Project Report Submission

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Task Title: Snake Game in Java

Task Description:

Implementing the Snake game in Java using Swing components, handling user input, and managing game logic.

Steps Taken:

1. Set up the project structure with a package named "Snake."
2. Implemented the SnakeGameGUI class, extending JFrame, to manage the overall game.
3. Defined constants for cell size and board size.
4. Created instance variables for snake, food, direction, and game state.
5. Initialized the snake, set the initial direction, and placed the food in the constructor.
6. Developed the GamePanel inner class extending JPanel for rendering the game.
7. Implemented the move() method to handle snake movement and food consumption.
8. Created the placeFood() method to randomly place food on the board.
9. Implemented the checkCollisions() method to detect self-collision and boundary collision.
10. Utilized the Direction enum to represent possible snake movement directions.
11. In the main() method, instantiated SnakeGameGUI and made the game visible.

Challenges Faced:

1. Understanding and managing Swing components for GUI.
2. Implementing smooth snake movement and handling user input.
3. Ensuring random placement of food without collisions.

Solutions Implemented:

1. Thoroughly studied Swing documentation and examples.
2. Utilized a Timer for regular updates to control snake movement.
3. Implemented collision checks and avoided collisions for food placement.

Learnings:

1. Improved understanding of Java Swing for GUI applications.
2. Enhanced knowledge of handling user input and managing game state.
3. Gained experience in implementing game logic, including collision detection.

Project Update:

The Snake game project is successfully completed, providing a basic yet functional game with a graphical interface. The snake moves smoothly, consumes food, and ends the game upon collisions.

Project GitHub Report: https://github.com/rahulkumar524/java-dev-task1