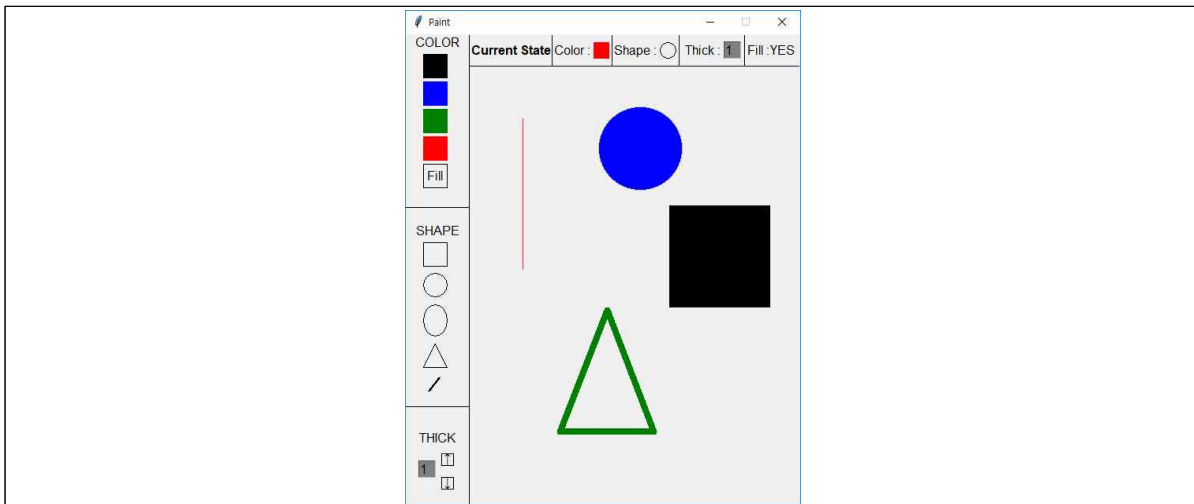# Computational Thinking – Assignment #3
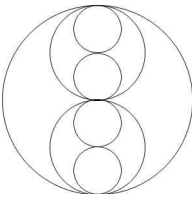
Due date: Until 23:59:59, 15 December 2017

1. *Paint* do like mspaint. *Paint* has 4 basic operation. First operation is choose color. Second operation is draw figure like rectangle, circle, ellipse and triangle. Third operation is choose Thickness of figure. and Fourth operation is Fill the figure. The top of the window, there is current state line. Current state line show selected color, shape, thick, fill. In this assignment, your work is to implement a *Paint* by using 'graphics.py', 'math.py'. The *Paint* takes only mouse click from a user and draw figure.

□ **Implementation example**

2. Fractal is a geometric form similar to an entire small piece. In this assignment, your work is to implement a program that make fractal shape by entering shape, unit length, and depth by using 'graphics.py', 'math.py'. There is three shape type in this program, circle, triangle and rectangle. Unit length means as length of one side or radius of smallest piece. Depth means the stage of the fractal. Program make fractal shape when mouse click event happen and then the mouse position will be the center of fractal shape.
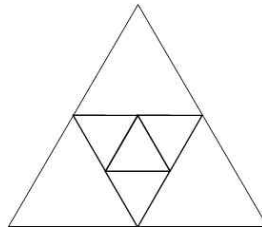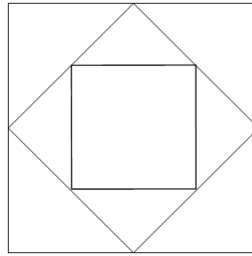
□ **Implementation example**

[Input example]	[Display example]
Select the type shape. 1. Circle 2. Triangle 3. Ractangle >> 1	

```
Input the number of depth.
 >> 3

Input the length of Unit.
 >> 60
```


3. In this assignment, your work is to implement program that counting the number of words given in a single article. After counting the word, program find which word is most frequent in given article. Note that this program is not case sensitive.

☐ Implementation example

'Article.txt'
Now that you have all the te chnical details, it's time to st art having fun with Python. The ultimate goal is to make the computer do our biddin g. To this end, we will write programs that control the co mputational processes inside the machine. You have alrea dy seen that there is no mag ic in this process, but in so me ways programming feels l ike magic.

'Word.txt'
that
you
have
magic
in

"that" shows 3 times
"you" shows 2 times
"have" shows 2 times
"magic" shows 2 times
"in" shows 2 times

The most frequent word is "the".

□ **Submission**

✓ Due date
- Until 23:59:59, 15 December 2017

✓ Submission
- Zip source code (*.py) and report (*.pdf) to a file whose name is your student number (ex: 20170000.zip).

✓ The report should include the following contents.
- Introduction   : 프로젝트 내용에 대한 설명
- Flowchart   : 설계한 프로젝트의 순서도를 그리고 설명
- Algorithm   : 프로젝트에서 사용한 알고리즘의 동작을 설명
- Result Screen   : 결과화면을 캡처하고 동작을 설명
- Consideration   : 고찰 작성 (프로젝트에 대한 고찰, 과제를 하는데 있어 어려웠던 점 등)

- **The report may be written in Korean.**
- **Source codes are not allowed to appear in the report.**
- **You don't need to submit the hard copy.**