Galaxian notes
Saturday, October X, 20XX   X:XX PM

ENTITY (BASE CLASS)
SpriteID
X
Y   Set
Width   get
Height

Update(float timeDelta)
Draw()

ENEMY
Type
Score Value
Speed X
Speed Y
direction X
direction Y

PLAYER
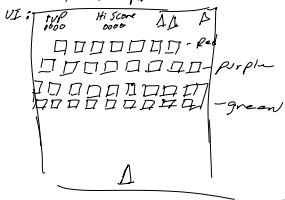Left Move Key
Right Move Key
Shoot Key
Speed

BULLET
is Active

High Scores   // list of high scores

Public:
Void LoadScores
Void SaveScores
Void AddScore (int a score)
Void SortScores()
bool IsEmpty()
const int List<int> GetScores()

Private:
vector<int> Scores

HAVE WINDOW FOR
LANDSCAPE FOR enemy
GAMEPLAY: IN   MORE ROOM FOR enemy

UI: 1UP   Hi Score   △ △ △
      P000   0000
      [ ][ ][ ][ ][ ][ ][ ]— Red
      [ ][ ][ ][ ][ ][ ][ ]— Purple
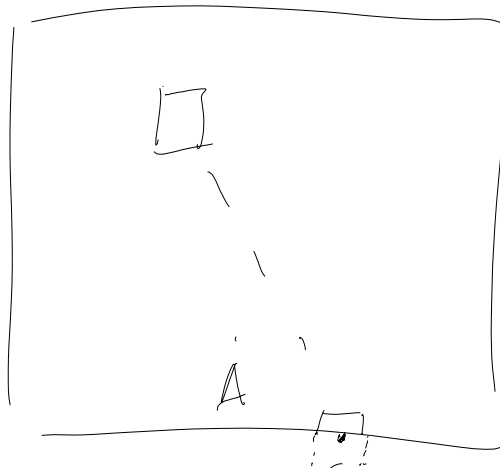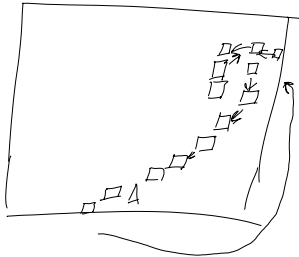   [ ][ ][ ][ ][ ][ ][ ]—green
                △

green (PAWN)
Will come at player from either
side with other green in same color
army.

Movement is in circular motion to
right if leaving in col, motion to
left if left to.

As soon as clears bottom row, will
drop bombs rapidly as moves towards
player's position in diagonal.

If does not get shot, and clears
bottom of screen, returns back to
original spot

menu state
initialize()

Update(timeDelta)
handle input
'E' key - load game state
'H' key - load high score display state
'Q' key - quit game gracefully

Draw()
Title
● Object new game
● Display high scores
● Quit

Destroy()

game state
initialize()
create player
create enemies

Update(time delta)
update player
update enemies

Draw()
draw all enemies
draw player

Destroy()

Splash State
initialize()
splash screen sprite set
move splash system ↓
set timer value

Update(timeDelta)
set timer to timer - timeDelta
while timer >= 0
load menu state
end while

Draw()
draw splash screen

Destroy()

Title
game name
enemies as 3 distinct classes with different values and
behavior
enemy shoot
enemy attack
background and animate
player shoot
player

player's count (sprites)
flashing "1UP" during gameplay

score
high score
flag sprites

enemy animation / art assets
UI
display high scores
play game
quit

splash state
art asset
timed logic
high score display state
title
score
high score
high score
file logic

Choose ATTACK
furthest Left / Right Column?
- 1, 3, of enemies 1 or 2
→ Closest to center?
Direction → (1, -1)
if (1) → use Left
if (-1) → use Right.

enemies — group moves side. side

↑Attack ←
- Choose which enemy(s) will attack
- Remove enemy (lowest y value)
- Decide direction of swoop (1 ≤ Left/Right)
- Choose exit point (other side of player)
- Move enemy along line (current pos, exit pos)
- Drop bombs in rapid succession

if not hit and enemy reaches exit point
(enemy moves to x above, but goes screen height)
Move enemy down to Player position in grid

STATES:
NOT ATTACKING
ATTACKING
  Move to circle's edge   ] move
  Track circle's edge 180°] CIRCLE
  Move/ATTACK Player   ] ATTACK

SUBS: If enemy hits wall, confuses ATTACK
      If player is to left of enemy
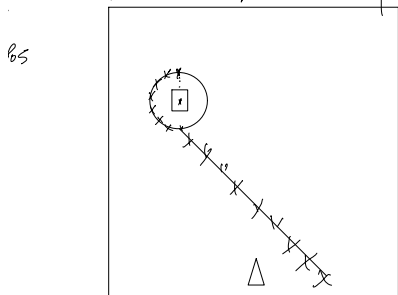
Plot half circle from start pos
When θ = 270 :
Plot line from current pos → exit point

Set Original Position
find X = StartPosition.x + (attackRadius * cos(attackAngle) / attackRadius)
find Y = StartPosition.y + (attackRadius * sin(attackAngle) / attackRadius)

Given two points (x_1, y_1) and (x_2, y_2), the formula for the slope of the straight line going through these two points is:

$$m = \frac{y_1 - y_2}{x_1 - x_2}$$

RETURN STATE
Original Position —

Set enemy (OriginalPosition.x, ScreenHeight + (enemyHeight * .5))

Decrement Y until <= Original Position

↑ PlAyer is to +4t or enemy

HACK SPEE NeedS to change
eAre enemies (3) Types-
ove Side - Side ✓
AeK —
Ayer SHooT / implemenw bullet
emy Shot / Player Collide w/enemy
Ayer shot ✓

;iMATION ⊘
lit — ENTITI

isActive —
ire: if(isActive, move up)
     if (y > Screen height)
              isActive=false ...
     if (isCollided (enemy))
              enemy.isActive=false,
              this.isActive=false
     if(shoot && .isActive)

Enclosed in red box:
MVP ✓
enemy ATTACK ✓
enemy Die ✓
score ✓
PlAyer Die ✓
Next Level ✓
3 Lives (end condition) # need ✓
High Score   SHARO over
SPLASH Screen ✓   STATe
MeNU Screen ✓
BACKGROUND ? ?

Nice
ROTATION ANIMATION
Die ANIMATION

PlAyer Die ANiMATioN
High Score ADD iNiTIAls
AUDIO (NoT likely)
FIAGS for Levels
BACKGROUND ANiMATIoN

PlAyer isCollidedTop
PlAyer.isCollideTOP = false
   set PlAyer Y to otHer BoTTom

iP PlAyer Die
   WAit until ATTACK OVER
   until STARt Timer . . . .

Sprite Sheet
3||x|06

nenny ATTACK
create otHer enemies
core
high score spare
SPLASH Screen
QuiT Code

```
GAME
OVER




<Press ESC to go to main menu>
```

inglest, Die Above enemy1
 star VAlue 150% enemy1
 ITACK's w/ enemy 3

enemys
2 Slips
Point VAlue 300% enemy1
ATTACK6 w/ enemy2

enemy 3
⬜⬜⬜⬜⬜⬜⬜

(∇
  ⬜ ⬜

r ATTACK iNDiViDUAl enemy V.I.0

Player Death
Player Collides With enemy or enemy bullet
   if playerlives = 1
      END GAME STATE
   if playerlives > 1
      playerlives --

   pause for X second6 with enemies group moving and
   AttackTimer stopped

   Then begin level in state where player was killed
      Player in center
      enemy ATTACK Timer starts again