.com/watch?v=04854XqcfCY")
```

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

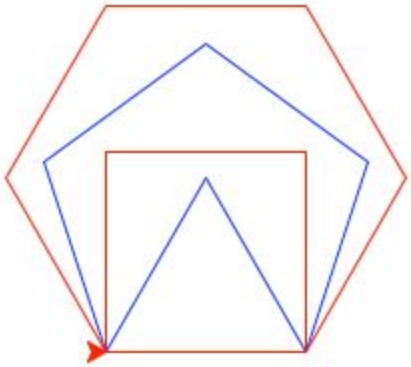
Turtle exercises

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):

BMI = mass (kg) / (height(m) x 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 *... *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