

## EMÜ112 – Homework #4

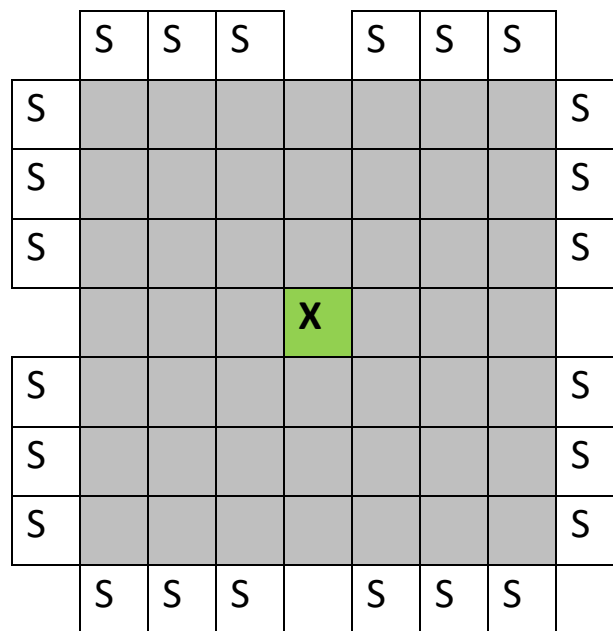
Due Date: May 24, Sunday, 23:59.

Group members, Min: 1 – Max: 6

This homework requires you to use the Object-Oriented approach with Python.

Please be careful to use proper Classes / proper methods / proper inheritance.

This is a Game of Maze. You, as the hero in this game, you will win this game if you reach the center of the maze (X). The maze is a 7x7 maze as shown in the graph below:



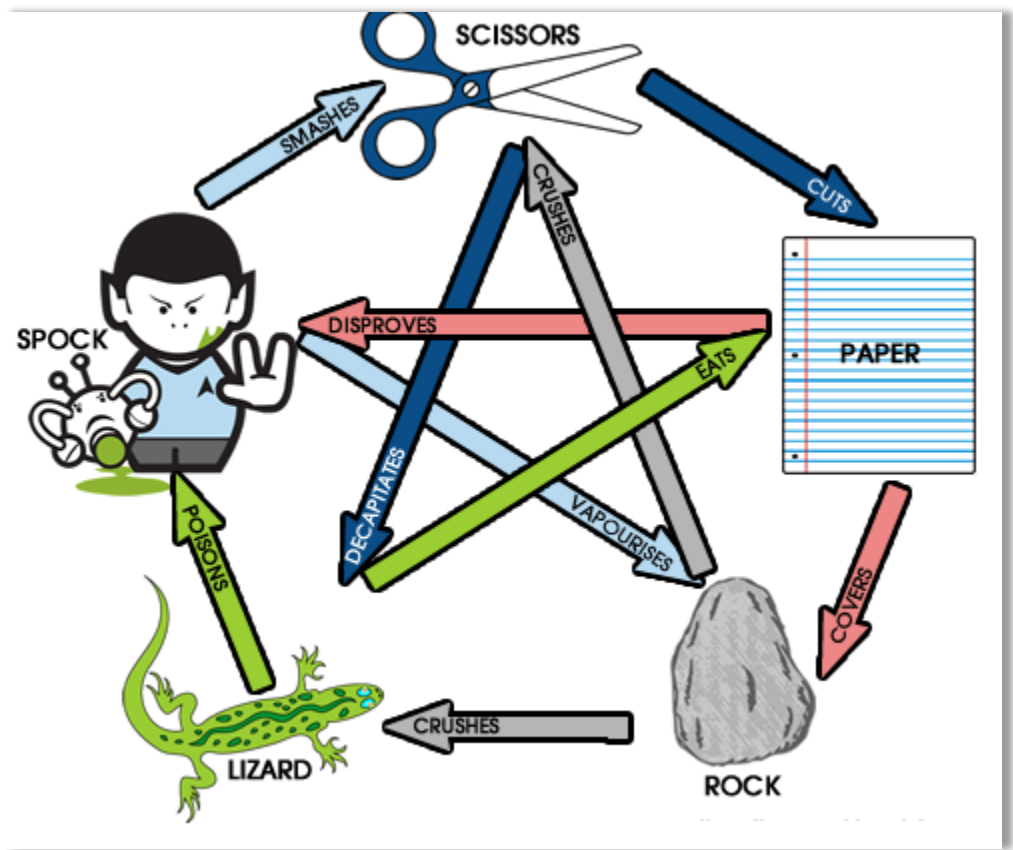
Your hero randomly starts the game in one of the white boxes (with letter S) outside the maze (grey boxes).

- When the game starts, you are asked to give a name to your hero. The hero has a health of 200.
- The hero can move Right, Left, Up and Down. The player selects which way the hero will move by typing "U", "D", "L", "R"
- At any point, the hero knows at which cell s/he is (assume that the cells have an address like, for example the cell in the middle can be 44: 4<sup>th</sup> row 4<sup>th</sup> column)
- The hero cannot move outside of the maze.
- At each cell of the maze there is a Physicist. The Physicists like to play a game with you. The game that the Physicists like to play is the famous **Rock-Paper-Scissors-Lizard-Spock** game (developed by Sam Kass)

and Karen Bryla. The rules of the game are given below and you can find more information about the game in its creator's web page: <http://www.samkass.com/theories/RPSSL.html>

Or you can watch a very informative clip of the game from the Big Bang Theory:

<https://www.youtube.com/watch?v=Kov2G0GouBw> ☺



— There are 6 different physicists (and numerous of their clones):

Physicist	Probabilities to Select That Option in the Game					Health
	Spock	Lizard	Rock	Paper	Scissors	
Feynman	20%	20%	20%	20%	20%	100
Curie	35%	35%	10%	10%	10%	90
Schrödinger	10%	35%	35%	10%	10%	80
Dirac	10%	10%	35%	35%	10%	70
Newton	10%	10%	10%	35%	35%	60
Pauli	35%	10%	10%	10%	35%	50

— Which Physicist is on that cell is totally random, but you do know that prior stepping to that cell because at every round the maze is displayed and at each cell the first letter of the Physicist appears.

- When you enter that cell each Physicist greets you with a quote they have said or a theorem that they are known of. Then you start playing the game. Whoever loses the game, loses 50 health points. If the Physicist's health drops to 0 or below zero, the Physicist vaporizes. If the Physicist's health drops to a value below 0 (e.g. -30) this value is added as health to your hero's health (e.g. Hero's health +30)
- If your hero's health drops to zero, your hero dies and you lose the game.
- If your hero reaches the center (X), you win!

Develop the game by using Object Oriented design and inheritance.

You are required to submit **only the Python source code** of your program, nothing more (I will test your program by executing it with several different *triangles.txt* files).

The grading of your homework will be as follows:

- Working program: 25 points
- Use of appropriate comments: 5 points

**If you use any method/function/structure that we have not covered in our course you will receive 0 (zero).**

If you have any questions about the homework you are required to ask them through our Moodle (*evdekal*) forum.

Stay Safe, Stay Healthy and Good Luck 😊