



ArcadeHub Multi-Game App

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Project Overview

Tools Used:

- Python, Tkinter (GUI)
- JSON (Data Storage)
- OOP (Game Logic Architecture)

Key Features:

- Multi-Game Support (Connect Four, Hangman)
- Dynamic Themes + Real-Time Stats
- AI Opponent (Win-Blocking Logic)



Technical Highlights

Architecture

- Main Menu: Unified game launcher.
- Stats System: JSON-backed score tracking.
- Error Handling: Try/except for crash prevention

Unique Aspects

- Smart hints in Hangman.
- Column-based Connect Four AI.

Impact:

- Single app for multiple games with personalized UX.

Challenges & Solutions

Challenges Faced

1. **AI Logic:** Implementing win-blocking in Connect Four.
 - Solution: Used minimax-inspired checks for opponent moves.
2. **Data Persistence:** Saving scores/themes across sessions.
 - Solution: JSON file storage with error handling.
3. **UI Consistency:** Managing themes across games.
 - Solution: Centralized Theme Manager class.

Learnings:

- OOP for scalable game architecture.
- Balancing AI difficulty with player experience.
- User feedback integration (pop-ups, hints).

THANK YOU!