AI Maze Pathfinding Project - Team 8

Description:

This project simulates an intelligent robot moving through a maze. We used Python to implement 5 different search algorithms to find the path from start to goal while avoiding walls.

Algorithms Used:

1. Breadth-First Search (BFS): Finds the shortest path.
2. Depth-First Search (DFS): Good for memory but doesn't guarantee the shortest path.
3. Uniform-Cost Search (UCS): Finds the best path based on cost.
4. Iterative Deepening Search (IDS): Combines features of BFS and DFS.
5. A* Search (A-Star): The smartest and fastest algorithm using heuristics.

Prerequisites:

You only need Python installed on your computer.
We used standard libraries: tkinter, time, random, heapq, collections.

How to Run:

1. Make sure the code file is named "project.py".
2. Open your terminal or command prompt in the project folder.
3. Type this command:

```
python project.py
```

How to Use:

1. The window will open showing the grid.
2. Click "Generate New Maze" to make a random maze.
3. Choose an algorithm from the buttons on the right.
4. Watch the robot find the path and see the results on the screen.

Course: Artificial Intelligence (CS,IS Level 3)