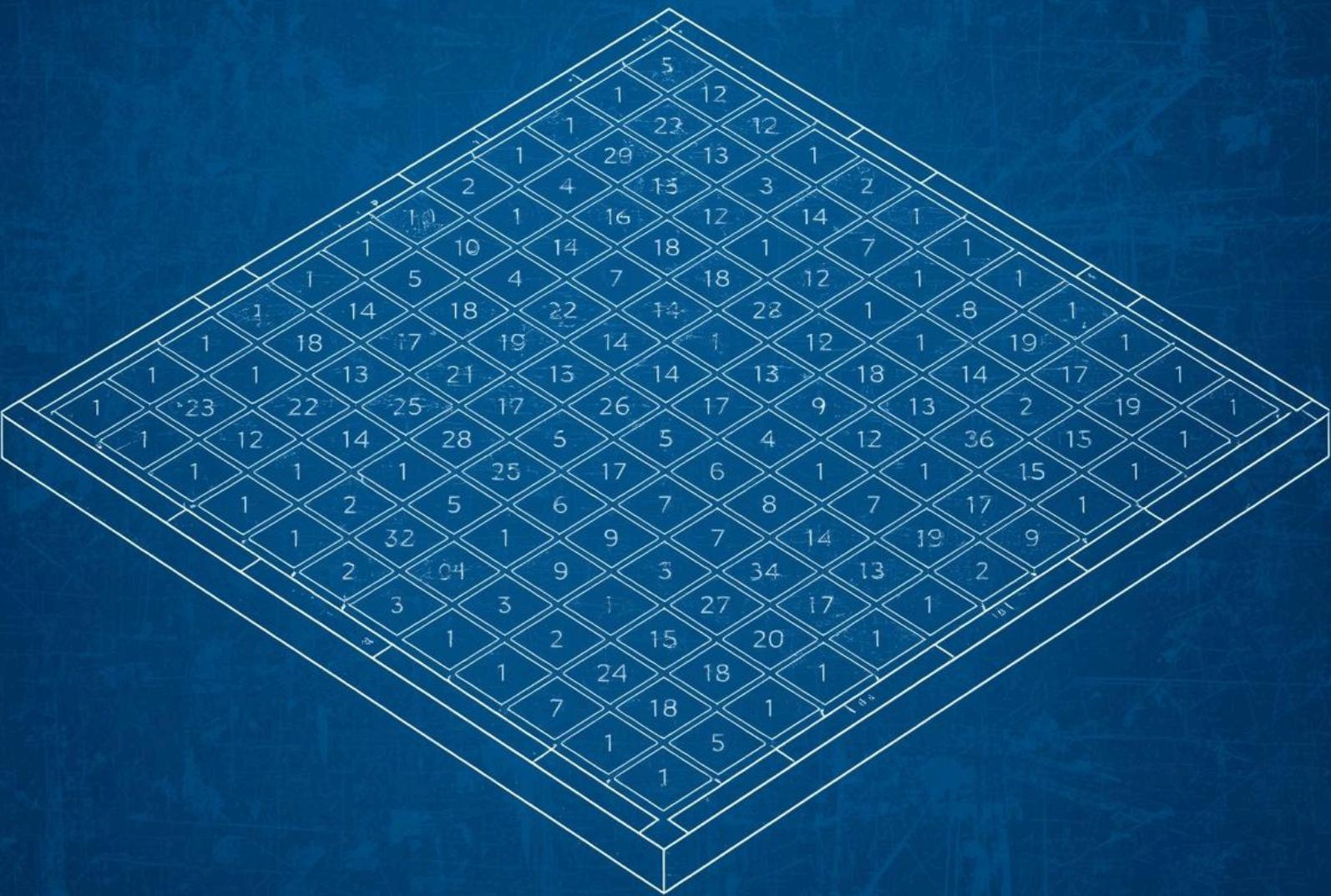


# Welcome to the Number Puzzle Game



## Number Puzzle

Engage your mind with this fun number challenge!

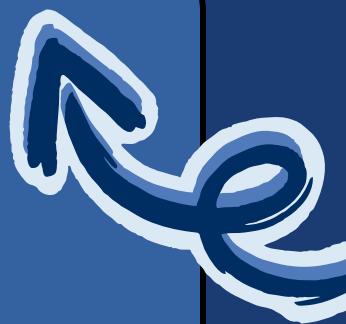
# Introduction: Saving Game Progress

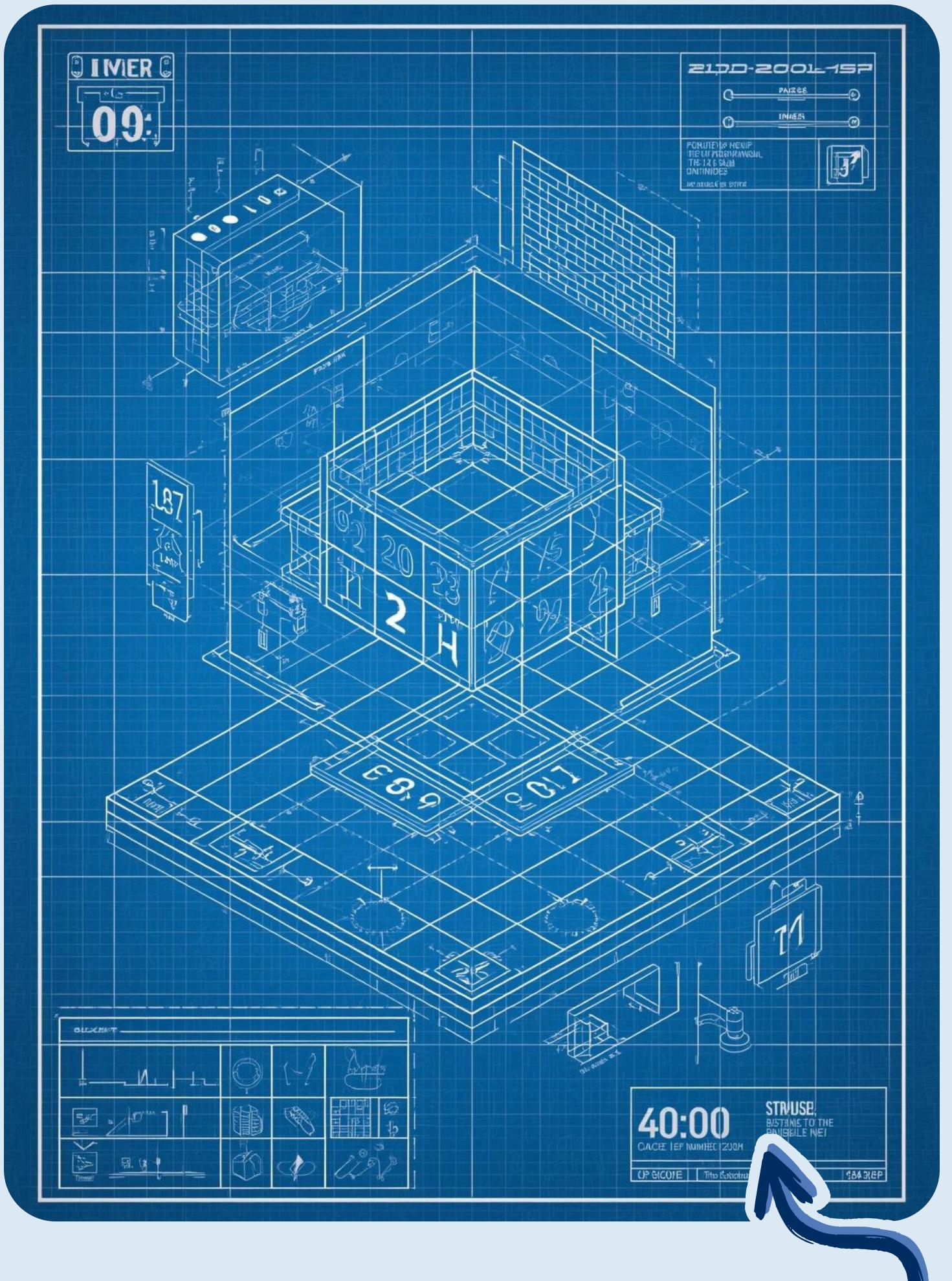
## File Save Mechanism

The file save mechanism allows players to store their game progress, ensuring they can continue from where they left off, enhancing user experience and engagement significantly.

## Data Persistence

Data persistence enables the game to remember user stats and settings over sessions, saving essential information securely and allowing for a seamless gameplay experience whenever players return.

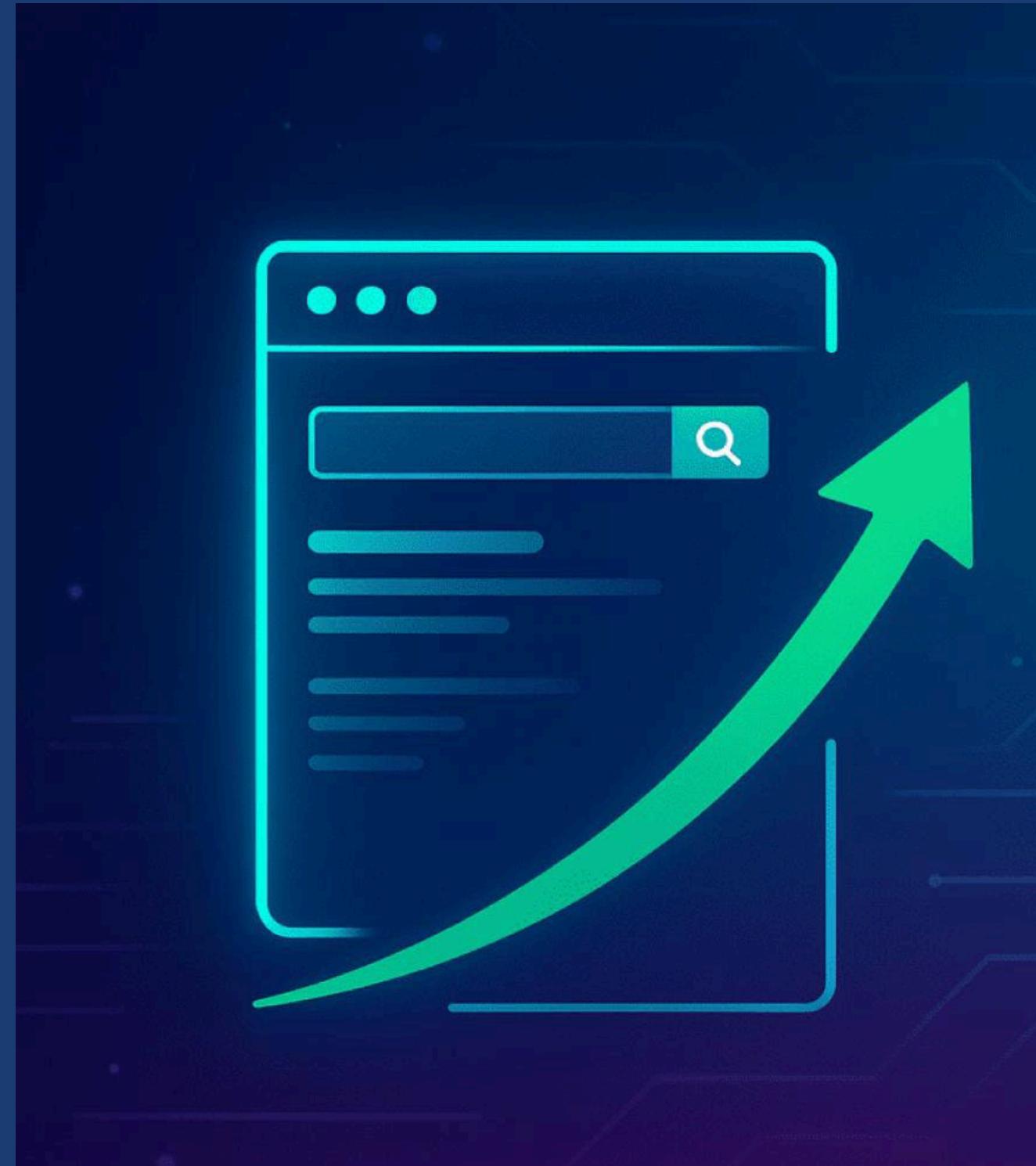




# Game Mechanics

Understanding the core mechanics of the number puzzle game is essential for players to engage effectively and enhance their gameplay experience while strategizing for high scores.

# Code Explanation:



rand() function is used to generate the puzzle number.

A loop allows multiple attempts.

The number of attempts is counted as the player's score.

Fewer attempts = better score.

Key Concepts Used:

Loops (while)

Conditional statements (if-else)

Random number generation

User input/output

# Code Explanation: Input Validation

## User Input Checks

Input validation ensures the user enters valid data, preventing errors and maintaining game stability by checking for acceptable formats and value ranges before proceeding.

## Error Handling

Implementing robust error handling alerts users to invalid entries with clear messages, guiding them to correct mistakes and enhancing overall user experience and engagement in the game.

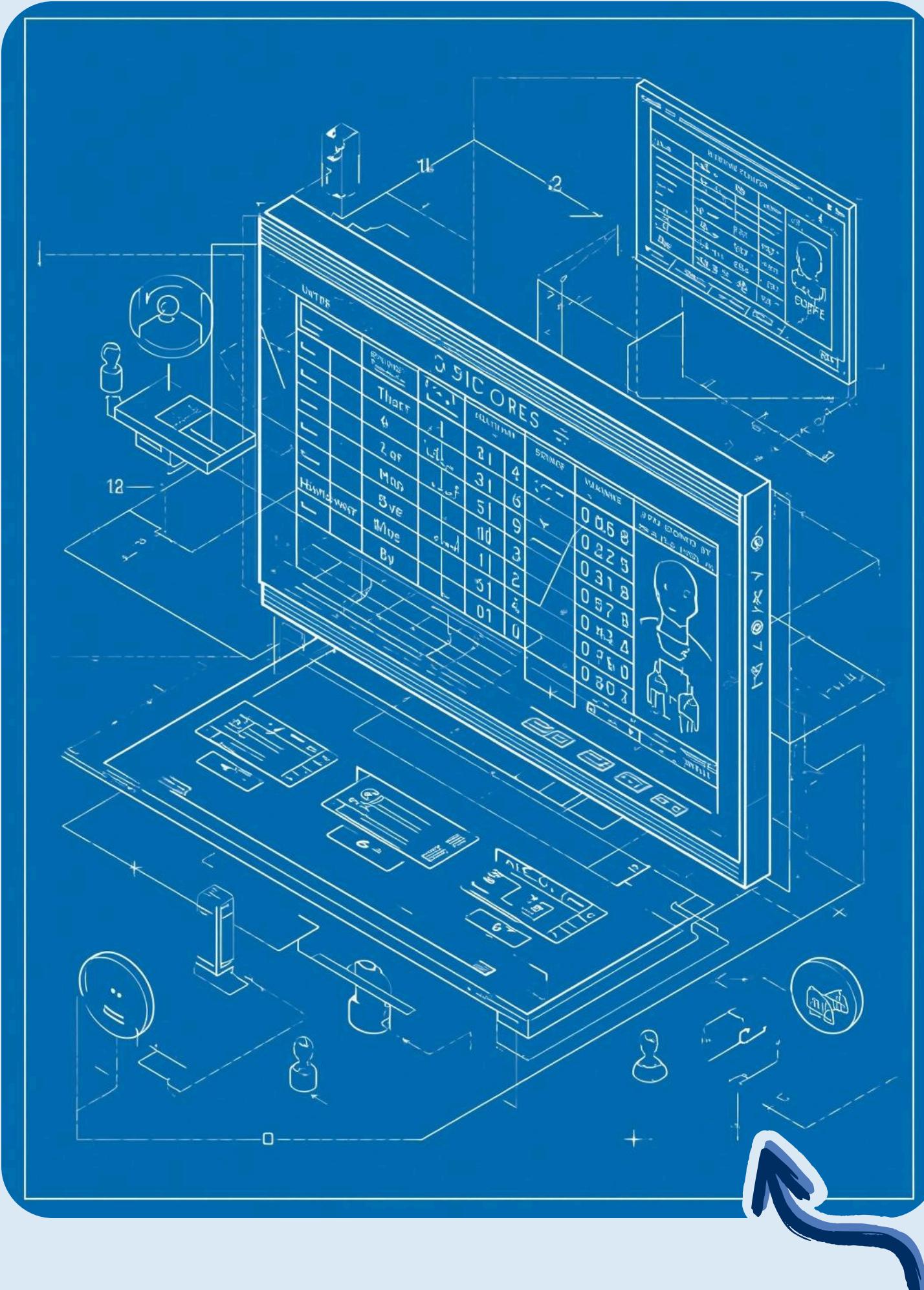
## Data Security

Validating input also protects the game from malicious inputs, ensuring data integrity and security by rejecting harmful data that could disrupt normal operations or exploit vulnerabilities.



# Advantages:

- Improves logical thinking
- Enhances programming skills
- Permanent score storage
- Introduction to file handling
- Increases user engagement
- Simple and easy to implement
- Real-world application relevance
- Project expandability
- Useful for lab exams and viva
- Builds coding confidence



# Displaying the Leaderboard

The leaderboard showcases players' **achievements and rankings**, providing motivation and fostering competition among users. It efficiently lists scores and players, enhancing the gaming experience.

# High Score Achievement Statistics

Tracking Player Success in the Game

85%

65%

## Players Achieving High Scores

This percentage reflects top player performance.

## Average Score of Players

Indicates the typical score achieved by players.

# Saving High Scores in the Game

## File Structure

The game saves high scores using a structured file format, ensuring data integrity and easy access. A consistent naming convention facilitates organized retrieval of player information.

## Data Serialization

High scores are serialized into a format that can be easily written to files, typically using JSON or CSV. This process allows for efficient storage and retrieval of player statistics.

## Error Handling

Robust error handling is implemented during the file save process, ensuring that any issues are logged and communicated to the user. This maintains a smooth gaming experience and user trust.

# Thank you!

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