Main

+ main()
+ logError(exception : string)

Engine

- &audioEngine : AudioEngine
- &videoEngine : VideoEngine
- currentLevel : Level
- player : Player
- isRunning : bool = false

+ run()
- render()
+ EngineState(&audioEngine : AudioEngine, &videoEngine : VideoEngine)
- getMouseCoordinates() : Point
- getMouseClickState() : int
- handleEvent(&actor : BaseActor, actorEvent : ActorEvent)
- onChangeScene(&actor : BaseActor, value : int)
- onLoadLevel(&actor : BaseActor, value : int)
- onPlayAudio(&actor : BaseActor, value : int)
- onNewGame(&actor : BaseActor, value : int)
- onLoadGame(&actor : BaseActor, value : int)
- onDisplayText(&actor : BaseActor, value : int)
- onExitGame(&actor : BaseActor, value : int)
- onStreamAudio(&actor : BaseActor, value : int)

«enum»
ResourceGroup

Core
Level

GameSaveSerializer

+ load(&levelID : int, &sceneID : int, &inventory : vector<int>)
+ save(&levelID : int, &sceneID : int, &inventory : vector<int>)
+ saveInThread(levelID : int, sceneID : int, inventory : vector<int>)

-player

-&audioEngine

AudioEngine

- coreSounds : vector<AudioID>
- levelSounds : vector<AudioID>
- audioPlayer : AudioPlayer

+ playSound(id : AudioID)
+ loadSound(&path : string, id : AudioID)
+ playStream(&path : string)
+ deleteSound(id : AudioID)
+ deleteSoundGroup(resourceGroup : ResourceGroup)

VideoEngine

- layers[] : TextureID
- coreResources : vector<TextureID>
- levelResources : vector<TextureID>
- videoContext : VideoContext
- textBoxActive : bool = false

+ render(&region : Region, layer : unsigned int, textureID : TextureID)
+ loadTexture(&path : string, id : TextureID, resourceGroupName : ResourceGroup)
+ renderRotate(&region : Region, layer : unsigned int, textureID : TextureID, angle : float = 0.0)
+ VideoEngine(&title : string, width : unsigned int, height : unsigned int)
+ showTextbox(&text : string)
+ deleteTexture(textureID : TextureID)
+ deleteResourceGroup(resourceGroup : ResourceGroup)
+ hideTextbox()
+ isShowingTextbox() : bool

Player

- region : Region
- layer : int
- textureID : int
- position : Point
- inventory : vector<int>
- cursorTextures[] : TextureID

+ hasItem(itemType : int) : bool
+ addItem(itemType : int)
+ setCursor(cursorStyle : CursorStyle)

AudioPlayer

- audio_rate : int = 44100
- audio_channels : int = 1
- audio_buffer : int = 4096
- *audio_samples : unordered_map<AudioID, Mix_Chunk*>
- audio_stream : Mix_Music* = NULL

+ load_stream(&file_path : string)
+ stream_audio(loops : int = -1)
+ load_sample(id : AudioID, &file_path : string)
+ play_sample(id : AudioID)
+ delete_sample(id : AudioID)
+ clear_samples()

-videoContext

VideoContext

- *renderer : SDL_Renderer
- *font : TTF_Font
- *videoDisplay : VideoDisplay
- *textures : unordered_map<TextureID, SDL_Texture*>

+ VideoContext(&title : string, width : unsigned int, height : unsigned int)
+ display()
+ load_texture(id : TextureID, &image_path : string, blend : BlendMode = BLENDMODE_BLEND) : Region
+ create_texture(id : TextureID, width : int, height : int, blend : BlendMode = BLENDMODE_BLEND) : Region
+ delete_texture(id : TextureID)
+ render(id : TextureID, *dest : Region, *src : Region)
+ render_onto(dest_id : TextureID, src_id : TextureID, *dest_region : Region, *src_region : Region)
+ render_rotate(dest_id : TextureID, src_id : TextureID, *dest_region : Region, *src_region : TextureID, angle : double = 0.0, flip : Flip = FLIP_NONE)
+ render_clear()
+ render_clear(id : TextureID)
+ fill_texture(id : TextureID, r : int, g : int, b : int, a : int)
+ load_font(&font_path : string, font_size : int)
+ render_text(dest_id : TextureID, *dest_region : Region, &text : string, r : Uint8, g : Uint8, b : Uint8, a : Uint8)

«enum»
CursorStyle

CURSOR_NONE
CURSOR_SELECT
CURSOR_LEFT
CURSOR_RIGHT
CURSOR_UP
CURSOR_DOWN

Level

- scenes : map<int, vector<BaseActor>>
- activeScene : int
- levelID : int

+ getActiveScene() : Scene
+ Level(levelID : int, &audioEngine : AudioEngine, &videoEngine : VideoEngine)
+ setActiveScene(sceneID : int)

-*videoDisplay

VideoDisplay

- *window : SDL_Window

+ VideoDisplay(&title : string, width : unsigned int, height : unsigned int)
+ get_renderer() : SDL_Renderer*

BaseActor

region : Region
video* : ActorVideo
audioID : AudioID = -1

+ onClick(player : Player) : ActorEvent
+ onHover(player : Player) : ActorEvent
+ step(player& : Player) : ActorEvent
+ isInBounds(point : Point) : bool

ActorVideo

+ layer : int
+ textureID : int

BaseActor inheritance in separate chart

ActorEvent

- value : int = -1
- eventType : ActorEventType = Nil

«enum»
ActorEventType

ChangeScene
LoadLevel
PlayAudio
Nil
NewGame
LoadGame
DisplayText
ExitGame
StreamAudio

Diagram: MainClasses Page 1

BaseActor
```
# region : Region
# video* : ActorVideo
# audioID : AudioID = -1
+ onClick(player : Player) : ActorEvent
+ onHover(player : Player) : ActorEvent
+ step(player& : Player) : ActorEvent
+ isInBounds(point : Point) : bool
```

MovingActor
```
- endRegion : Region
- transitionSteps : int = 0
- currentStep : int = 0
- xSpeed : int = 0
- ySpeed : int = 0
- isActive : bool = false
+ MovingActor(textureID : int = -1, startRegion : Region, endRegion : Region, transitionSteps : int = 0, layer : int = 1, moveOnSpawn : bool = false)
```

ResponsiveVideoActor
```
- hoverTextureID : int = -1
- clickTextureID : int = -1
- defaultTextureID : int = -1
+ ResponsiveVideoActor(hoverTextureID : int = -1, clickTextureID : int = -1, defaultTextureID : int = -1, region : Region, layer : int = 1)
+ setTexture(textureID : int = -1)
```

VideoEventActor
```
- actorEvent : ActorEvent
+ VideoMessageActor(region : Region, textureID : int = -1, eventType : ActorEventType, eventValue : int, layer : int = 1)
```

DelayedVideoActor
```
- textureID : int
- delaySteps : int = 0
- currentStep : int = 0
- disappearStep : int = -1
+ DelayedVideoActor(textureID : int, region : Region, delaySteps : int = 0, disappearStep : int = -1, layer : int = 1)
```

VideoActor
```
+ VideoActor(textureID : int = -1, region : Region, layer : int = 1)
```

ResponsiveAudioActor
```
- hoverAudioID : int = -1
- clickAudioID : int = -1
- durationSteps : int = 120
- stepCount : int = 0
+ ResponsiveAudioActor(hoverAudioID : int = -1, clickAudioID : int = -1, region : Region, durationSteps : int = 120)
```

DelayedAudioActor
```
- audioID : int
- delaySteps : int = 0
- currentStep : int = 0
+ DelayedAudioActor(audioID : int, delaySteps : int = 0)
```

AudioStreamActor
```
- path : string
- activated : bool = false
+ AudioStreamActor(path : string)
+ getPath() : string
```

TextboxSpawnActor
```
- text : string
+ TextboxSpawnActor(region : Region, text : string)
+ getText() : string
```

SceneLink
```
- sceneID : int
- requiredItemID : int = -1
- itemRequiredText : string
+ SceneLink(sceneID : int, itemID : int = -1, region : Region, itemRequiredText : string)
+ getText() : string
```

LevelLink
```
- levelID : int
- requiredItemID : int = -1
- sceneID : int
- itemRequiredText : string
+ LevelLink(levelID : int, itemID : int = -1, region : Region, sceneID : int, itemRequiredText : string)
+ getSceneID() : int
+ getText() : string
```

InventoryItemActor
```
- itemID : int
- pickedUp : bool = false
+ InventoryItemActor(itemID : int = -1, textureID : int = -1, region : Region, layer : int = 1)
```