

# CNG 462

## SURVIVAL AI

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# OUTLINE

- Game Rules
- Used Methodologies
  - Walkable Mesh Creation
  - Pathfinding
  - Goal Oriented Action Planning
- Demo

# RULES

- Ranged attacks : 35 damage -> 10 points
- Melee attacks : 20 damage -> 20 points
- Enemy health : 100 , deals ~~10~~->7 damage to player if close(increased range and spawn rate)
- Player health : 100 , starting ammo : 50
- Red cubes : Fills the player's health
- Blue cubes : Fills the player's ammo

# USED METHODOLOGIES - WALKABLE MESH

- Map size is given to BFS, and a mesh is generated with each node having 1 step cost.
- -- Unchanged --

# PATHFINDING

- Currently
  - Player -> Greedy Best First Search
  - Enemy -> Greedy Best First Search
- Later
  - Player -> A\*
  - Enemy -> Greedy Best First Search

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Problem with A\* :(

# PROBLEM & SOLUTION

- Problem → Unable to find goal point
- Solution → Searching for an area instead of a point

# GOAL ORIENTED ACTION PLANNING

- A score for each applicable sequence is calculated and the one with highest score is executed.
- Bonus conditions contribute half the point.

	Preconditions	Effects	Bonus Conditions
<b>Example Melee Attack Sequence</b>	-High Health	-Melee Attack(more points)	-Low ammo

# AN INDEPENDENT AI !!

Example :

```
ie if (condition.Equals (ActionSequence.allPreconditions.lowHealth)){  
  
    if(currentSequence.sequenceName.Equals ("Ranged Kill Sequence"))  
    {  
        return 1f - ((1f / ph.startingHealth) * ph.currentHealth);  
    }  
  
    return 1f-((1f/ph.startingHealth)*ph.currentHealth) + healthPickups.transform.childCount * 0.25f;
```



DEMO

? QUESTIONS ?



*You've been generous.*

**THANK YOU.**

