Spike: Navigation with Graph
Title: Navigation with Graph

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Goals / deliverables:

Create a navigation graph simulation that demonstrates the following

- A game world that is divided into navigation tiles, and that supports a navigation graph structure.
- A path-planning system that can create paths for agents, based on the current dynamic environment, using cost- based heuristic algorithms.
- Demonstrate multiple independent moving agent characters (at least four), of different types (at least two), that are able to each follow their own independent paths.

Technologies, Tools, and Resources used:

List of information needed by someone trying to reproduce this work

- Python 3+
- Built in Python libraries.
- IDE or Code Editor (Visual Studio Code)

Tasks undertaken:

- Install Python: Download and Install Python 3+ via https://www.python.org/downloads/
- Set up a code editor or IDE: Download and install a python compatible ide or code editor such as Visual Studio Code, PyCharm
- Open and familiarize with the code by reading through, paying attention to the comments that had been made.
- Run the code: Execute the code and observing the output.

Planning Notes:

- Suggest not using force-based movement. Just use simple constant speed movement from point to point.
- Reuse the box-world and path-planning code as much as you want.
- The different types of agents might be fast / slow, hunter / prey, ground / air-borne, etc.

Extensions:

- Blocks are now blocking damage which can be a good spot for enemy to hide.
- When is not being guide, the mode auto switch back to wander which will be seeking for health or shield to keep them alive
- Implementing 2 search algorithm which are a stars and Dijkstra search algorithm