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Artificial Intelligence and Knowledge Engineering

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Problem Formulation and Design

- Problem's environment properties and performance measure.
  - Fully observable: YES.
  - Deterministic: YES.
  - Static: YES.
  - Discrete: YES.
  - Single system: YES.

- Problem formulation:
  - State: Position in the maze.
  - Initial state: Loaded from the xml file.
  - Goal test: Current position == final position.
  - Actions: Move left, move right, move up, move down.
  - Transition model: Change current position (make a movement).
  - Path cost: Number of movements (less is better).

- Relaxed problem heuristic:
  - Manhattan distance between start position and the goal position is the best heuristic approach.

- Search method choice:
  - A* search method is the most adequate to solve this problem. It's complete and optimal, and preferable to non informed search algorithms because it uses heuristics which are helpful and make the search much more perfomant. It's also better than greedy best-first algorithm because it's not optimal nor complete.