

DEPARTMENT OF COMPUTER APPLICATION

AI - MSE1 PROJECT - PUZZLE SOLVER

EVEN SEMESTER (AI101B)

MCA 2nd SEM (C)

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UNDER THE SUPERVISION OF :-

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Interactive Sliding Puzzle Game

The "Puzzle Solver" is a Python-based game application that challenges players with a classic sliding puzzle. Built using the Pygame library, this game divides an image into a 4x4 grid of tiles and shuffles them, requiring the player to rearrange the pieces to restore the original image. The game integrates interactive mechanics, such as move counting and a time-based challenge, making it engaging for users.

Project Objectives



Interactive Game

Develop an interactive sliding puzzle game using Python & Pygame.



Intuitive GUI

Implement an intuitive GUI for smooth user interaction.



Enhance Reasoning

Enhance problem-solving & logical reasoning through gameplay.

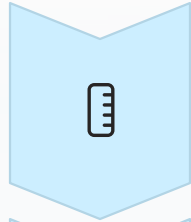


Moves & Timer

Track moves & add a **timer** to **increase engagement**.



Development Methodology



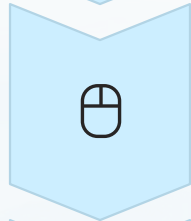
Game Planning & Design

Sketching the UI and defining game rules.



Coding & Implementation

Writing Python scripts for game logic.



Event Handling

Capturing keyboard/mouse inputs for tile movement.



Shuffling Algorithm

Ensuring a **solvable puzzle** by properly arranging tiles.



Move Counter & Timer – Tracking player's progress.

Game Planning & Design



Coding & Implementation



Event Handling



Shuffling Algorithm



Move Counter & Timer



Testing & Debugging



Final Deployment

Technologies Used



Python

Core programming language.



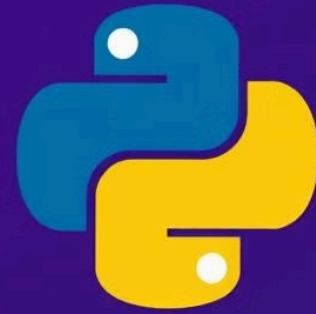
Pygame

Graphics, rendering, and event handling.



Random Library

Shuffling tiles dynamically.



Python



PyGame

Puzzle Solver Features

Graphical UI

Smooth Animations

Input

Keyboard & Mouse Input

Move Counter

Challenge with Timer

**Automatic Shuffling
Algorithm for
randomized start**



Code Structure Overview

[main.py](#)

Handles the game loop & user interactions

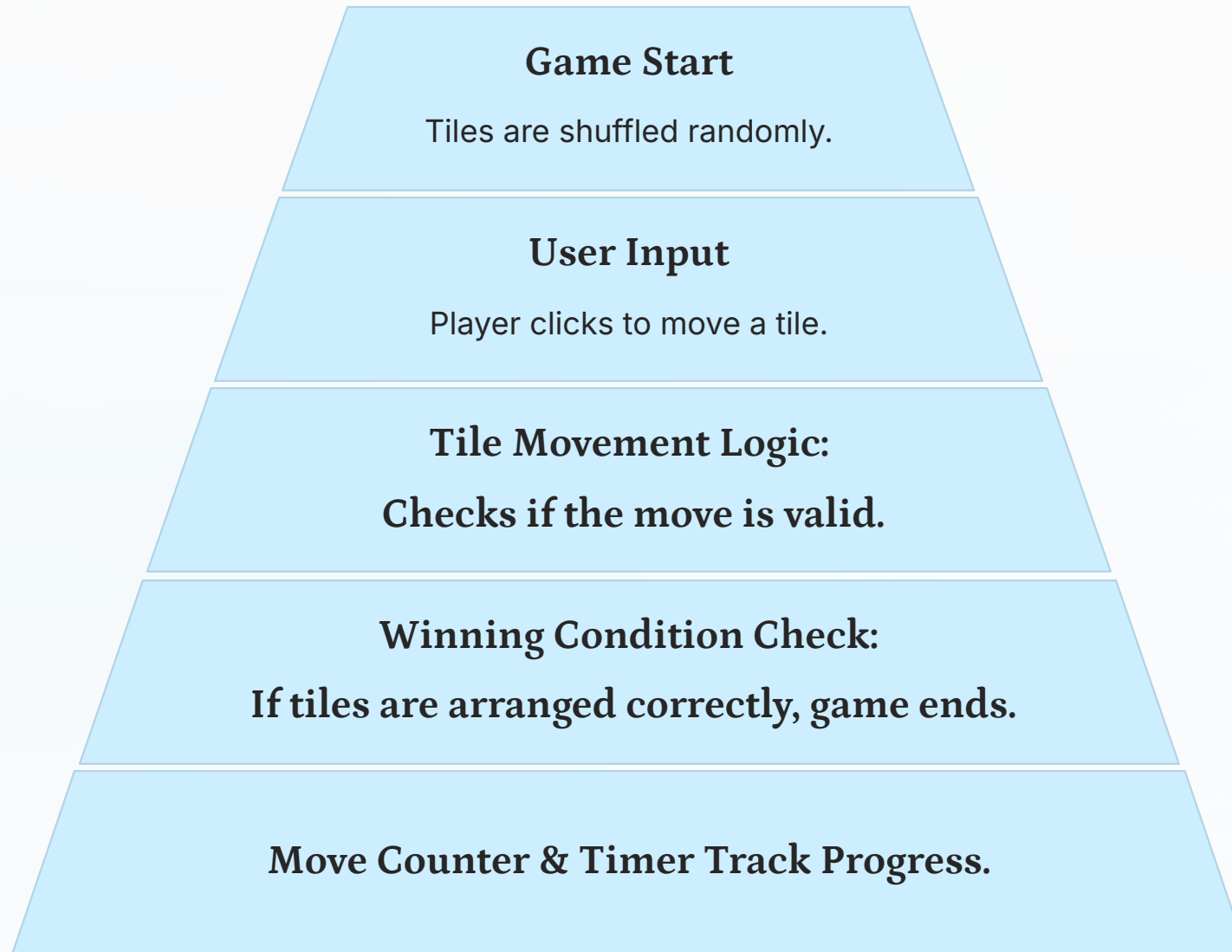
puzzle_[logic.py](#)

Manages tile movement, validation & shuffling

ui_Unknown link

Handles GUI rendering & animations

How the Puzzle Solver Works



Real-World Applications

Logical Thinking

Used in IQ tests & brain exercises.



Game Development

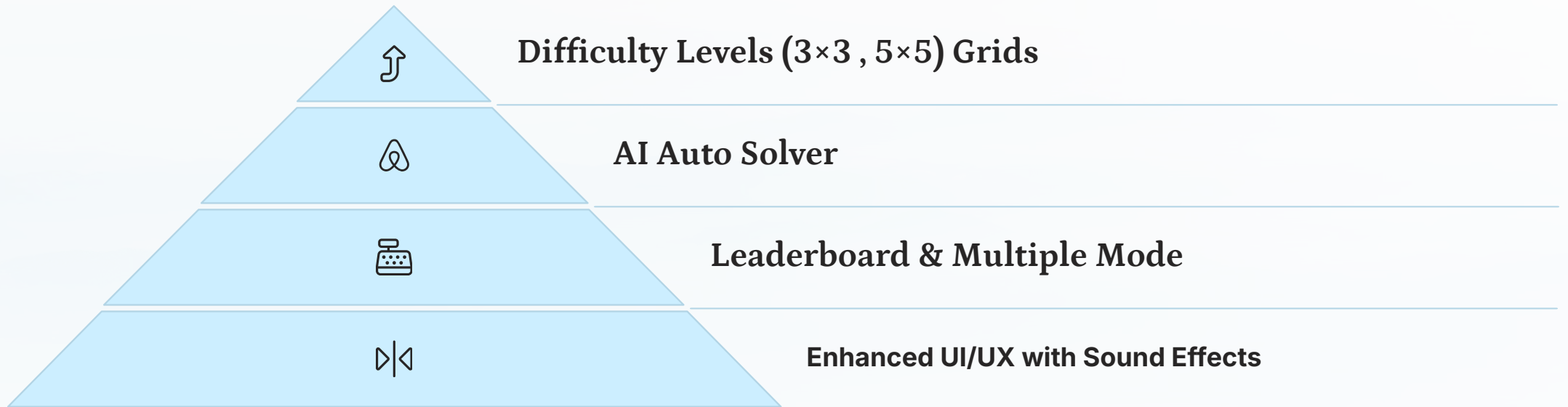
Teaches event-driven programming.



Algorithm Optimization

Useful in AI & pathfinding.

Future Enhancements





Thank

Thank You

Puzzle Solver is a fun & educational Python project. It demonstrates Python's capabilities in game development and enhances problem-solving skills & logical thinking.