SCHOOL OF ADVANCED TECHNOLOGY
ICT - Applications & Programming
Computer Engineering Technology – Computing Science

A11

Game Interface

Team:
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Game Proposal - NumPuz

EXPLANATION

The purpose of the assignment is to define the elements of the GUI application to be used in game implementation. NumPuz is a simple visual game where the objective is to line up the tiles matching the numbers that correspond to each individual tile. We go in depth to explain the features and behaviors of each GUI.

The image above is the proposed splash screen title that appears every time the game is booted by the user.

1.1. Defining the Components

List of Components

The game will possess most of its components from Swing, it extends JFrame

The radio buttons with options “**Setting**” and “**play**” used are part of the swing components JRadioButton.

The logo of the program situated at the top is of Swing type “**Icon**” and instantiated by ImageIcon(getClass().getResource("NAME-OF-GIF")).

The buttons located for the are JButtons with varying positions.

There is an option to change the dimension labelled “dim” and difficulty labelled “Level” of the puzzle, it is called which has a drop down with options.

The textbox “Points” and “Time” are called JTextField.

Clicking load/save opens JFileChooser and sets a directory to save/load the file

Functionalities and Behaviours

The radio buttons are set between **Setting** and **play**, when **Setting** is selected, the user can pick the dimension of the board, load a previous game, and randomize the pieces, while if the radio button is set to Play, the player can move the tile as the please, save the game, select the level, and finish the game.

Clicking **load/save** opens a file explorer the user can choose the directory where they can either load an existing game or save the game to a txt file.

Time is a text field that activates when a game is played and starts counting that constantly update.

Points is a text field whenever a tile matches its position it will add by +100.

Dimensions choose the size of the board

Reset ends the game, resets the position of the tiles

Details

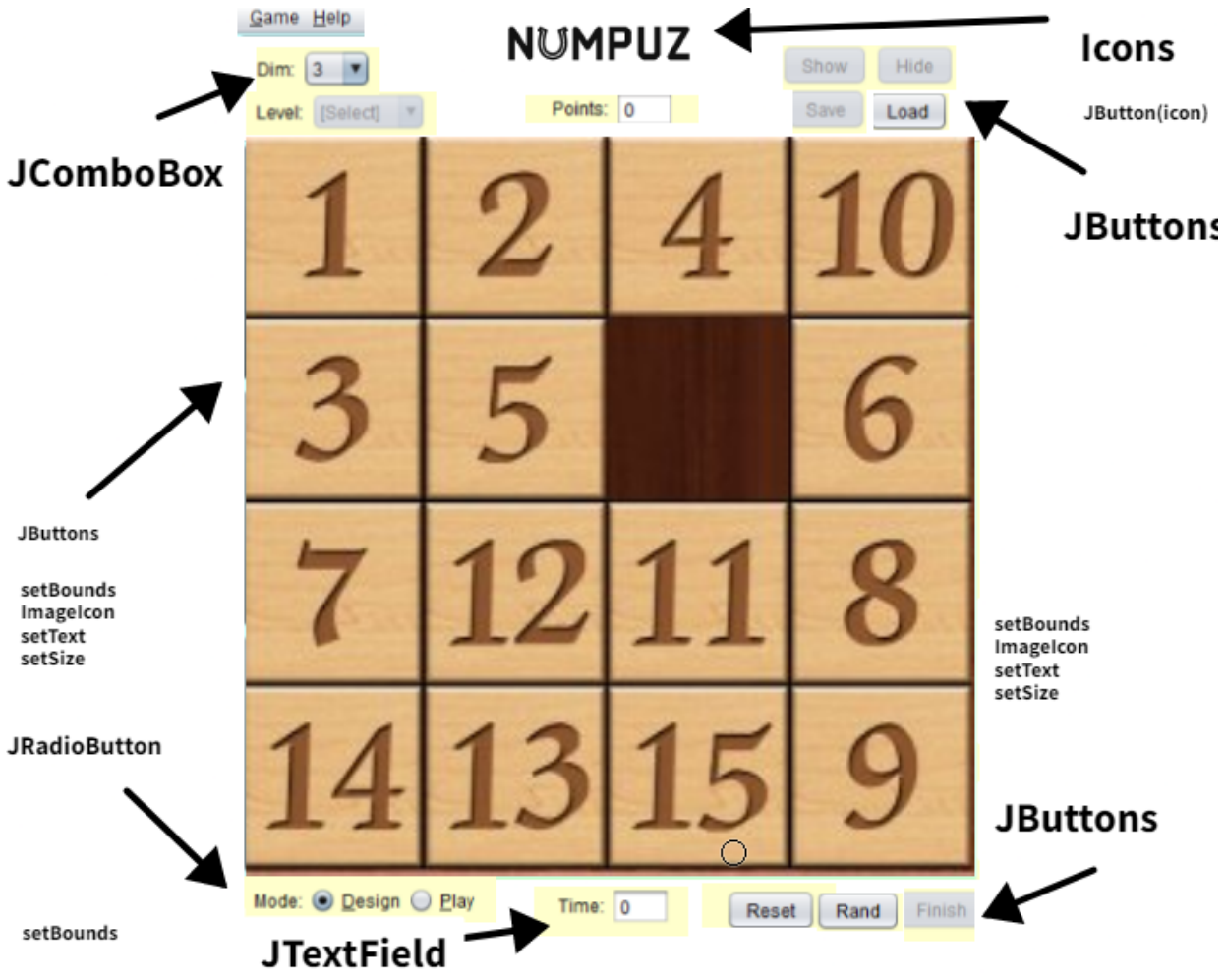


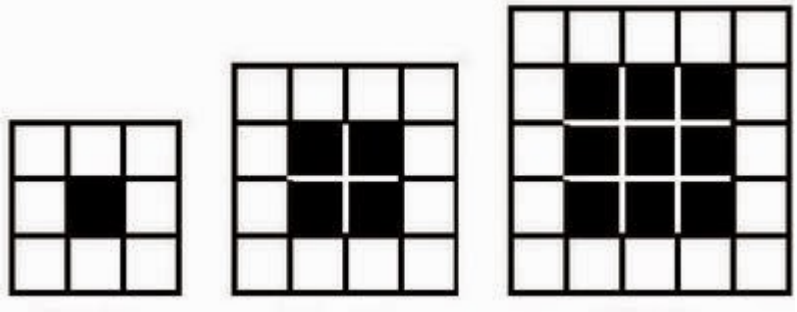
Figure 2 Main window for the number puzzle game

The Numpuz GUI is considered lightweight as it is not dependent on the OS for most of its effect and it also helps with preventing platform-specific bugs if it were to be ported to different OS. Some of the Swing containers we will be using are JFrame and JPanel.

Game Mechanics

The dimension set by the user is calculated by a simple formula of n^2 where n represents the number of tiles in a vertical/horizontal grid. Selecting the easiest level, level 1, creates a 3^2 grid which has 9 tiles total with one being empty. selecting level 2 creates a 4^2 tile and so on and so forth.

The image below highlights the lightly colored tile as the size of the border which increases with every level incremented with level 1 starting with 3 vertical/horizontal tiles



The point system also awards more points for bigger tile as they require more correct placement and significantly more time which is needed to complete the game.

1.2. User Manual

Basic cycle

NumPuz is a basic puzzle game that challenges your logic and perception. Running the game is easy,simply open the executable .jar file and select the settings in the game option. NumPuz has features for selecting difficulty and saving/loading save files. When a game is started, move the tiles to the appropriate squares and win points! Try to beat the game in the shortest possible time.

References

https://web.mit.edu/6.005/www/sp14/psets/ps4/java-6-tutorial/components.html