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ENGINEERING SCHOOL
DE VINCI PARIS

Lab session 1: Intelligent agent and basic search

Artificial Intelligence Algorithms

MESIIN476023

Outlines

- **Part I: Intelligent Agents**
  - Overview
  - Agent / Environment
  - Simple Agents examples
- **Part II: Basic search (next lab session)**
  - Overview
  - Simple Problem Solving Agent
  - Search Algorithms : Breadth-First Search / Depth-First Search / Uniform Cost Search / Iterative Deepening Search
  - Comparison of search algorithms

Materials & Tools Required:

For the lab sessions, you will need

1. Computer with Python installed.
2. IDE (*e.g.,* PyCharm, Jupyter Notebook).
3. Alternatively, opt for cloud-based platforms, such as anaconda.cloud or google colab.

Objective

This lab session serves as supporting material for the topics covered by the two first lectures of the AI algoritms course. It introduces the basics of intelligent agent design and implementation and fundamental search algorithms for navigation and route-finding.

Assignement

The following part need to be completed and uploaded to the course platform (in the dedicated space) ***before the next lab session***.

- **Part 1.5. Exercise - Vacuum Cleaner Agent**: include both the notebook and the agent.py files.

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Part I: Intelligent agents

Begin this segment of the lab session, dedicated to intelligent agents, by retrieving the lab zip file: *Lab1.AI_algorithms.zip*. The *Lab1.1_Intelligent-Agents.ipynb* notebook will act as your main guide for this part— navigate through it for thorough instructions. This part uses implementations from *agents.py* module.
To ensure a solid grasp of the concepts, take the time to immerse yourself in the in-depth example provided within the notebook, and demonstrate your comprehension by answering the questions and performing the requested implementations.

Contents:

Part II: Basic search (next lab session)

This part serves as supporting material for Lecture 2 - Basic Search. Begin by downloading the zip file: *Lab1.AI_algorithms.zip*. The *Lab1.2_Basic-Search.ipynb* notebook will be your main guide for this segment — navigate through it for thorough instructions. This part uses implementations from *search.py* module.

Contents:

Note: The sections highlighted in red indicate elements that are required for your lab session submission.