# CSE 512 LABORATORY – Week 2, Winter 2012

**Prof. Kerstin Voigt**

In this lab, we will be writing our first Python program.

Your Python program should create a 2-dimensional 10x10 grid ("grid world") with some contiguous cells marked as "wall". One cell is to hold a robot. In order to keep things simple, you can mark empty cells with a value `0`, wall cells with a symbol `X`, and the cell with robot could contain symbol `R`. Remember, that Python is not a typed language: a data structure can contain elements of arbitrarily mixed types.

Your program should be able to visualize the gridworld by printing out the 10x10 grid.

Add functions to your program that allow the robot to make the following 4 types of moves: move one cell up, move one cell down, move one cell to the left, and move one cell to the right. The robot must not move into wall space or wander outside the grid.

Aside from moving, the robot has the ability to sense the contents of its 8 surrounding cells. Provide funtions for these sensors.

```
          north
northwest |   |  northeast
       ---+---+---
   west   | R |    east
       ---+---+---
southwest |   |   southeast
          south
```

Finally, write a `robot_go` function that will have the robot make a specified number of random moves in the gridworld.

Present your running program to your instructor, and make sure that you sign the signup-sheet for this week's lab.

Remember: A comprehensive Python Tutorial can be found at `http://python.org`