RoboDactyl Escape

Group: G8

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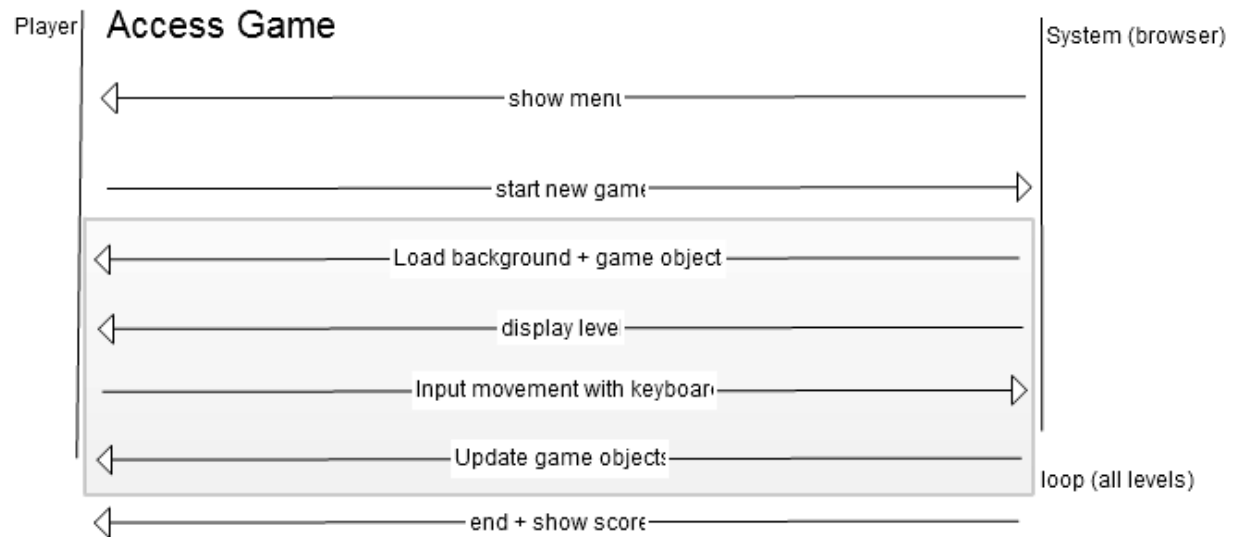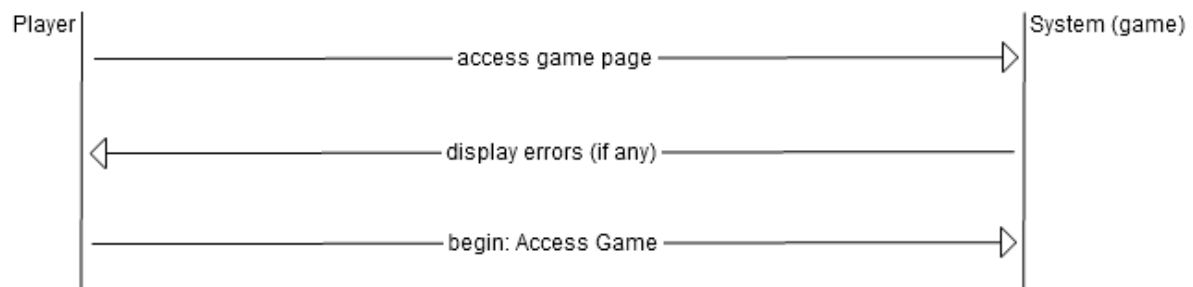**Billy Galarpe:** billygalarpe@yahoo.com
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Sequence Diagram

Access Page

Player		System (game)
	——— access game page ———▷	
	◁——— display errors (if any) ———	
	——— begin: Access Game ———▷	

Access Game

Player		System (browser)
	◁——— show menu ———	
	——— start new game ———▷	
	◁——— Load background + game object ———	
	◁——— display level ———	
	——— Input movement with keyboard ———▷	
	◁——— Update game objects ———	
		loop (all levels)
	◁——— end + show score ———	

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Contracts: Access Page

Contract: Access Page

Preconditions: User has a browser and an internet connection

Postconditions: System checks browser compatibility, e.g., HTML5 and JavaScript support

Contract: Display browser errors

Preconditions: User has accessed the game page and system has determined browser incompatibilities

Postconditions: Page display appropriate error message if necessary

Contracts: Access Game

Contract: Show menu

Preconditions: No errors have been detected in the user's browser

Postconditions: A menu with options is displayed to the user to choose from

Contract: Start game

Preconditions: Player has chosen to start the game from the menu

Postconditions: The first level has been loaded and rendered

Contract: Load level

Preconditions: The player has either chosen to start the game or begin the next level in an existing game

Postconditions: The background and all level objects (enemies, powerups, etc) have been drawn to the screen

Contract: Track user input

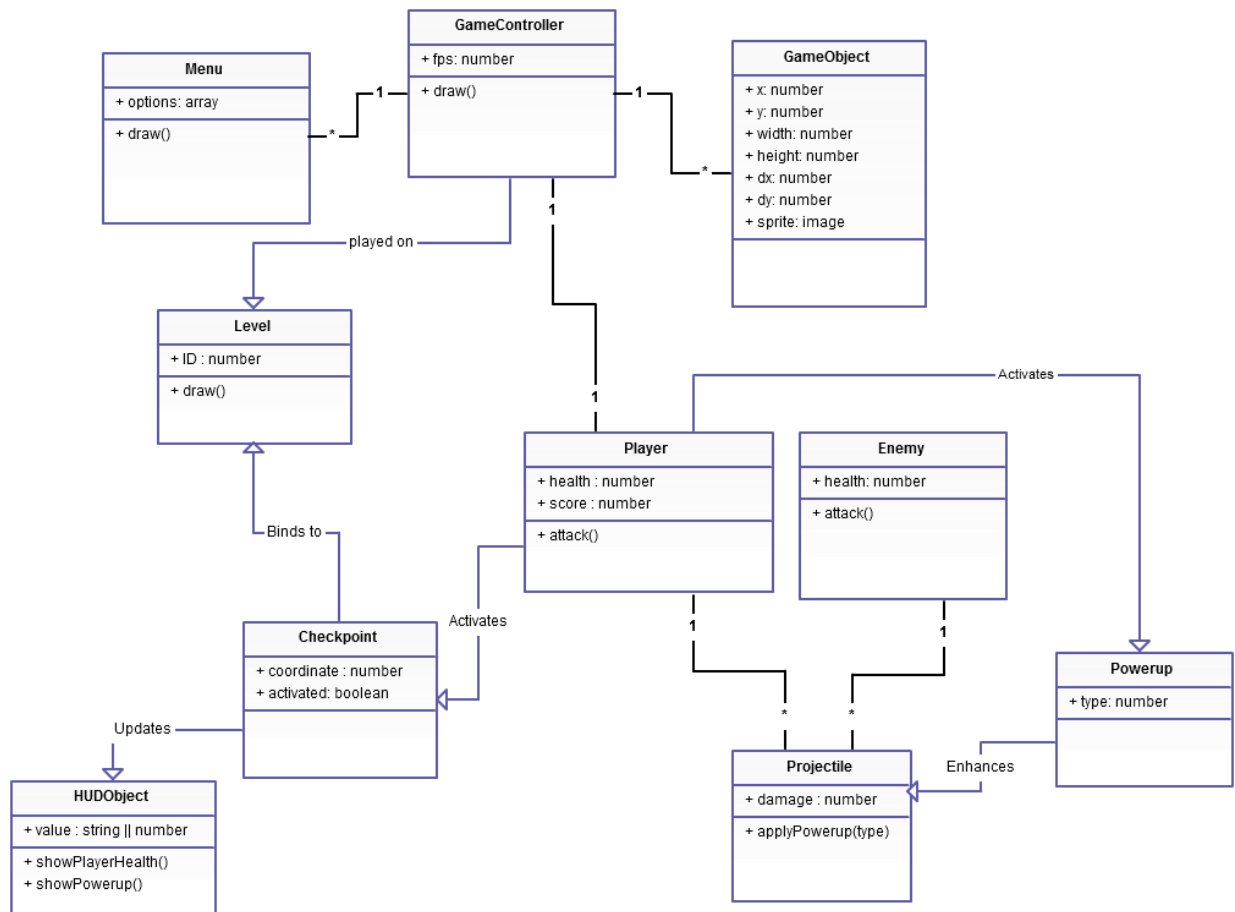**Preconditions**: There is an existing game not in a menu or endgame state, and the player has control of the sprite

Postconditions: The system tracks keyboard input from the player and updates game objects accordingly
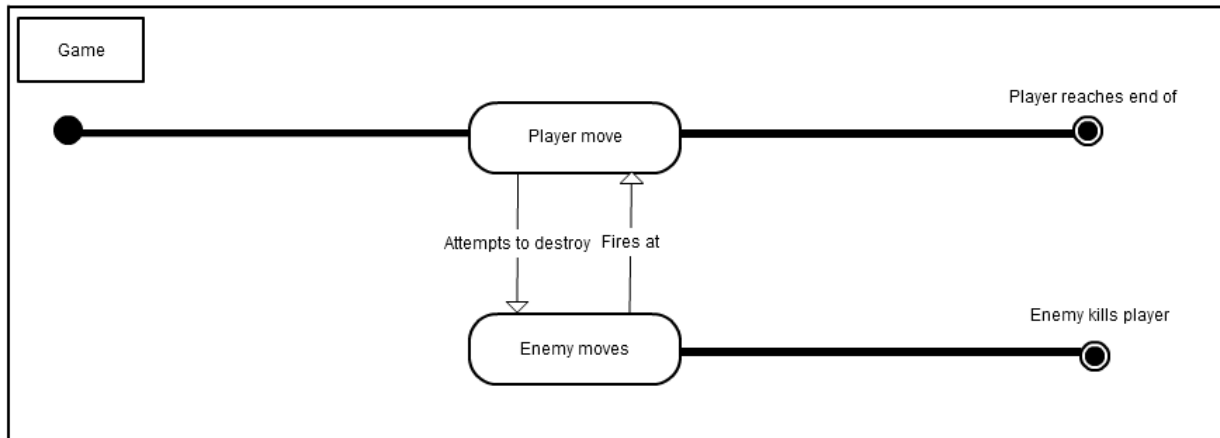
Contract: End and show score

Preconditions: The player character has died or reached the end of the game

Postconditions: A menu object is rendered displaying the player's attained score and an option to restart the game

Class Diagram

State Diagram

Glossary

- **Player**: Synonymous with user; the person accessing the game page
- **Game**: Wrapper for browser-based interactions with the canvas element and its display
- **Control**: The ability of the user to input predefined game actions using the keyboard
- **RoboDactyl**: The game entity controlled by the player
- **Enemies**: Game entities who attempt to "kill" the player character, such as scientists or hunters
- **Level:** A discrete portion of the game with a certain theme (for example, the lab or the jungle)
- **Projectile:** The weapon the player uses to fight game enemies
- **Obstacle:** A fixed terrain point that the player can run into, causing either a life to be lost, or the end of the game if all lives depleted
- **Powerup:** Objects that the player can 'pick up' by flying through to temporarily enhance abilities or restore health points
- **Hitpoints/Health Points:** Each life has a fixed number of "health points", which are reduced or lost completely when the user takes damage from enemy attacks or obstacles
- **Life (lives):** Each game consists of a fixed number of lives that are lost when the player loses a defined number of hitpoints. If all lives are lost during gameplay, the game ends and the player is given the option to restart the game.
- **Respawn**: If a player dies during a level and still has lives remaining, they will reappear at predetermined previous checkpoint with one less life and continue with gameplay as normal
- **Score**: A metric to track player's success in defeating enemies and grabbing powerups, which increases as the player progresses further and further through the game levels.

- **Menu** – A screen presenting various choices for the user, such as "Begin Level" or "Restart Game"
- **HUDObject** - A persistent display on the screen that displays information such as the player's health, current active powerups, lives remaining, or the current level.
- **Checkpoint** – a predefined point in the game that is activated by the player's character. If the player dies after activating a checkpoint, they will return to the most recent checkpoint.