Project Architecture

Submitted by:

Mogammel Hossen
Student ID: 210231

Sojun Chandra Shil
Student ID: 210215

Submitted to:
Dr. Amit Kumar Mondal
Associate Professor
Computer Science & Engineering Discipline,
Khulna University,
Khulna.

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Project Title: Snake Game

Project Architecture: Layered Architecture

Applying the Layered Architecture Pattern to a Snake Game can help organize the different aspects of the game into separate layers, making the code more modular, maintainable, and extensible. Here's a high-level overview of a typical architecture:

1. **Presentation Layer:**
   a. Responsible for rendering the game graphics and handling user input
   b. Includes components like the game window, graphics rending, and user input handling.
   c. Interacts directly with the application Layer to convey user action and receive updates about the game.

2. **Application Layer:**
   a. Contains the core logic of the game, including the game mechanics and rules.
   b. Orchestrates the game flow, updating the game states based on user input and controlling game events.
   c. Communicate with the Presentation Layer to receive user input and provide updates on the game state.

3. **Domain Layer:**
   a. Represents the domain model of the game, including entities such as the snake, food, and game board.
   b. Defines the behavior and properties of these entities, such as movement rules for the snake and collision detection
   c. Contains the game logic that determines how the entities interact with each other and evolve.

4. **Infrastructure Layer:**
   a. Provide low-level services and utilities that support the game's operation.
   b. Includes components for handling platform-specific features such as file I/O, audio output, and timing.
   c. Manages any external resources or libraries used by the game, such as graphics or audio frameworks.

Here's a simplified diagram illustrating the Layered Architecture Pattern for a Snake Game.
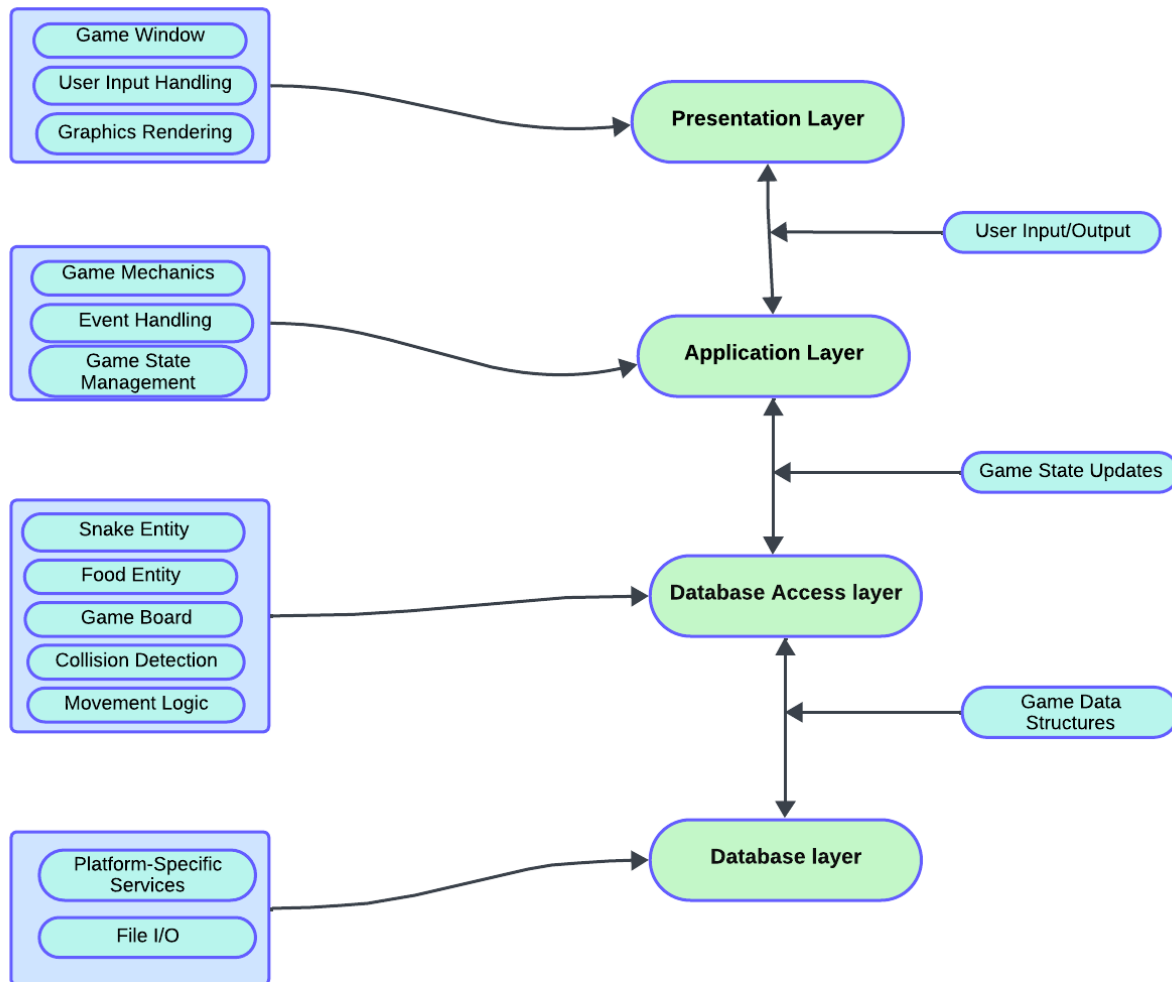

Figure: Layered Architecture Diagram

Organizing the Snake Game into these layers makes it easier to maintain and extend the game in the future. For example, we could modify the game's graphics rendering without affecting the underlying game mechanics, or swap out the input handling system without altering the core gameplay logic.