FLORAL MAZE

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Final Project DSA Presentation

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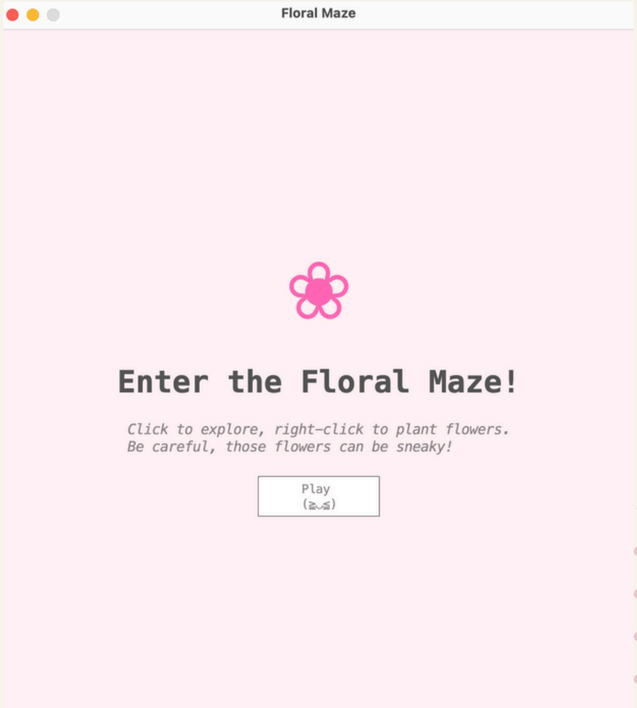
INTRODUCTION

- **Game Name**: Floral Maze (Minesweeper-style game)

- **Overview**: A fun and interactive Minesweeper game with a floral theme where players uncover tiles and avoid hidden traps (flowers).

→ Explore the grid, avoid flower traps, and reveal safe tiles to win.



PROGRAM STRUCTURE

- **Key components:**

    1. **Home screen:** Displays instructions and allows users to start the game

PROGRAM STRUCTURE

- **Key components:**

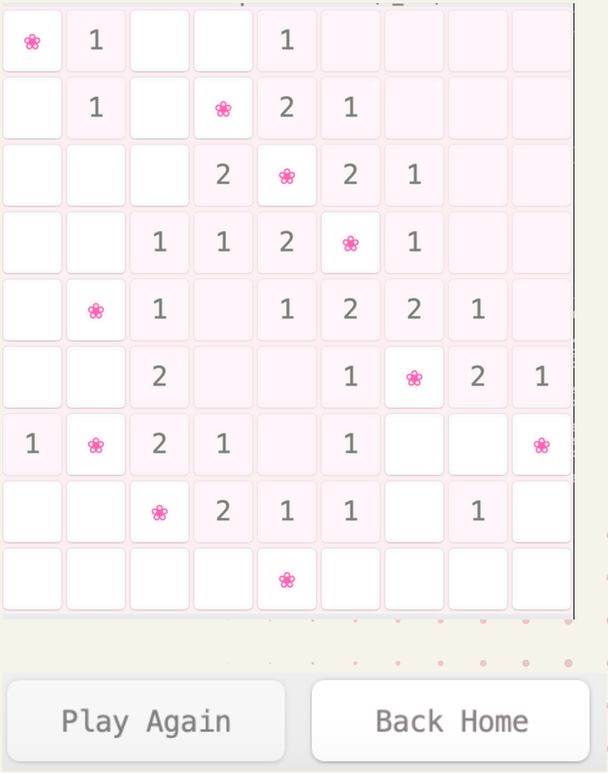
  2. Game screen:

  + Board: 70x70px

  + MineTile Class: represent each cell with row and column

  + Logic: Mines placed randomly, adjacent mines counted

  + Buttons: “play again” or “return home screen”



PROGRAM STRUCTURE

- **Code Overview:**

```
void setMines() {
    mineList = new ArrayList<>();
    int mineLeft = mineCount;
    while (mineLeft > 0) {
        int r = random.nextInt(numRows);
        int c = random.nextInt(numCols);

        MineTile tile = board[r][c];
        if (!mineList.contains(tile)) {
            mineList.add(tile);
            mineLeft--;
        }
    }
}
```

- Randomly generate row and column
- Check if board [r] [c] is already in mineList
- If not, add and reduce mineLeft.

=> Ensures no duplicate mines.

WIN/LOSS CONDITIONS

Win conditions

- Reveal all safe tiles without hitting a flower trap
- Victory messages “Flower Power Unleashed"

Loss Conditions

- Hit flower trap -> game ends
- Defeat message “Flower Trap Activated"

DSA ALGORITHMS APPLIED

1. Randomization
2. Array Implementation
3. Neighbor Checking
4. Backtracking

ADVANTAGES & FUTURE DEVELOPMENT

Advantages

+ Simple, engaging for all ages
+ Use algorithms about randomization and recursion.

Future Improvements

+ Add difficulty levels
+ Add leaderboard
+ Implement a timer for competitive.

THANK YOU

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