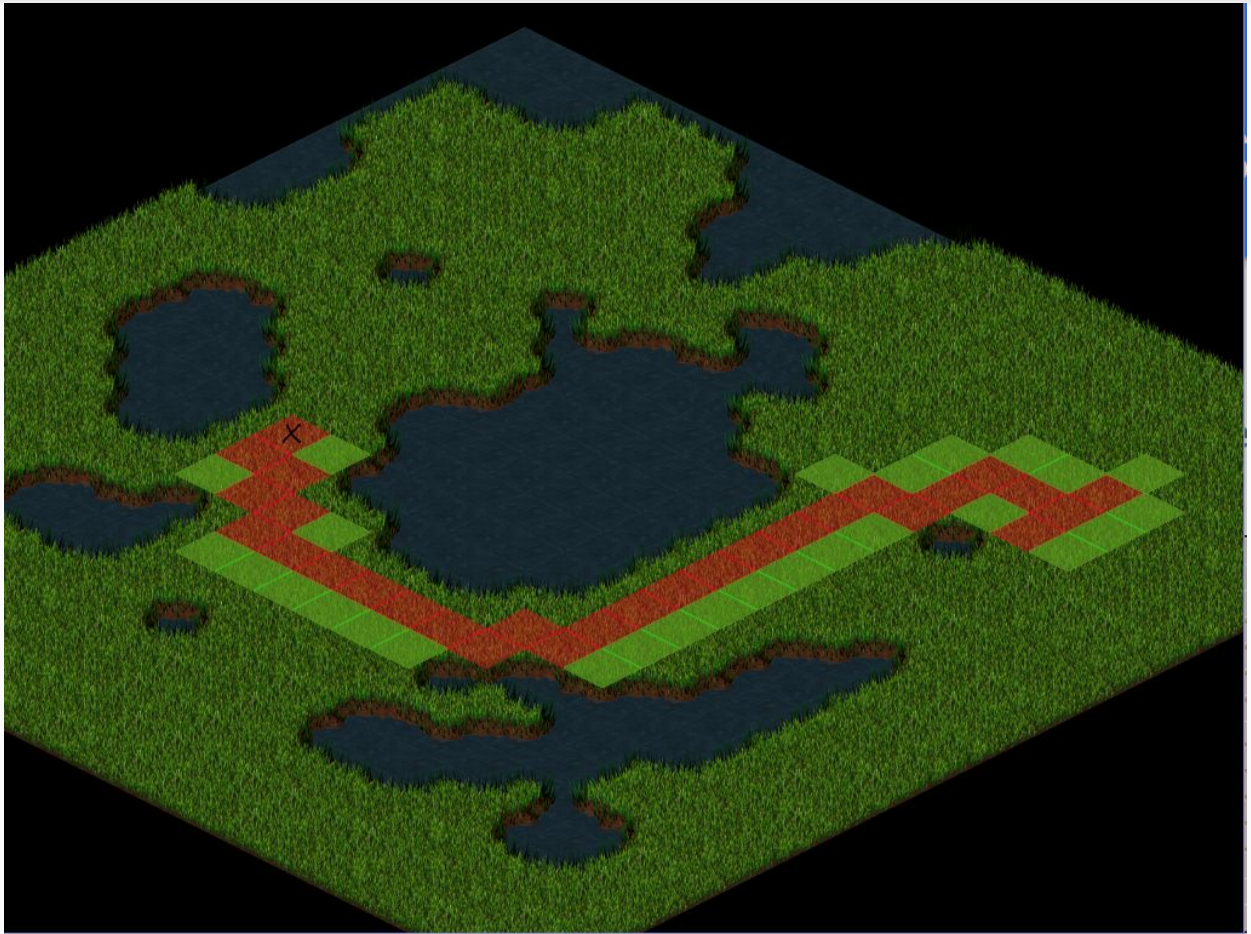
Game Development

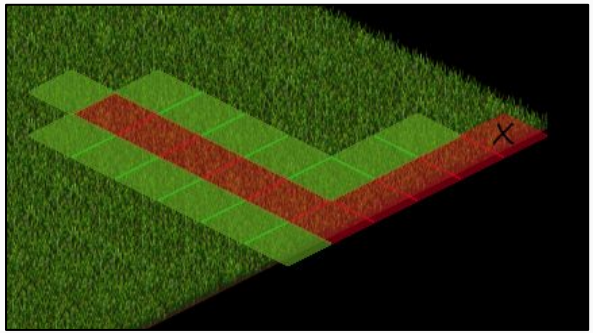
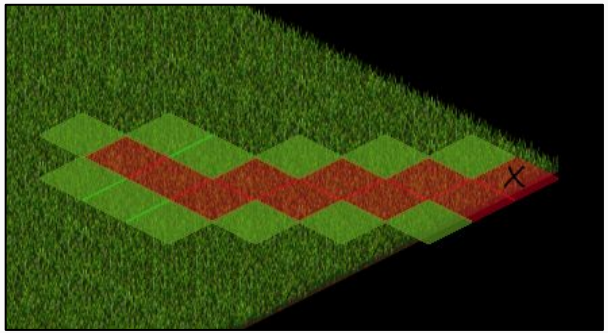
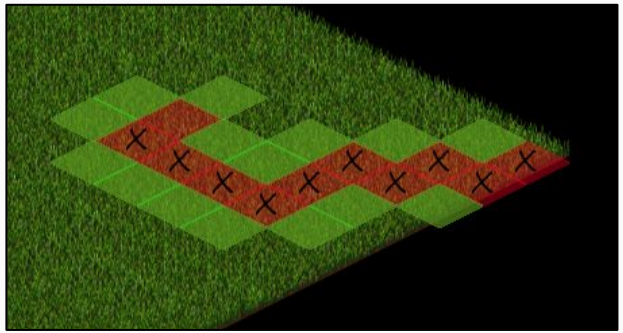
Dijkstra to A*

Solution A*



A*

- A* is like Dijkstra, but it will take in account distance to goal
- It is considered a Greedy Algorithm (focus only on the local problem)
- Just by adding a distance heuristic to priority we are done:
    - Manhattan distance / Squared distance / Distance

TODO (before)

- Make sure you finish Dijkstra and that you understand it 100%
- Concept of “Cost so far” must be implemented since A* can revisit nodes
    - And unlike Dijkstra in A* it is quite a common case!

TODO 1

- We want to stop propagation as soon as we find the goal tile
- When clicked remember in a property the goal position in tile coordinates
- Stop propagation as soon as goal is found
- You can test with Dijkstra

TODO 2

- Create a PropagateAStar() as a copy from Dijkstra
- Now to add a neighbor in the frontier:
  - Add the distance to the final cost
- The distance heuristic should be one of three:
  - Manhattan distance
  - Square root distance
  - Distance

Homework

- Adapt A* to take in account diagonals
  - The movement cost must be higher!