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CSCI 522: Game Engine Development
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Milestone 1 Plan

Overall Project Goals

- **Authored navmesh creation and implementation**
- **Implement navigation through navmesh**
    - **A***
    - Funnel Algorithm
    - Greedy search
- Static obstacle avoidance
- Dynamic obstacle avoidance
- Procedural navmesh generation
    - Metal Mapping
    - Voronoi Tessellation
    - Quake III Arena Area Awareness System (AAS)
    - Recast and Detour
- Dynamic NPC behavior
    - Signals
    - Behavior states
- Ant colony optimization scavenging behavior

Milestone 1: First two weeks

- Add a navigation mesh object to the prime engine and to the lua-maya import / exporter
    - I can create a new mesh instance for navigation meshes, which should hold important data like priority, size, pointers to adjacent navmeshes, etc.
    - I honestly have no idea how to add things to the lua-maya pipeline, I'll have to ask about this
- Internally maintain the navmesh graph structure
    - I can either create a globally accessible manager to keep track of navmesh graphs or have ad-hoc graph construction by accessing navmeshes through adjacent navmeshes
    - This should include debugging options, such as highlighting navmeshes, changing color based on desirability, other things
- Add A* pathfinding support to soldier navigation
    - I need to add code to ensure that soldiers or soldier state machines know what navmesh they're currently in contact with
    - I need a good heuristic for A*, probably starting with manhattan distance

- I should have visible debugging options that show the path being generated, or at least the next mesh a soldier is going towards