National University of Singapore
School of Computing
CS1010S: Programming Methodology
Semester I, 2022/2023

# Side Quest 1.1
# Runic Paintings

Release date: 17th August 2022
**Due: 24th August 2022, 23:59**

## Required Files

- sidequest01.1-template.py
- runes.py
- graphics.py
- PyGif.py

## Background

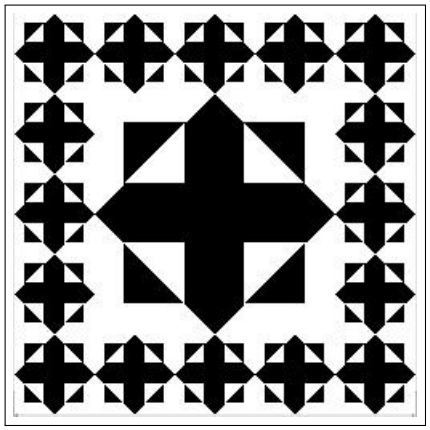
As you wander along the endless tunnels of the PIM cave, you notice several paintings along the wall. Upon questioning a trainer, you learn that these paintings are of Egyptian origin.

The trainer suggests that it may be possible for you to reproduce the patterns on these paintings using runes.

This side quest consists of only **one** task.

## Task: Egyptian (10 marks)

Observing a nearest Egyptian painting, you notice that it exhibits 5 repeating patterns on every edge with the centre hollow filled with the same pattern:

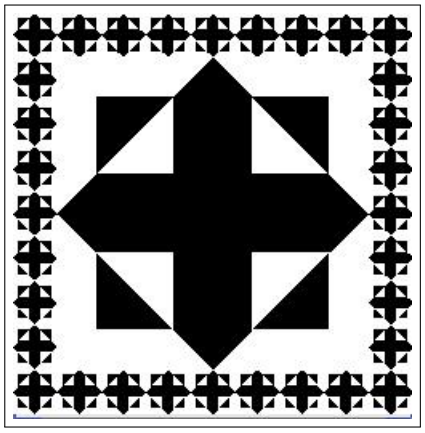


However, there are other Egyptian paintings that sport different numbers of repeating patterns. Write a function `egyptian` that takes $n$ as an argument and creates runic

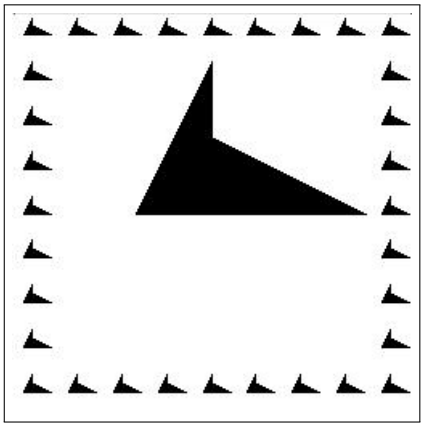
patterns shown on these Egyptian paintings with different numbers of repetitions at the edges, where $n \geq 3$.

In particular, the above picture can be created with:
`show(egyptian(make_cross(rcross_bb), 5))`

Furthermore, note that the orientation of all images should remain the same as the original. See Figure 1 below for more examples.



(a) show(egyptian(make_cross(rcross_bb),9))



(b) show(egyptian(nova_bb, 9))

Figure 1: *More examples. (a) is the same as previous example but with $n = 9$, (b) demonstrates that the original pattern (e.g.* `nova_bb`*) should not be rotated.*