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DE Intro to Discrete Structures and Object-Oriented Programming

SnakeEyes is a Java program designed to interface with instances of the early computer game Snake running in other applications. When run, it creates a UI window and three objects on the desktop. By dragging the upper left corners of the small green and red squares to the top left and bottom right corners of the game area respectively, the user can block out the area on the screen for the program to look at. They can then drag the larger Color Picker square over areas of the screen and press buttons within the UI window to enter the colors of the player-controlled snake and fruit. Finally, by supplying some basic information about the starting state of the game and clicking the associated button, the user tells SnakeEyes to convert the selected area into a live-refreshing internal representation of the game. Once this is done the final button can be clicked, causing the program to take control of the user’s mouse and keyboard to focus the window in which the game is running, begin gameplay, and guide the snake around the map with basic collision avoidance. This system makes use of a stored two-dimensional array of characters representing the state of a space, which SnakeEyes compares to previous game states to determine the position and motion of the snake. The internal game board is displayed as a colored grid of the stored characters, with the color of each cell representing the average color of that space on the screen. These averaged pixels are compared to user entered values to determine whether a cell contains a piece of the snake, a piece of fruit, or nothing. Once the game state is logged, SnakeEyes attempts to predict where the snake will move to next based on its last known position on the grid and the inputs entered by the program, before waiting until the game state matches its predicted layout to repeat the cycle again.