Virtual Pet Game

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Overview

In today's fast-paced world, many people desire to have pets but struggle with the time commitment required
for pet care. This virtual pet game offers a lightweight way to experience the joy of pet ownership.

Developed in Java using MVC architecture, the game simulates real pet care through real-time state monitoring
and interaction mechanisms.

Players need to attend to various pet needs (hunger, cleanliness, tiredness, entertainment) and
take appropriate care measures, fostering both entertainment and a sense of responsibility.
Have fun !!!

Features

1. State Monitoring System

    - Real-time health monitoring (0-100)
    - Four basic need indicators (0-10): Hunger, Cleanliness, Tiredness, Boredom
    - Automatic state degradation system

2. Interactive Functions

    - Feed: Reduces hunger
    - Clean: Improves cleanliness
    - Play: Reduces boredom
    - Rest: Reduces tiredness

3. Special Mechanics

    - Sleep system (automatic/manual wake-up)
    - Automatic health recovery (condition: no critical states)

- Multi-state priority management
- Pet revival functionality

Running the Application

1. Ensure Java Runtime Environment (JRE) 11 or higher is installed
2. Download VirtualPet.jar file from the PetModelRedo/ res/ directory
3. Open terminal and navigate to the jar file directory
4. Execute command:

```
java -jar VirtualPet.jar
```

- No additional parameters needed
- GUI will launch automatically

Usage Instructions

1. Basic Operations

   - Click buttons to perform corresponding actions
   - Monitor status bar for current pet needs
   - Check message area for real-time feedback

2. State Management

   - Normal state: All indicators below 10
   - Critical state: Any indicator reaches 10
   - State Priority: Based on weight system (Dirty > Tired > Hungry > Bored)
   - Death condition: Health drops to 0

3. Special Features

   - Sleep mode:

     - Entry condition:

       - Available in tired state score value > 0 and
       - there are no critical states of hunger, cleanliness, or boredom

     - Auto wake-up: After 1 minute
     - Manual wake-up: Click "Wake Up" button
     - No actions allowed during sleep mode except wake-up

- When pet is in sleep mode, health would recover through time and other states score would not change

    - Revival function:

        - Trigger condition: After pet death
        - Operation: Click "New Pet" button

4. Game End

    - Game stop when pet health reaches 0, you can start a new game by clicking "New Pet" button or
    - Click the X button in the top-left corner of the Virtual Pet window to close the application

Implementation References

Key implementation details can be found in the following files:

1. State Management:

    - Pet.java:94-112:updateState()
    - PetState.java:1-25:enum PetState
    - PetStateTest.java:1-224

2. Action Handling:

    - PetController.java:37-58:handleAction()
    - Pet.java:94-102:performAction()

3. Time Management:

    - TimeManager.java:45:startScheduler()
    - TimeManager.java:53:restart()
    - TimeManager.java:105:notifyStateChange(String)

4. Display Logic:

    - PetView.java:59:initializeUserInterface()
    - PetView.java:160:updatePetIcon(String)
    - PetView.java:188:updateState(String)
    - PetView.java:197:appendMessage(String)