**Uniform-cost Search:**

* **Idea:** UCS is a search algorithm that calculates the cost of the path from the initial state to other states. It utilizes the best-first search strategy to return the shortest possible path to a goal cost-wise.
* **Algorithm:** The algorithm initializes two arrays: One is a frontier queue, or a Priority Queue, containing possible states to retrieve and their priorities; the other is a dict-like set containing all reached states to prevent loops from happening. In each iteration, the frontier queue is sorted based on the value of each state’s priority, the lower it is, the sooner it gets to be retrieved. Because UCS is not an early-stopping strategy, after expanding a state, that state is applied a goal test and return if it is indeed a goal. If it is not a goal, each of its successor may be appended to the queue with its corresponding path cost if that successor has not appeared in ‘reached’, or update that successor if the new path cost is lower.
* **Pseudo-code:**

**A close-up of red text

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**A white rectangular sign with black text

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