UIManger (Singleton)

Responsible displaying score & lives UI and game-over panel.

Update:
Update score and lives text to current values

Events:
On game over:
* Show game over panel

On restart button pushed
* Reload the scene

GameManger (Singleton)

Responsible tracking score & lives and handling checkpoints.

Params:
Score values for different events
Starting number of lives
Time to delay after death

State:
Current score, Current lives

Events:
On a scoring event:
* add the appropriate number of points to the score

On checkpoint hit:
* Record the checkpoint location

On player death:
* Decrease number of lives
* Wait for a delay
* If out of lives, send GameOver to UIManager
* Otherwise,
    * move ship to last checkpoint .
    * rewind backdrop to last checkpoint
    * revive ship

Checkpoint

Responsible handling players entering trigger volume

Events:
On player entering trigger:
* tell GameManager

Backdrop

Responsible for moving camera

Params:
Movement speed

Update:
Move camera at fixed speed

Events:
On rewind:
* Reset the camera to given position

Read score and lives

Game over event

Record checkpoint

Rewind

Player

Send event on death

PlayerMove

Responsible for handling player movement and collisions.

Params:
Movement speed

State:
Current position
Whether ship is currently visible

Update:
Move ship based on keyboard input

Events:
When colliding with something:
* If it is not a checkpoint, die

FireBullet

Responsible for firing bullets when the player presses fire.

Params:
Gun cooldown time between shots

State:
Cooldown timer

Update:
When the player presses the fire button, launch a bullet

DropBomb

Responsible for dropping bombs when the player presses drop.

Params:
Cooldown time between bombs

State:
Cooldown timer

Update:
When the player presses the drop button, launch a bomb

Create

Create

Bullet

Responsible for bullet movement
Params:
Movement speed

State:
Position

Update:
Move the bullet

Events:
On collision destroy self

Bomb

Responsible for bomb movement
Params:
Movement speed, Gravity

State:
Position, Velocity

Update:
Apply gravity and move the bomb

Events:
On collision destroy self

Explosion

Responsible for deleting the explosion object after the particle effect plays.

Missile

Responsible handling launching, movement and collisions

Params:
Launch time
Speed

Update:
Wait until launch time, then start moving upwards

Events:
On collision with a bullet of bomb:
* create an explosion
* destroy the object
* inform the game manager

On leaving screen:
* Destroy self

Scoring events

Radar

Responsible handling collisions with bullets & bombs

Events:
On collision with a bullet of bomb:
* create an explosion
* destroy the object
* inform the game manager

Power

Responsible handling collisions with bullets & bombs

Events:
On collision with a bullet of bomb:
* create an explosion
* destroy the object
* inform the game manager