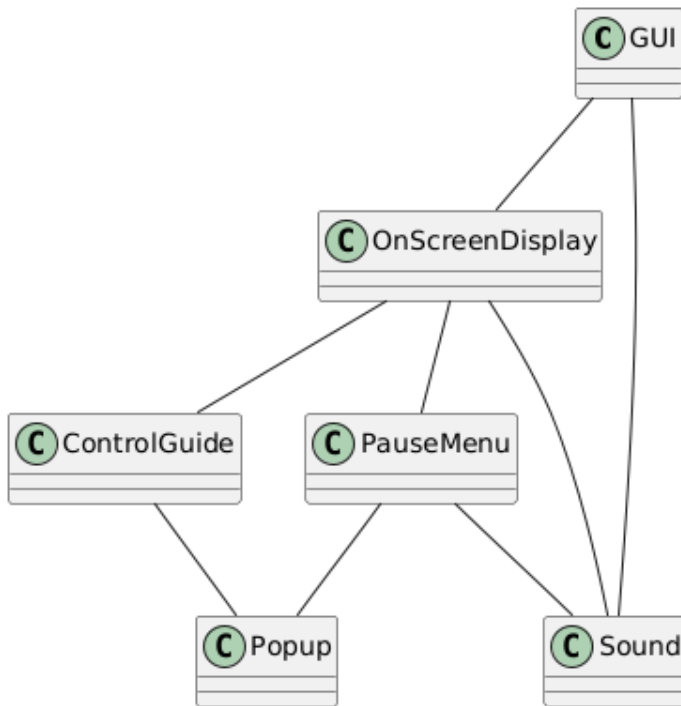


Design Evolution

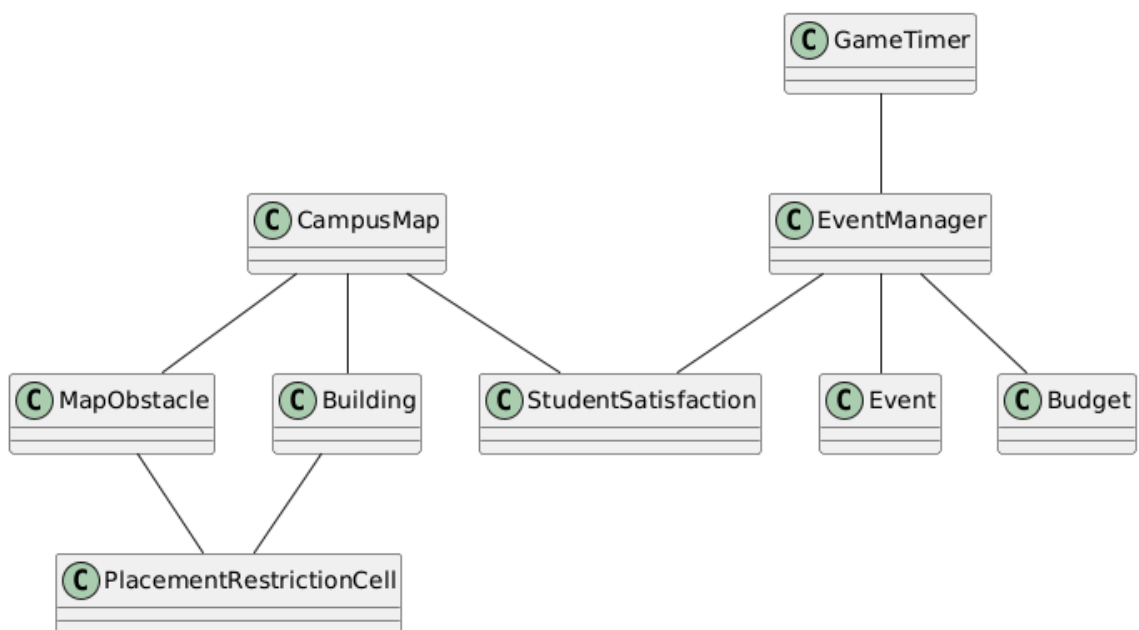
To increase clarity on more complex diagrams, entity classes have been highlighted in grey and the classes and interfaces from the libGDX library are highlighted in blue.

Initial model of candidate object relationships from RDD process

User Interface

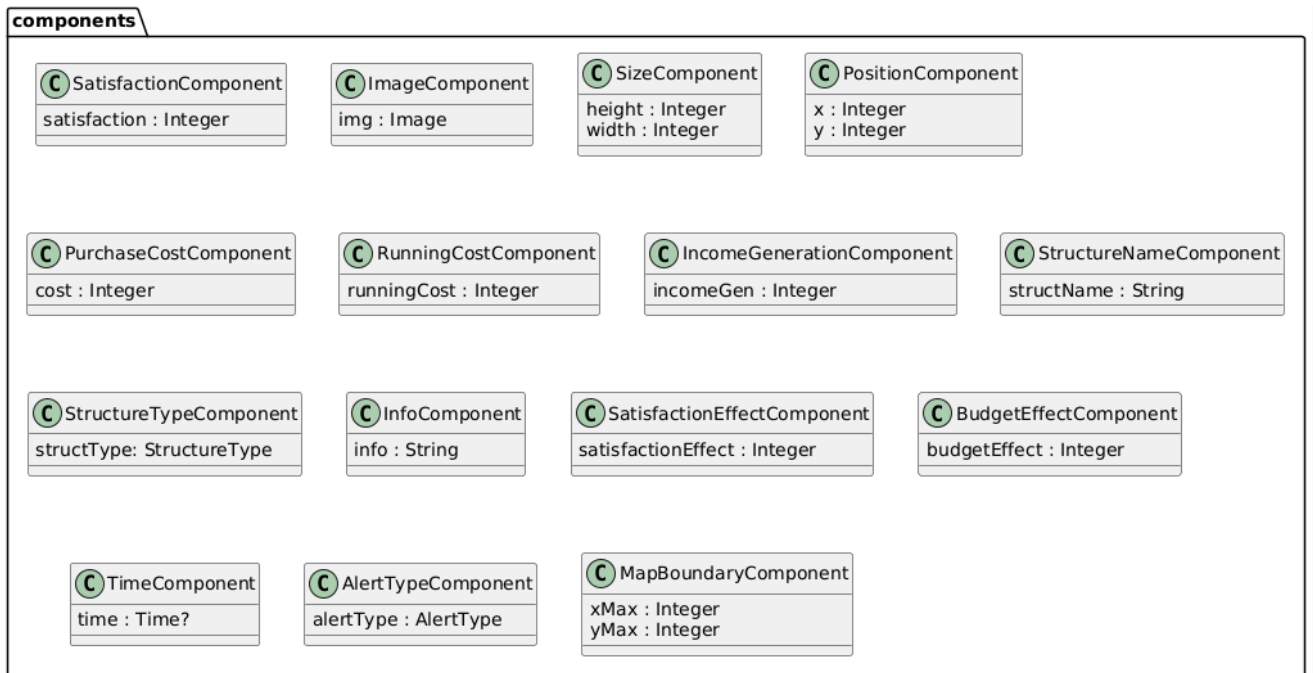


Game Logic

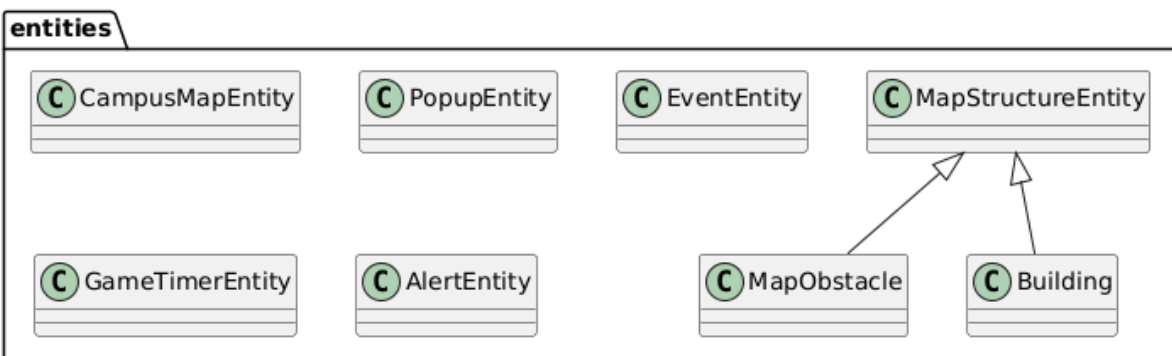


Initial Entity, Component and System Diagrams

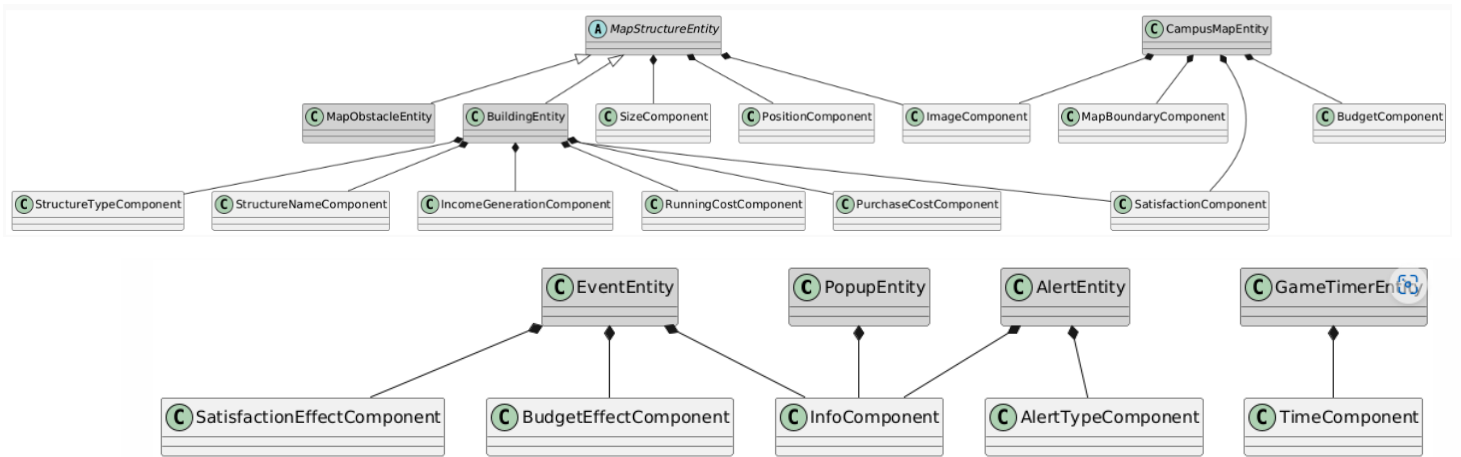
Components



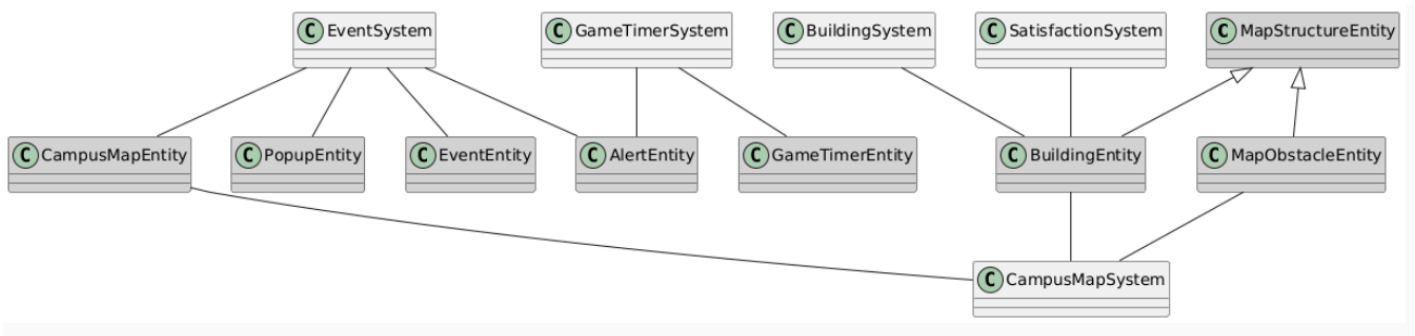
Entities



Linked Entity Component Model



Linked Entity System Model

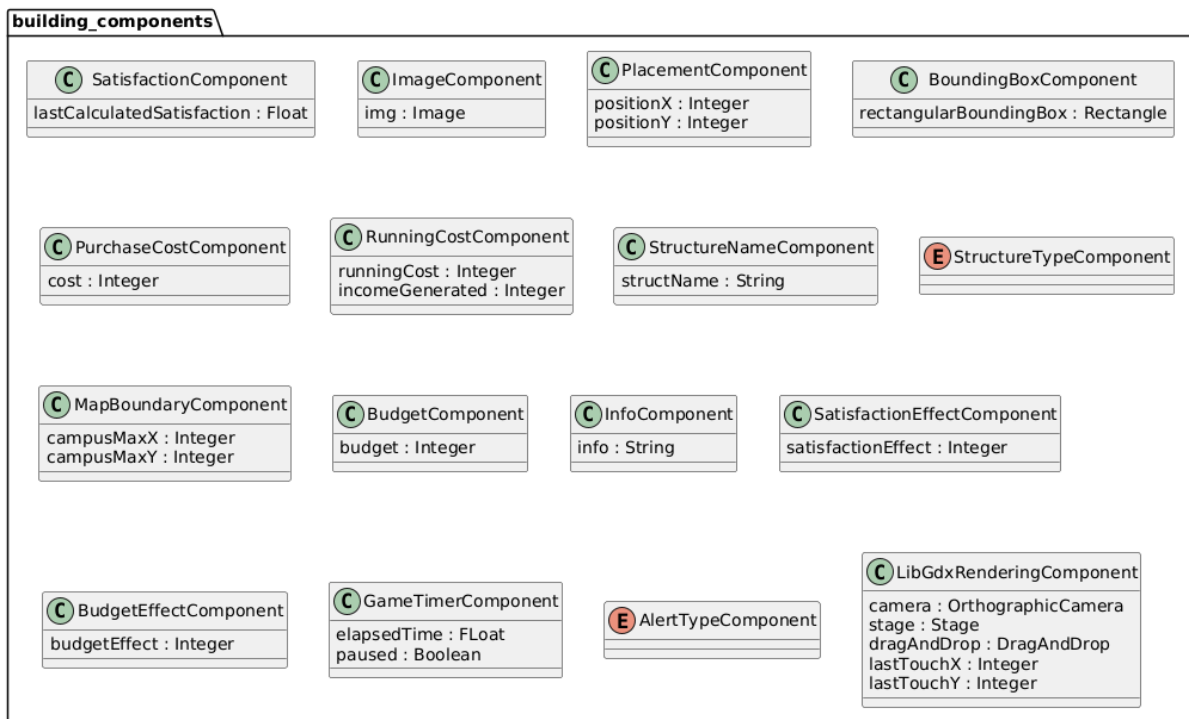


Revised Entity, Component and System Diagrams

Components

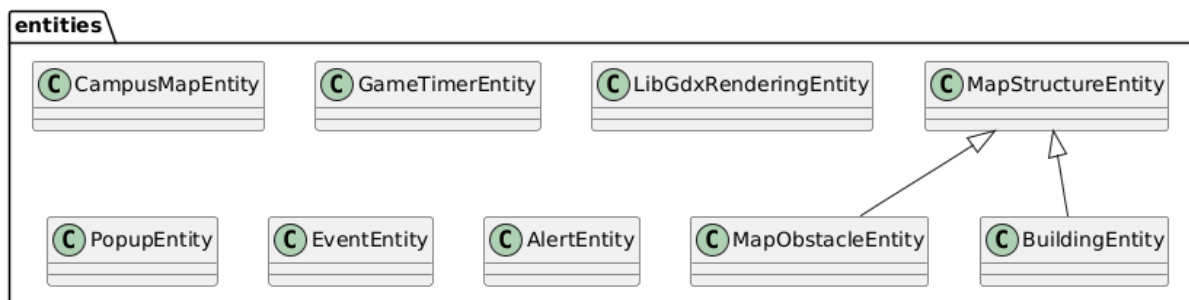
In the diagram below, SizeComponent has been replaced with BoundingBoxComponent to more easily track the position of structures on the map and prevent collisions (PositionComponent has also been renamed PlacementComponent for clarity). RunningCostComponent and IncomeGenerationComponent have also been combined into RunningCostComponent to simplify the handling of costs and revenues generated by existing buildings.

The attribute paused has been added to GameTimerComponent to facilitate pausing the game when the pause menu has been opened, and a new LibGdxRenderingComponent has been created to help implement building drag and drop functionality too. StructureTypeComponent and AlertTypeComponent have also been converted to enums to make processing them easier, and some attributes have been renamed in some classes for added clarity.



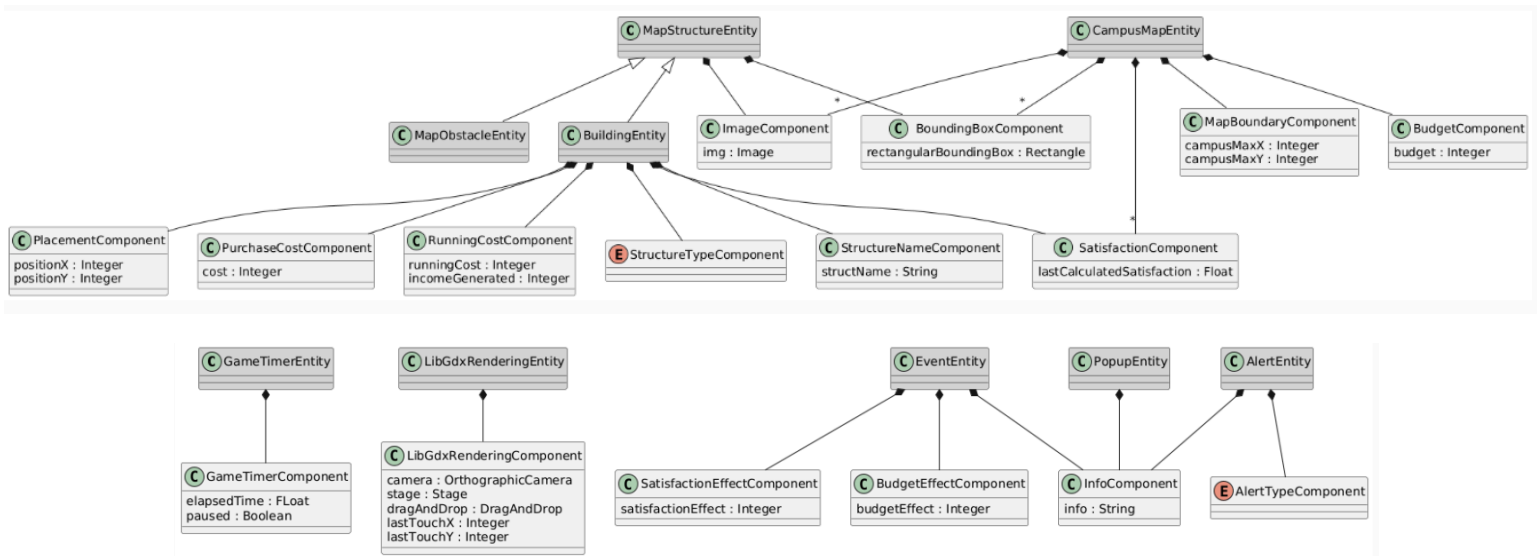
Entities

The diagram below shows the changes to the entities used by the game - LibGdxRenderingEntity has been created to help enable the user to drag and drop buildings into place on the map.



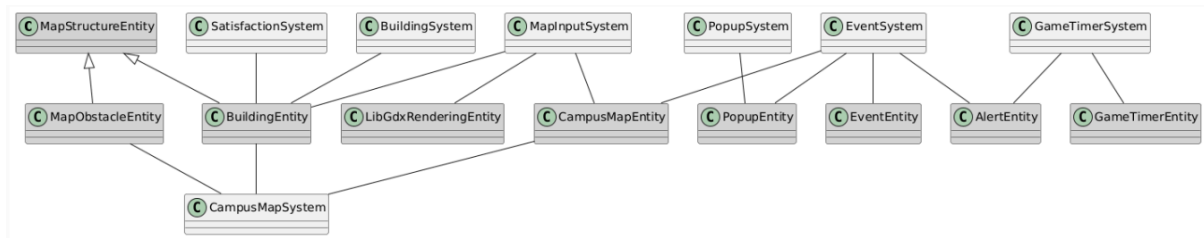
Linked Entity Component Diagram

The diagram below shows the relationships between the revised component and entity classes shown above.

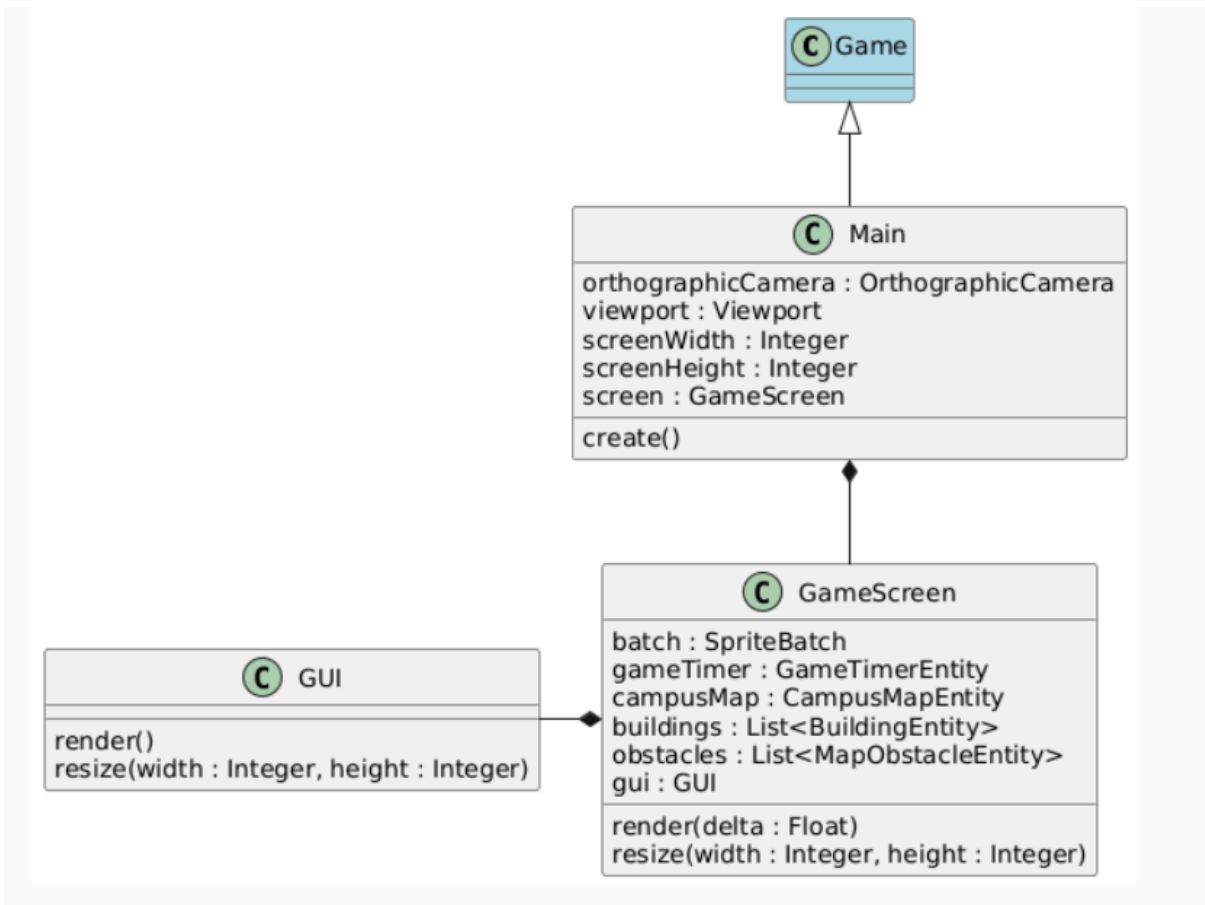


Linked Entity System Diagram

This diagram shows the revised relationships between entity and system classes. The connections for existing systems are the same as those in the initial diagram, but two new system classes have been created. MapInputSystem links to BuildingEntity, LibGdxRenderingEntity and CampusMapEntity, and handles the drag and drop functionality of buildings on the map. PopupSystem links to PopupEntity and is responsible for detecting new instances of the entity class and displaying them on the screen for the user to read.



Initial Overall Game Structure Diagram



Revised Overall Game Structure Diagram

In this diagram, GameScreen now implements the libGDX InputProcessor interface and contains the attribute LibGdxRenderingEntity to help handle the drag and drop functionality of buildings on the map. The registerButtonDraggable method has also been added to the GUI class to enable the user to click on a button on the options menu to create a new building and then drag it into place on the map. Sound has also been added to GameScreen to help implement and control game audio.

