2D Game Engine

Draw Engine

* Create a sprite repository (CreateSprite)
* Delete a sprite (DeleteSprite)
* Draw sprites on the screen (DrawSprite)
* Erase sprites from the screen (EraseSprite)
* Ability to move cursor to a location on the screen (GoToXY)
* Ability to hide the cursor (CursorVisibility)
* Data:
  + Sprite character array (SpriteImage[16])
  + Screen width (ScreenWidth)
  + Screen height (ScreenHeight)

Sprite Class

A sprite is a 2D image that is drawn on the screen. It has a position (x and y), a certain number of lives, sprite index, classID, and can draw itself. It also has a special function that will let us call it to let the sprite from perform any special functionality it needs, which will be important when we inherit enemy and fireball.

DrawEngine instance

Need a way to get the current position of the sprite

GetPosition()

GetX()

GetY()

Need to add and remove lives from the sprite

AddLives()

GetLives()

We need to check and see if the sprite is alive

IsAlive()

Need ways to move the Sprite

Move()

Every Sprite has a direction… we need to specify this in the move functionality.

Local functions to erase and draw the sprite… uses the DrawEngine  
  
 Draw()  
 Erase()

The idle update function, which allows us to do special sprite processing during idle time.

Character Class

A character is a sprite that will be controlled by the player.

We need to add the ability for our sprite to respond to the player input.

KeyPress()

Variables that specify which key does what.

upKey  
 downKey  
 leftKey  
 rightKey

Level Class

A Level defines where a Sprite can and cannot move. It will contain empty spaces and walls. A Sprite can move within the empty spaces, but will be blocked by those that contain a wall.

We will need to be able to create a level.

CreateLevel()

We will need the ability to add a player to the level.

AddPlayer()

The level will need to be draw

Draw()

It will need to be able to pass input, because we will move the player from inside the level.

KeyPress()

We will also have a function to let us process Sprite functions when no input is pressed.

Update()

The information that makes up a level will be:

width

height

level (the map information)

player (the player who is on the level)

drawEngine (so the level can be drawn to the scene)

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Classes that we will augment to add the level class to our game:

Game (update run and the update function)

Sprite (to add all detection in our move function)

(add/update IsValidLevelMode and Move)

Character (update the constructor)

Enemy Class

An Enemy (Evil Monkey), is a SPRITE that will hunt down a CHARACTER.

Since an Enemy INHERITS from Sprite we will be changing some of our previously defined Sprite functions. We will also need to add a BRAIN to the class so we can hunt down the player.

We will need to know who we will be hunting.

addGoal

We will need to have some rules to find our goal

simulateAI

We will need to change MOVE to reflect the enemy hunting behavior

move

We will also need to change idleUpdate so that when the level lets us we can hunt

idleUpdate

Data that the Enemy will need

Character \*goal

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To add Enemies to the Level

We will need to make a LIST of SPRITE objects that we can loop through. Because of this LIST we will be able to use the SPRITE’s idleUpdate function. (For the enemy, this means we will be able to hunt).

We will need to add some functions

addEnimies Add’s a specific number of enemies to the level

addNPC Places a sprite on the LIST

isDone Checks to see if we have any sprite on the LIST (if not, game is done)

We will need to fill in

Update Cycle through our LIST of SPRITES to call their idleUpdate.