

Healthy Heroes

The Game Changing Kids' Eating Habits



Game Overview



Problem
Increasing Preference of
Junk Food over Healthy
Eating Options



Learning Outcome
Empower kids to make
healthier food choices



Thrill Aspect
Players are rewarded for
selecting healthy food
items with points

Key Improvements

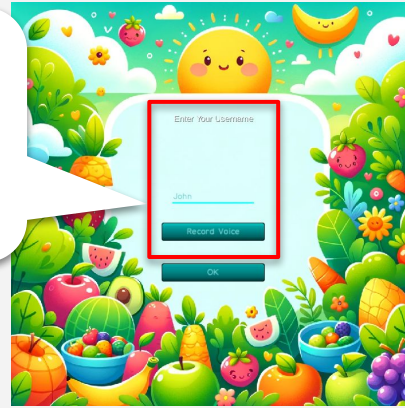
1) Learning Objective scene:

Share the purpose of game.



2) Voice Record & Username Input:

- Add own sound effects into gameplay
- Enter name before playing.



3) Healthy Tips scene:

Pre-game display: Nutritional info for items.



4) Updated Player's character & Dialogue:

Dialogue: Collect good items for Frenzy Mode & healthy physique.

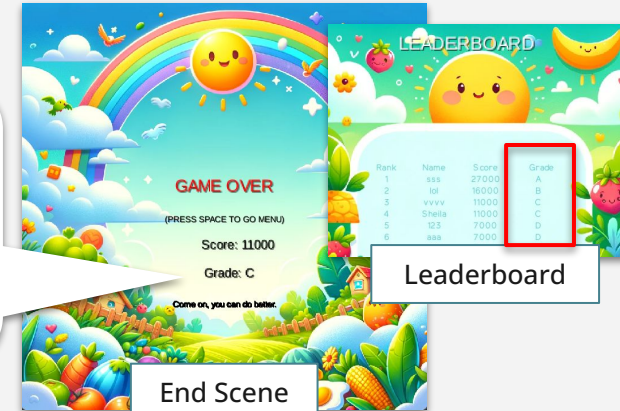
Player:

- Flips when move left to right.
- Bigger physique when collects "bad item".
- Frenzy Mode activated when collects 5 "good items".

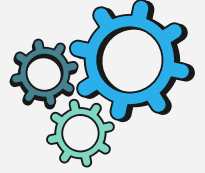


5) Grade System:

- Shown at End Scene
- Integrated into leaderboard scene
- Grades A to F depending on scores.



Game Engine



Scalability

- Use of Array List to store the list of Food Objects pool
- Use of Hashmap in centralised resource management

Design

- Implemented Factory Methods and Singleton Methods

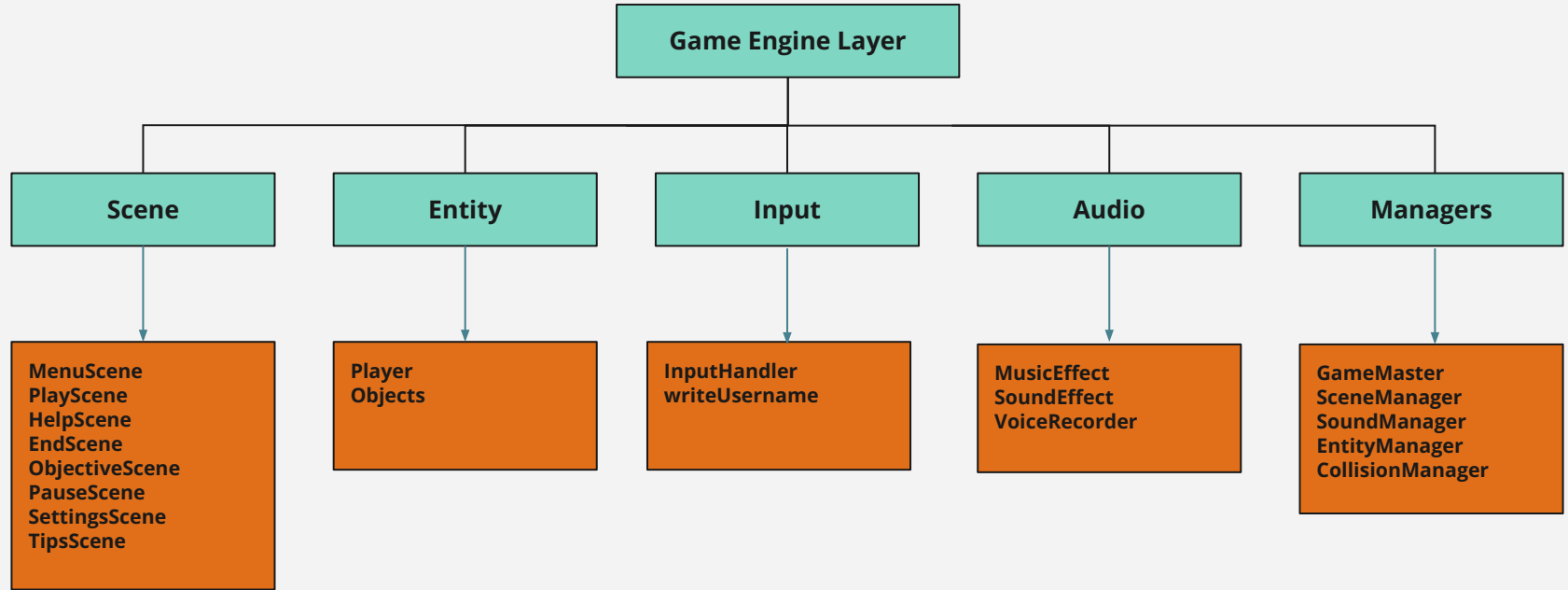
Reusability

- Achieved modularity with the use of aggregation and association

Expandability

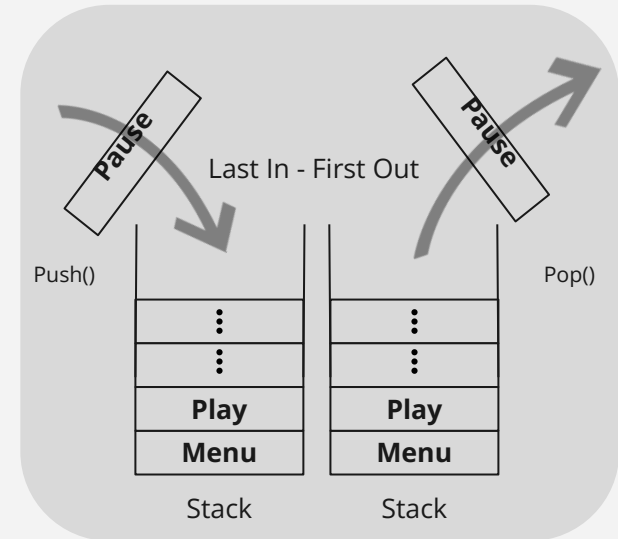
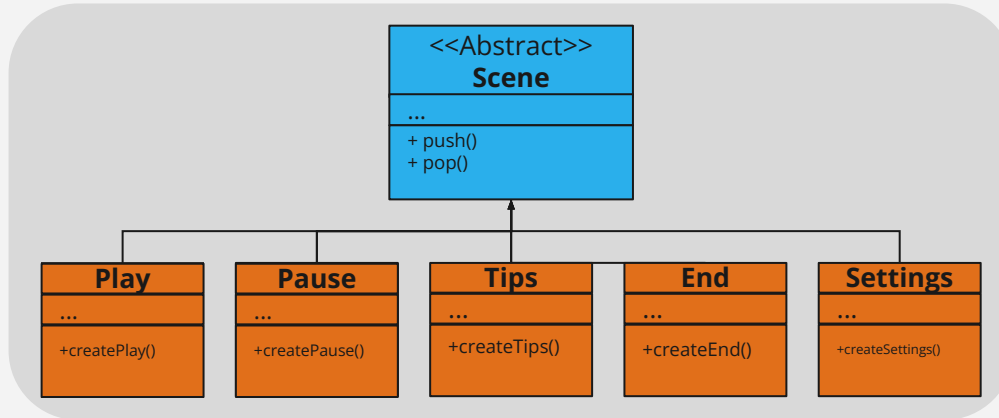
- Use of factory which promotes loose coupling

Engine Layer

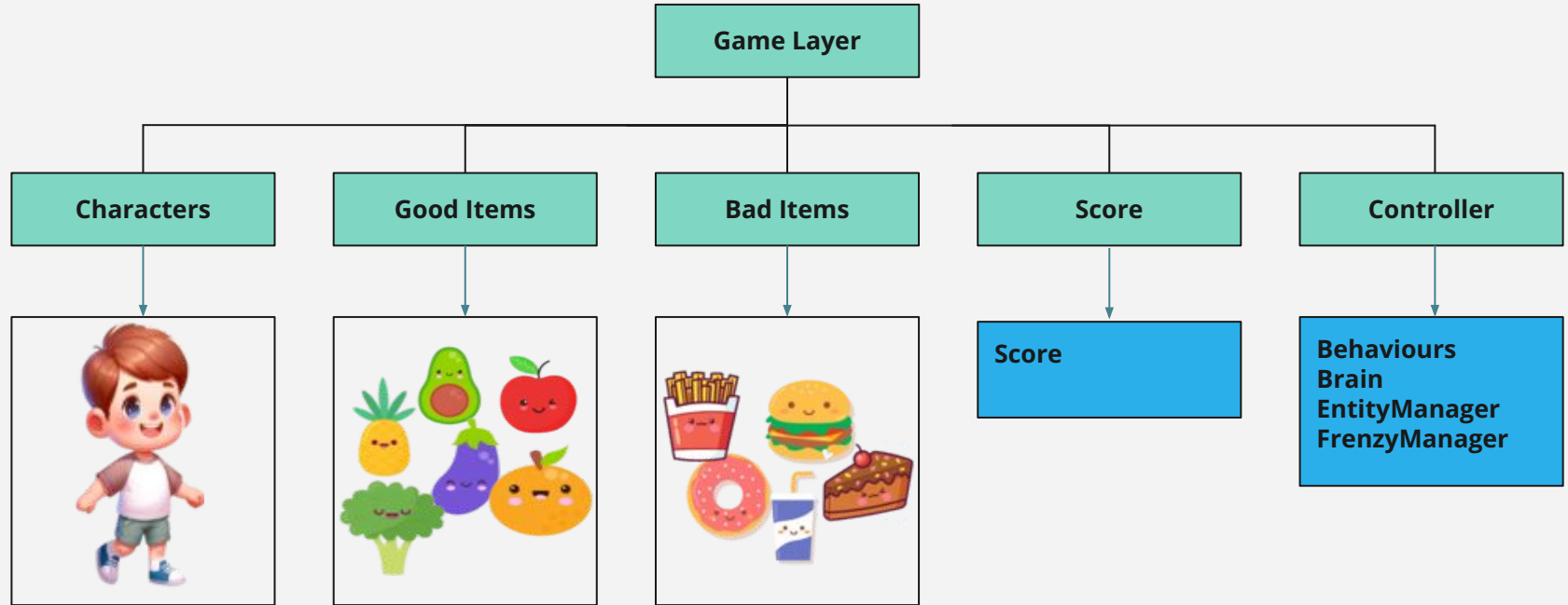


Scene Management

- Usage of abstract scene class to create multiple scenes
- Stack structure to efficiently manage which scenes is being shown



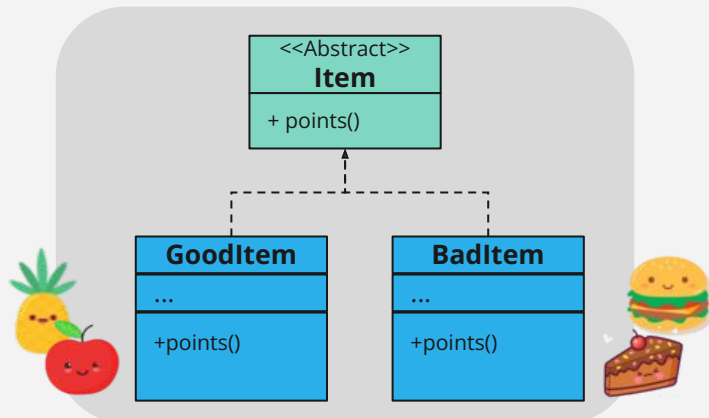
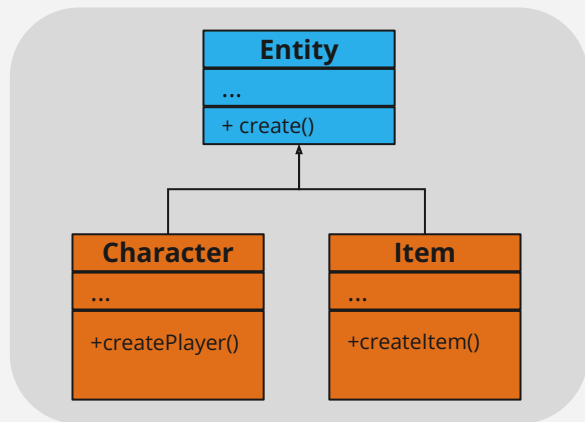
Game Layer



Entity Management

Factory Pattern

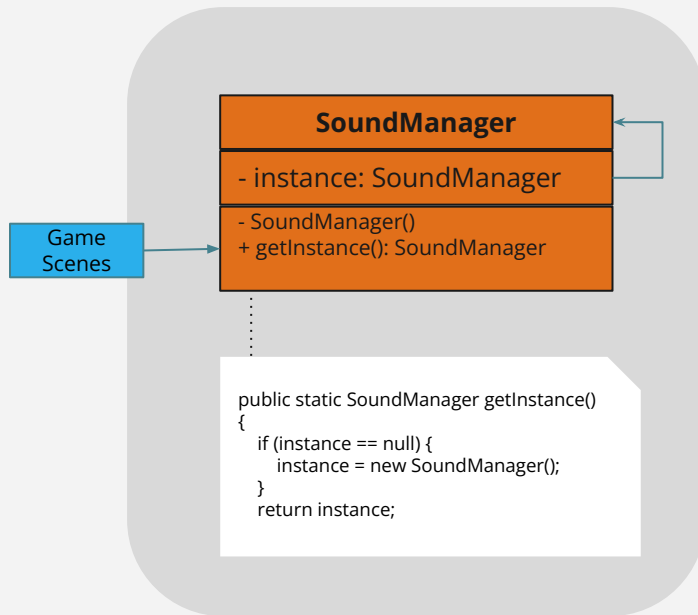
- **Class: “ItemFactory”**
- **Functionality:** Dynamically create and introduce good and bad items
- **Benefits:**
 - Enhances flexibility and scalability,
 - Supports easy incorporation of new entity types w/out altering core game logic.
- **Implementation:**
 - Leverages factory methods to instantiate entities,
 - Adjusts to game’s evolving states and scenarios.



Entity Management

Singleton Pattern

- **Class:** "SoundManager"
- **Functionality:** Singular, globally accessible instance for sound management.
- **Benefits:**
 - Minimizes redundant instances,
 - Optimizes resource utilization, &
 - Provides consistent audio experience.
- **Implementation:**
 - Only 1 instance is created & accessible globally;
 - Manages background music, sound effects, and dynamic vol. adjustments.



Behaviors & Input Controls

Feedback System

Positive: Collects good items
Negative: Collects bad items



Username Input

- Players can insert their names before gameplay
- Appear in End Scene to show their score & grade attained

Enter Your Username

John

Voice Record

- Players add their own sound effects into gameplay



Learning Outcome

Educational Elements

- Educational Dialogue
- Tips Screens
- Visual Aids



Gameplay Mechanics

- Frenzy Mode
- "Record Voice" Feature
- Feedback Loops
- Interactive Learning
- Object Interaction Refinement

Future Extension



Multiplayer Mode



Augmented Reality
(AR) Integration



Deeper Integration
of Nutritional facts



Real-life integration
of player's physical
activity into game