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### 1. Introduction

The 15-puzzle is a numbers puzzle invented by Sam Lloyd in 1874. Since then, the game has been extended so that now it is available in numerous variations, including the 24-puzzle

The 15-puzzle game is played on a 4 by 4 board, on which tiles numbered from 1 to 15 are placed randomly, leaving one position blank.

The 24-puzzle game is played on a 5 by 5 board, on which tiles numbered from 1 to 24 are placed randomly, leaving one position blank.

The player has to arrange the numbers on the board in a certain sequence by making sliding moves that use the blank space.

Anjo 15 and 24 puzzle offers you the possibility to play on a 4 by 4 and 5 by 5 board, on three difficulty level (two timed and one with unlimited time), choosing from a total of 25 different final arrangements of tiles.

The game allows for two ways of identifying a position on the board:

- letters and numbers - lines are marked with a letter, columns are marked with a number.

Example: B2

- pairs of numbers - lines and columns are marked with numbers. Example: Line 2, column 2

The speech rate can be adjusted ingame, according to your preferences.

The game stores settings regarding notation and speech rate, so that your favourite settings are automatically loaded when starting a new game.

### 2. How to play

Use the arrow keys to move around the board.

Press S to select a tile, use the arrow keys to go to the position where you wish to put the tile and press Space to slide it.

A tile can only be moved into the empty space, and only if it is directly adjacent to it.

You can only select pieces adjacent to the empty space.

Arranging all tiles in the requested order wins the game.

For Medium and Hard difficulty level, the player has to arrange the pieces in the correct order in a limited time.

### 3. Menus

Navigation is consistent throughout all menus: use the up and down arrows to cycle through the list of menu items and press Enter to select an option.

When in a submenu, you can return to the previous menu by pressing Escape.

### **3.1. Main menu**

The main menu is displayed upon starting the program and can be accessed during play by pressing Escape.

Two options can be chosen from the main menu:

- New game
- Exit

By choosing New game, the Difficulty menu is displayed.

### **3.2. Difficulty menu**

This menu allows the selection of the difficulty level.

The options are:

- Easy - no deadline
- Medium - deadline: one hour
- Hard - deadline: 45 minutes

After choosing either option, the Board menu is displayed.

### **3.3. Board menu**

This menu allows you to choose one of the 2 predefined board sizes:

- 4 by 4 board
- 5 by 5 board

After choosing the desired size, the Game type menu is displayed.

### **3.4. Game type menu**

This menu allows you to choose the game type. The options are different according to the board size chosen in the previous menu.

For the 4 by 4 board:

- 1 to 15.
- 15 to 1.
- 1 to 15 from top to bottom.
- 15 to 1 from top to bottom.
- 1 to 15 vertical from bottom to top.
- 1 to 15 (1 in the right hand corner) from top to bottom.
- 1 to 15 continuous from bottom to top.
- 1 to 15 continuous (reversed) from top to bottom.
- 1 to 15 horizontal from bottom to top.
- Odd left, even right.
- Alternate odd line and even line.

- Alternating right to left.
- Zigzag 1 to 15.
- Zigzag down, left, up, right.
- Zigzag on left, continuous on right.
- Add to 34 in all directions (count blank as 16).
- Add to 30 in all directions (count blank as 0).
- Around the edges.
- Around the edges from bottom.
- Around the edges from bottom up.
- Around the edges odd and even.
- Checkerboard 1-3-5-7 in corners.
- Up and down and around.

For the 5 by 5 board:

- 1 to 24
- 24 to 1

Choosing either option starts the game.

## 4. Keyboard commands

Escape - menu key. Different behaviour, depending on situation: While playing a game, it shows the game menu.

If the main menu is open during a game, it closes the menu and returns to the game.

In a submenu, it returns to the previous menu.

Used in the main menu when no game is active, it reloads the menu.

Alt + F4 - exits the game.

Up, down, left, right arrows - navigate between board cells. For each cell, the game announces the number of the line, the number of the column and whether that position is occupied by a tile.

s - selects a tile.

Space - moves selected tile to the current position, if the current position is blank.

j - jump to the blank space.

e - say the position of the blank space.

p - say current position.

l - say current line.

c - say current column.

g - say entire board, line by line.

f - say how the tiles should be arranged.

i - say if and what tile is selected.

t - say time left.

d - say time elapsed.

[ - decrease speech rate.

] - increase speech rate.

n - switch notations: letters and numbers or pairs of numbers. Default: letters and numbers.

