# **Value Iteration in GridWorld**

## **Problem Statement:**

Company Robo.ai is building a robot that can traverse unassisted, through the environment, and reach the food counter. Instead of creating their own environment, they have planned to use a prebuilt 4x4 grid world. You are a researcher who has to identify the policy and value iteration methods to tackle this task. You have decided to go with the value iteration method.

## **Environment**

This environment possesses two terminal states present at:

* Top left corner
* Bottom right corner

The 4x4 grid looks as follows:

T o o o

o x o o

o o o o

o o o T

Where x is the position of the agent and T are the two terminal states.

The allowed actions are as follows: \* UP = 0 \* RIGHT = 1 \* DOWN = 2 \* LEFT = 3

Note: The agent will move back to current states if it performs an action that leads it to go off the edge.

Rewards: The agent is granted a reward of -1 at each step until it reaches a terminal state.

### **Dependencies**

* Discrete: <https://drive.google.com/file/d/1WTjJ0TvCCjjxTT4HuK4DimSfX4Lcpzwr/view?usp=sharing>
* Gridworld: <https://drive.google.com/file/d/1hm1gqNPuS7ozAK31A-hhhR839SMxF-gM/view?usp=sharing>