CS 175
Action Script

Game State Manager

State Class

State's Cycle Functions

- An application is always in a state.
  - A game could be in "Main Menu", in "Level 1", in "Loading screen"…
- A state has 5 cycle functions:
  - Create
  - Initialize
  - Update
  - Uninitialize
  - Destroy

Create Function

- Loads the state's necessary data.
  - Loading the map
  - Etc …
- It is called once at the start of the state.
- It should NOT be called upon restarting a state.

Destroy Function

- Is called when the state should be terminated.

- It dumps back all the data that was loaded in the state's load cycle function (The Create Function).

Initialize Function

- Used to prepare the state's data in order to be used for the first time.
  - Placing initial enemies
  - Resetting score and time
  - Etc …
- If a state is restarted, this cycle function is used.

Uninitialize Function

- Used to clean up the state.

- Make the state ready to be destroyed or initialized again.
  - Dumps all the data that was allocated in the state's Initialize cycle function.

Update Function

- Updates the state's data based on several factors like user input, time or gameplay logic…

GameStateManager Class

GameStateManager

- An application is always in a state.
  - A game could be in “Main Menu”, in “Level 1”, in “Loading screen”…
- The **Game State Manager** is responsible for state handling.
  - In other words, every state should contain the previously discussed 5 state cycle functions (Create, Initialize, Update, Uninitialize and Destroy).
- Each state is associated with a **“State class”** that manages its cycle.

GameStateManager Properties

- The GSM uses 3 state references to manage the flow.
  - Previous State Reference
  - Current State Reference
  - Next State Reference

- The status of the “Next State Reference” is used to trigger a state change, restart or quit.

- If next state reference is **DIFFERENT** than the current state reference then the user requested a change.

- Users can request to:
  - **Switch to a new state**, next state reference will point to the new state
  - **Restart the same state**, next state reference will point to **null**.
  - **Quit the application**, next state reference will point to **null**.

GameStateManager Properties

Note: **We should restart, exit or switch to a new state in a clean way. In other words, we should delete all allocated memory and reset all indices.**

GameStateManager Methods

- Initialize
- Update
- GoToState
- RestartState
- Quit
- Destroy

GSM's Initialize

- Loads & initializes the GSM's properties.

GSM's Update

- Controls the application's flow:
  - Calls the appropriate state cycle function in order to Create/Initialize/Update/Uninitialize/Destroy a state or Quit the application.
  - Responsible for updating the previous, current and next state references accordingly.
- The GSM's Update function has 5 steps:
  - Click here to view the GSM update flow chart.

GSM's GoToState / RestartState / Quit

- Only functions available for the user **(public)**.

- Changes the value of the Next State Reference which tells the GSM's Update function that we need to switch to a new state.

GSM's Destroy

- Destroys the GSM's properties.

The End ☺