Project Proposal: AI-Based Ludo Game Using Pygame and PyTorch

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Overview:

This project is a digital implementation of the traditional board game **Ludo**, enhanced with artificial intelligence using **PyTorch**. The game is built using **Pygame** for rendering and interactivity, and includes sound effects and image assets to simulate a full-featured gaming experience.

Objectives:

- Develop an interactive and visually appealing Ludo game interface.
- Integrate AI agents to play against each other or human players.
- Simulate game logic, player movements, dice rolls, and winning conditions.
- Use sound and visual elements for better user engagement.

Technologies Used:

- **Python 3**
- **Pygame** (for game visuals and interactions)
- **PyTorch** (for AI agent logic and training)
- **NumPy** (for numerical computations)
- **OS & Random** (for game logic)
- **Pickle** (to save/load model states or game data)

AI Integration:

- The game leverages **PyTorch** to simulate decision-making for token movement.
- Agents are likely trained or structured to play optimally or semi-randomly using a simple reward-based system.

Features:

- Dice roll simulation using images.
- Token movement and killing mechanics.
- Sound effects for key actions.
- AI vs AI or AI vs Player mode (inferred from torch usage).
- Visual interface mimicking the real-world Ludo board.