* **System-Level Data Model**
  + The system-level data model in this scenario is minimalistic, prioritizing a memory-based tracking system without persistent storage. It manages only the player’s score and progress during gameplay. No role-based access control is required, as each playthrough is independent following the framing of the classic arcade model.
* **The game follows a one-shot model, meaning:**
  + Players have a set number of lives.
  + If lives reach zero, the game ends, and they must restart from the main menu.
  + Players can quit voluntarily at the start of a new level.
  + Only if a player’s final score is competitive will they be prompted to enter their name for leaderboard ranking.
* **Primary Actors**
  + **Player (Bucky)**
    - **Attributes:** Lives, Score, Movement Speed, Position
    - **Behaviors:** Jump, Climb, Collect Power-ups, Avoid Obstacles, Take Damage
  + **Enemies (Old Bucky Mascot, Crabs, Seagull/Pelican Dropping Items)**
    - **Attributes:** AI Type (Stationary, Patrolling, Chasing), Damage, Spawn Patterns
    - **Behaviors:** Move, Attack, Block Player Progress, React to Player Actions
  + **Level Manager**
    - **Attributes:** Current Level, Win/Loss Conditions, Timer, Score
    - **Behaviors:** Load Levels, Track Player Progress, Manage Transitions
  + **Major Objects**
    - **Platforms & Climbing Objects** (Ladders, Ropes, Moving Platforms, Barrels)
    - **Functionality:** Allow movement and traversal
  + **Hazards & Obstacles** (Rolling Barrels)
  + **Functionality:** Deal damage, hinder movement
* **Game States Reviewed:**
  + **Start Menu**
    - Player selects **Start** → Transitions to **Instructions**
    - Player selects **Quit** → Exits the game
  + **Instructions Screen**
    - Player reads instructions → Proceeds to **Level 1**
  + **Gameplay Loop**
    - **Normal State**: Player navigates obstacles, climbs, avoids enemies.
    - **Damage State**: Player is hit → Lives/Health decrement.
    - **Power-Up State** : Triggered when the player collects a power-up, modifying their abilities temporarily.
      * + **Combat-Based Power-Ups**

**Sword** – Short-range melee weapon effective against close-range enemies.

**Flintlock Pistol** – Long-range projectile weapon with a set number of shots.

* + - * + **Health and Survival-Based Power-Ups**

**Coconut** – Grants the player **+2 additional lives**.

**Bottle of Rum/Wine** – Fully restores health or provides temporary damage resistance.

* + - * + **Invincibility Power-Up**

**Treasure’s Blessing (Treasure Chest)** – Temporarily grants invincibility, represented by a golden aura around the player.

* + - * + **Environmental Activation Power-Up**

**Siren’s Song (Bugle/Horn)** – Triggers a **thunderbolt strike**, eliminating all enemies on-screen.

* + - * **Score**: Enemies Defeated + Time taken to beat level time a base level completion score
    - **Zero Lives** → **Game Over Screen**.
    - **Level Completion** → If the player reaches the top platform, the next level loads.
    - **Voluntary Exit** → Player can quit at the start of a new level.
  + **End Conditions**
    - **Win State**: If all levels are completed and a high score, a Leaderboard Entry is prompted.
    - **Game Over State**: If lives reach zero, the game resets to the Main Menu to restart or quit.