

## 5COM2003: Artificial Intelligence

### Worksheet 2 Tasks

We are building on last weeks design but introducing OOP. You are more than welcome to adapt your previous solution.

Alternatively you may use the example solutions to built upon. If you do, please declare it.

## Grid World II

1. (4 marks) Reproduce the example from lecture with one agent and one leaf. (Also given below for convenience). Compared to last week we add a leaf and change the agent design. Your design should incorporate the agent in the form of a class. The agent object knows its position and can expose this information via a function.

Additionally:

- Think about how you represent the leaf. State your design decision.
- We have an agent class, how does the rest of the system know about the agent?
- Who holds the functionality to move the agent? State your intended design. We will implement this in the next task. Think back to lecture 3.

## Movement in this Grid World II

2. (4 marks) We have a world with an agent in the middle of it and a leaf to its right. Rewrite your movement function to both accommodate the change to an agent object as well as the presence of other objects (leaf) in the world.

For this movement function we assume the leaf is passable and just remains at its position without change.

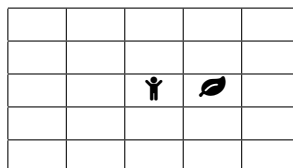
Expand it to allow movement in all directions. The agent can move north, south, east, west, just as before and the walls/borders are bouncy same as last time.

**Tip:** You can either call the function with arguments or create four different functions to allow movement in all four directions.

3. (2 marks) The same as above, but this time the leaf is an obstacle. If we move against the leaf it gets pushed one field. If the leaf gets pushed over the edge it is gone.

The agent is still bounces on the border.

### Example World:



Have a wonderful day :)