# Project: Ant ’s Nest Building

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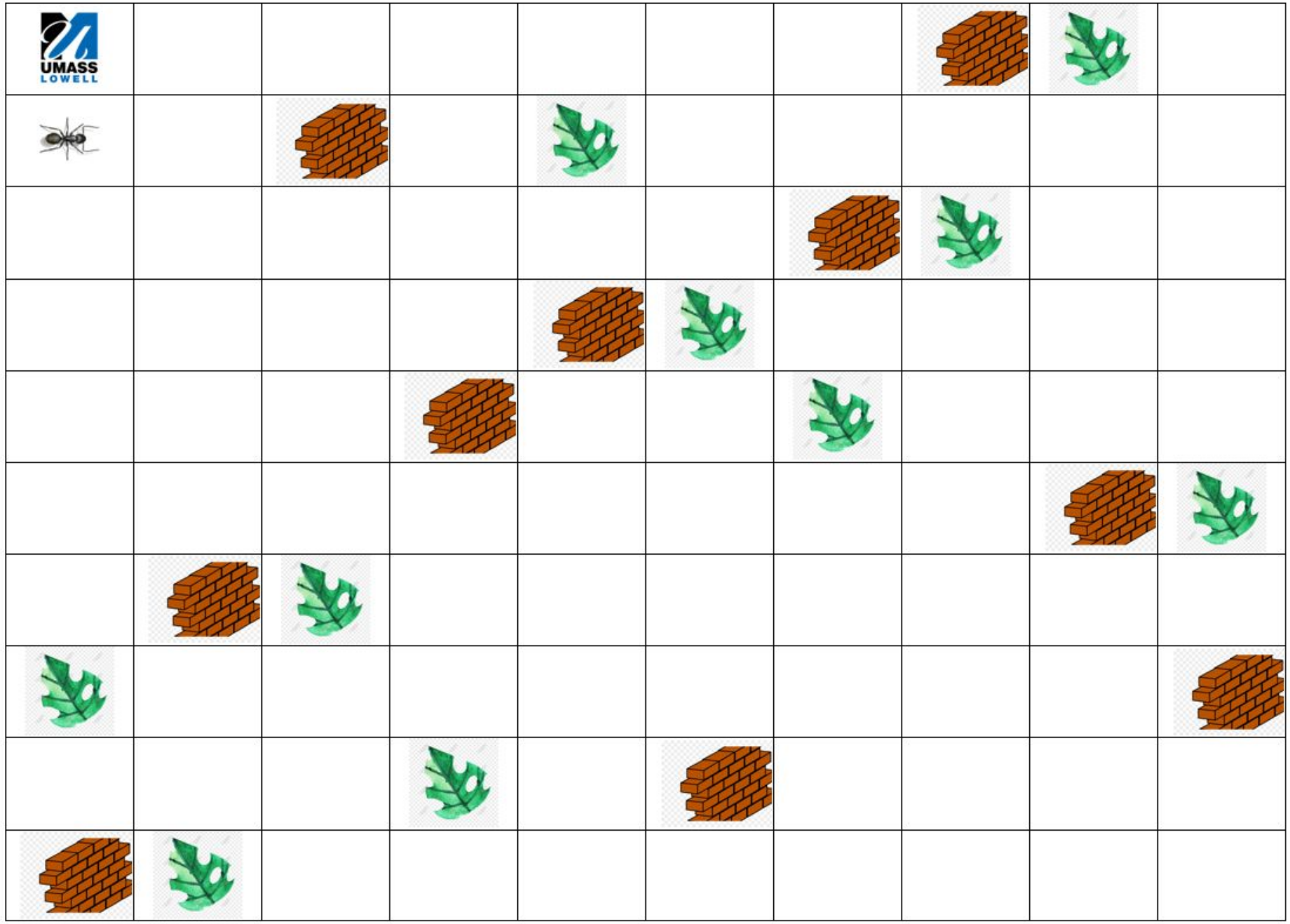
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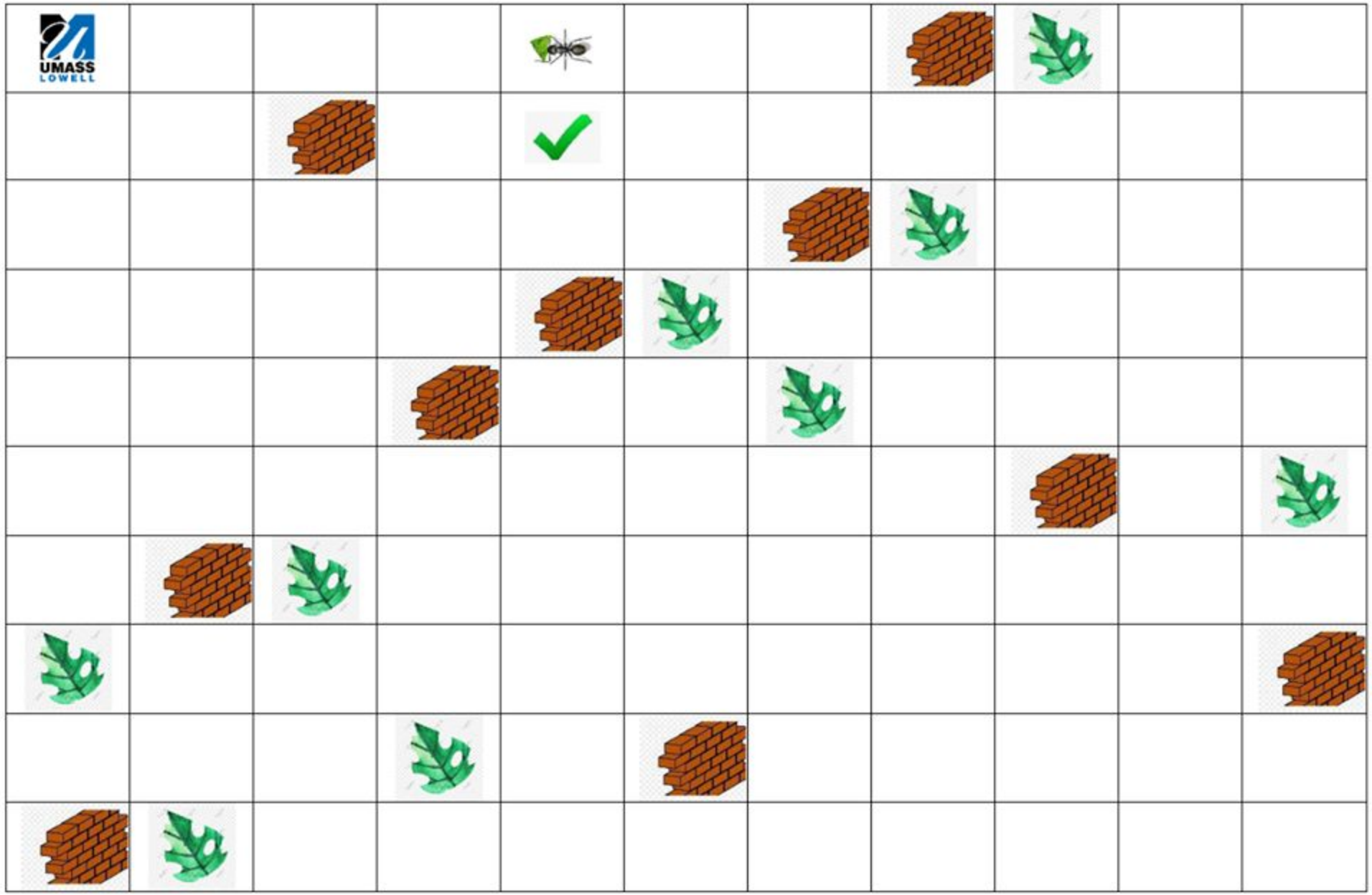
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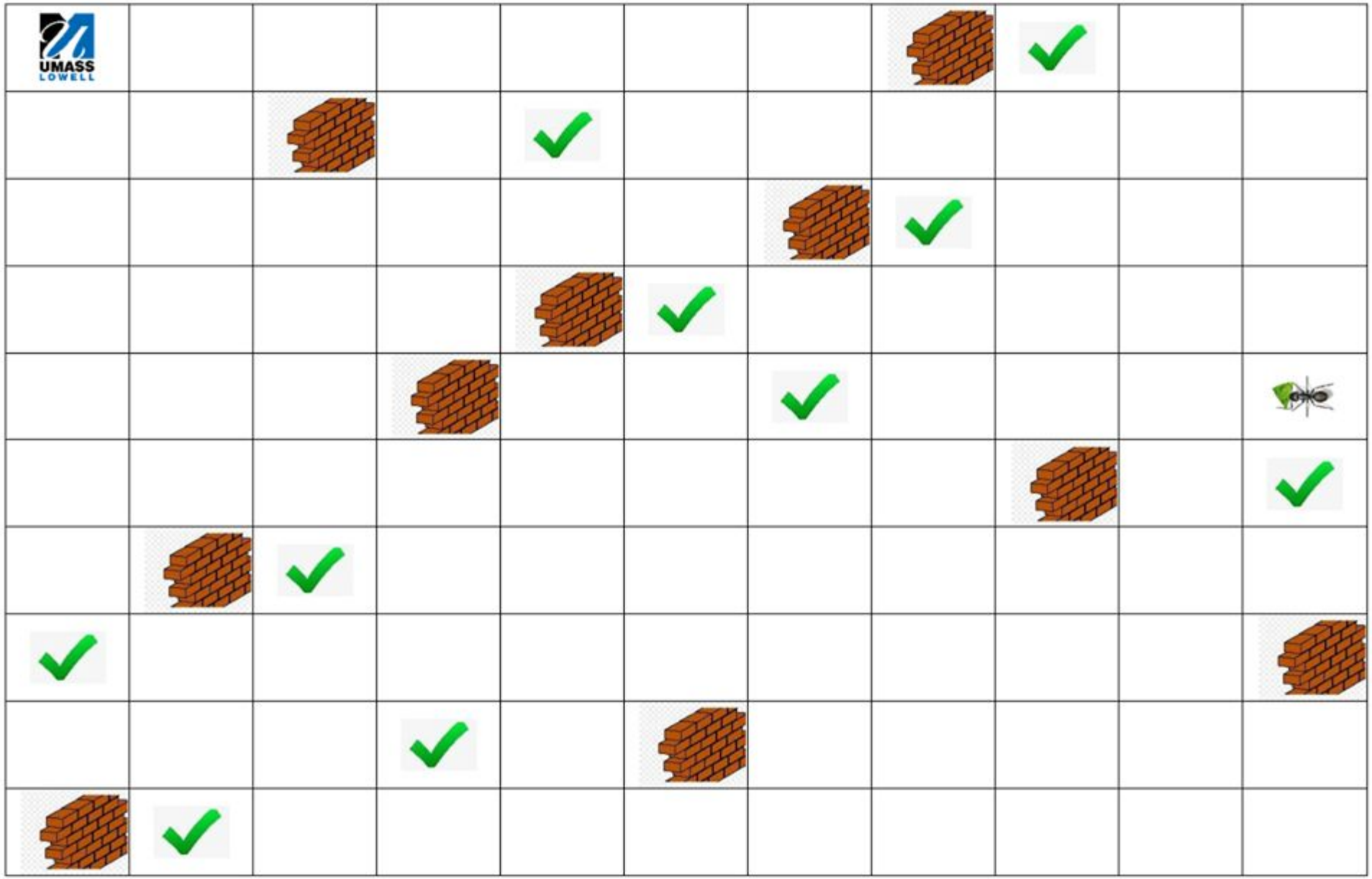
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# CONCEPTION

- Developed using A* algorithm, C# and Visual Studio 2019
- Purpose: to optimize the path of the ant to be fewest of walks on round trips.
- Objects: 10 leaves for building up the nest. The leaves can be blocked by 10 bricks.
- Tricks: The ant must wisely reach out the leaves without hitting the bricks.
- Once the ant has a leaf in hands, it will head back to the nest, then continues returning to the field for another leave.
- The loop of collecting the leaves is finished once all of 10 leaves are gathered. Then the game is finished.

# ALGORITHM

Suppose n is an attainable state (there is a path from the initial state 0 to n). We define the evaluation function: f (n) = g (n) + h (n)

+ g (n) is the cost from the original node n0 to the current node n

+ h (n) estimated cost from current node n to destination

+ f (n) the estimated total cost of the path through the current node n to the destination

A heuristic estimate of h (n) is considered to be acceptable if for every

node n:

$0 < h(n) < h^*(n)$

Where $h^*(n)$ is the actual cost to go from node n to destination.

# THANK YOU FOR LISTENING