**AGGP 225**

**Lab 1: Command Pattern**

Review the Chapter on Command Patters the text book before starting this lab!

If you want to get a feel for this pattern in action, it was used as part of the AI system in Command and Conquer/Red Alert. The following link is a video detailing the AI.  
<https://www.youtube.com/watch?v=Wb84Vi7XFRg>

**Lab Requirements:**

*This lab asks you to create an agent that will move to several locations you determine by where you click. This movement should be performed with level with a Nav Mesh and an Agent with a Nav Mesh Agent.*

*Start with a single cube or plane as your level to start. You don’t get points for decorations.*

**Part 1: Commands**

* Create a Class of “CommandBase”
  + As a comment above your “CommandBase” Class justify why you choose to or not to inherit from MonoBehavior
  + You should have a virtual function for Execute() and Complete()
* Build a “MoveTo” command that inherits from the “CommandBase” class
  + Implement the execution of the MoveTo command
  + Remember to store the starting location as well final destination

**Part 2: Agent**

* Build an agent that can process through a command list.
  + The Agent will have 3 ways to process the list
    - Forwards
      * Forward through the list. Stop when completed last Command
    - Backwards
      * Backwards through the list. Stop when completed last first command
    - Forwards then Backwards, Continue this Cycle
  + The Agent will be able to stop and start (These are two public methods)
    - If you did not start processing the command list, start as appropriate
    - Otherwise stop the current and restart when it’s called.
  + The Agent will need a Clear Command List function (This is a public Method)

**Part 3: Interface**

* Build a simple Mouse interface for your agent.
* Left Mouse Click will ray cast into the world to select a new spot for your agent to move to.
  + - * Each click will generate a new MoveTo command for the agent.
      * Place spheres with no collision to mark these locations.
* “Tab” will Cycle though the Agent’s ways to process through the command list
* “Esc” will clear the Command list and stop the Agent
* “Space” will toggle the agent to process commands.
  + - * If you’re in the middle of a command, stop.
* Show this information a floating UI Element on the Agent
  + - * Current Cycle Mode
      * “Not Active” or “Current Command”

**Extra Credit:**Add a toggle to show all commands given to the agent  
Mark the current command with a “\*”

Expand the interface so that you can select which agent you are giving commands to. This will allow you to give different commands to each unit, control how the behave, and to start\stop them.   
Show Which unit is being controlled with an interface or an element on the agent in the scene that shows they’re the active one.

Expand the Command System to add other types of commands  
*Think like you’re building something for an RTS… or worse, Dwarf Fortress*