Sequence Diagram - Enter City

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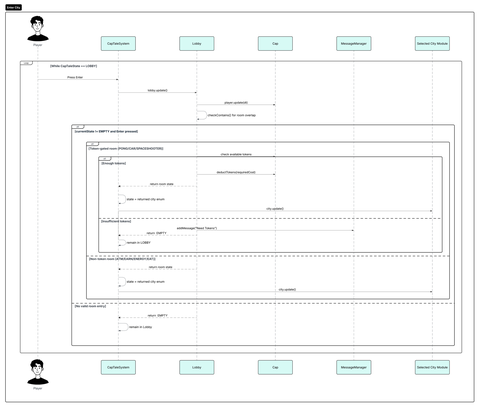
This sequence diagram details the player city entry flow in CapTale, tracing execution from raw input through `CapTaleSystem`'s update loop down to state transition. It covers how `Lobby` handles room detection via `checkContains()`, enforces token requirements for gated rooms (PONG, CAR, SPACESHOOTER) — either deducting tokens or surfacing a denial message through `MessageManager` — and allows direct entry into open-access rooms (ATM, EARN, ENERGY, EAT). On successful entry, `CapTaleSystem` updates its state to the corresponding *city* enum and hands off execution to the relevant City Module on the next frame.



Sequence Diagram - Energy City

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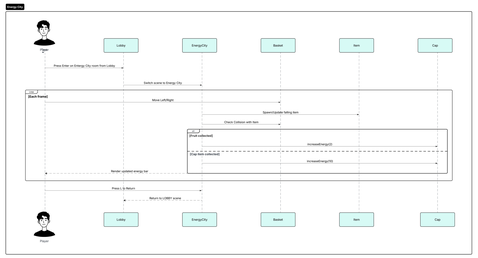
This sequence diagram illustrates the Energy City gameplay flow in CapTale, showing how the player restores the shared *energy meter* through item collection. After the player enters Energy City from the Lobby, control shifts to the EnergyCity scene, where the main update loop continuously runs each frame. Within this loop, the player moves the Basket horizontally to catch falling objects while EnergyCity manages the spawning and movement of each item. When a collision between the basket and an Item is detected, the system determines the item type: collecting a Fruit calls `Cap.increaseEnergy(2)`, while collecting a Cap Item grants a larger recovery through `Cap.increaseEnergy(10)`. After each successful collection, the updated energy value is reflected in the on-screen energy bar rendered back to the player. When the player presses L, EnergyCity ends the scene and returns control to the Lobby, allowing the player to continue exploring other cities.



Sequence Diagram - SpaceShooter

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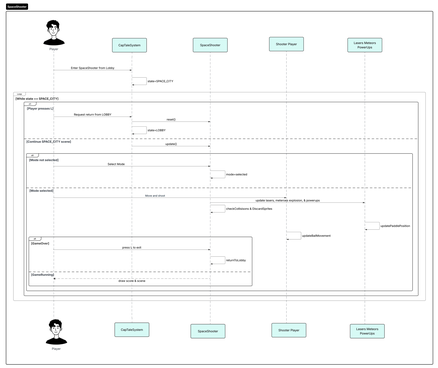
This sequence diagram shows the Space Shooter flow in CapTale from entering the city to returning to the Lobby. When the player enters the Space Shooter room, CapTaleSystem changes the game state to SPACE_CITY and begins calling `SpaceShooter.update()` each frame. Before the game starts, the player selects a difficulty by pressing 1, 2, or 3, then confirms with RIGHT_SHIFT, which configures the game settings. During gameplay, the player moves the ship and fires, while SpaceShooter updates lasers, meteors, and power-ups, then checks collisions between objects. If the player presses L, or the game sets `returnToLobby` after a game over, CapTaleSystem calls `SpaceShooter.restart()` and switches the state back to the Lobby, ending the minigame.



Sequence Diagram - ATM City

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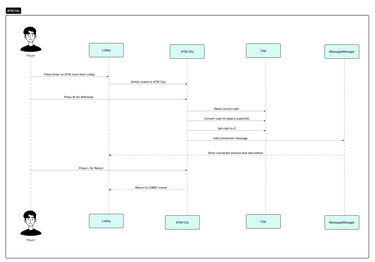
This sequence diagram represents the ATM City token conversion flow in CapTale, showing how the player exchanges earned cash for usable game tokens. When the player enters ATM City from the Lobby, the active scene changes to the ATMCity module. Inside this scene, pressing W initiates the withdrawal process, prompting ATMCity to read the player's current cash balance from the Cap object. The system then converts the available cash into tokens using the fixed conversion formula cash × 50, adds the resulting tokens to the player's token balance, and resets the stored cash value to zero after the transaction is completed. Once the conversion succeeds, ATMCity sends a notification to the MessageManager, which displays a message showing the amount converted and the player's updated token total. When the player presses L, the ATM interaction ends and control returns to the Lobby, where the updated token balance remains available for accessing other city activities.



Sequence Diagram - Pong City

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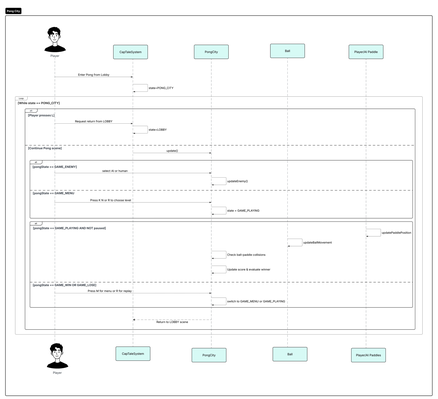
This sequence diagram outlines the Pong City flow in CapTale from entry to exit. When the player enters the Pong room, CapTaleSystem changes the game state to PONG_CITY and begins calling `PongCity.update()` each frame. The player first chooses whether to play against the AI or another player, then selects a difficulty level before the game starts. During gameplay, the paddles and ball are updated continuously, while PongCity checks collisions and updates scores. If the game is paused, the player can resume or restart. After a win or loss, the player may replay or return to the menu. Pressing L at any time exits the minigame and returns the player to the Lobby.



Sequence Diagram - Earn City

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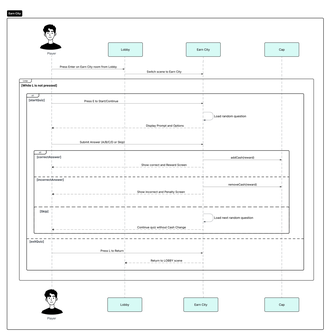
This sequence diagram describes the Earn City quiz flow in CapTale, where the player answers questions to increase or decrease their in-game cash balance. After the player enters Earn City from the Lobby, control shifts to the EarnCity module, where the quiz cycle continues until the player chooses to leave. By pressing E, the player starts or continues the quiz, causing EarnCity to load a random question and display the prompt with multiple-choice options on the screen. The player then submits an answer using A, B, C, D, or chooses to Skip. If the selected answer is correct, EarnCity rewards the player by calling `Cap.addCash(reward)`, and a confirmation screen displays the earned amount. If the answer is incorrect, the system applies a penalty through `Cap.removeCash()`, deducting either the defined penalty or the remaining available cash, followed by feedback showing the loss. If the player skips the question, EarnCity immediately loads the next one without modifying the cash balance. At any point, pressing L exits the quiz, and EarnCity returns control to the Lobby, preserving the player's updated cash for later use in other cities.