

Two Flags Game

A strategic board game inspired by chess, focused on pawn movement and capture mechanics. Players compete to either reach the opposite side of the board with a pawn or capture all opponent's pieces.

Game Overview

Two Flags Game offers three play modes:

- **Human vs Human** - Network play with two clients connecting to a server
- **Human vs AI** - Play against a computer opponent
- **AI vs External Agent** - Test the built-in AI against an external chess engine

Getting Started

You can run the game either using the executable files (Windows) or directly with Python scripts.

Requirements for Python Version

- Python 3.6 or higher
- Pygame (for graphics): `pip install pygame`

Game Rules

- Each player controls 8 pawns
- Pawns move forward one square (or two on their first move)
- Pawns capture diagonally (including en passant)
- Win by reaching the opposite side of the board, capturing all opponent pieces, or leaving the opponent with no valid moves

Game Modes

Local Play (Human vs AI)

Using executables:

```
dist\play_local.exe --white human --black ai --time 5
```

Using Python:

```
python play_local.py --white human --black ai --time 5
```

This will start a game where you play as white against the AI with a 5-minute timer.

To play as black:

Using executables:

```
dist\play_local.exe --white ai --black human --time 5
```

Using Python:

```
python play_local.py --white ai --black human --time 5
```

Network Play (Human vs Human)

Using executables:

1. Start the server:
2. `dist\server.exe`
3. Then, each player runs a client:
4. `dist\client.exe`

Using Python:

1. Start the server:
2. `python -m server.server`
3. Then, each player runs a client:
4. `python -m client.client`

For network play across different computers, use:

Using executables:

```
dist\client.exe --host [server-ip]
```

Using Python:

```
python -m client.client --host [server-ip]
```

AI vs External Agent

Using executables:

```
dist\ai_vs_external.exe C:\path\to\external\agent.exe
```

Using Python:

```
python ai_vs_external.py C:\path\to\external\agent.exe
```

Controls

- Use the mouse to select and move pieces
- The game highlights valid moves when a piece is selected

Project Structure

```

TwoFlagsGame/          # Main project folder
├── assets/             # Game resources
│   ├── white_pawn.png  # White pawn image
│   └── black_pawn.png  # Black pawn image
├── client/             # Client code
│   ├── __init__.py     # Package initialization
│   ├── client.py       # Network client
│   ├── protocol.py     # Communication protocol
│   └── UserInterface.py # Game UI
├── game/               # Core game
│   ├── __init__.py     # Package initialization
│   ├── board.py        # Game board
│   ├── rules.py        # Game rules
│   ├── state.py        # Game state
│   └── timer.py        # Game timer
├── search/             # AI components
│   ├── __init__.py     # Package initialization
│   ├── ai_agent.py     # AI implementation
│   ├── evaluation.py   # Board evaluation
│   └── minmax.py       # Minmax algorithm
├── server/             # Server code
│   ├── __init__.py     # Package initialization
│   └── server.py       # Game server
├── dist/               # Executable files
│   ├── play_local.exe  # Local play executable
│   ├── server.exe      # Game server executable
│   ├── client.exe      # Game client executable
│   └── ai_vs_external.exe # AI vs External executable
├── ai_vs_external.py   # AI vs external agent script
├── play_local.py       # Local game script
└── README.md           # This file

```

Troubleshooting

- If executables don't run, try running as administrator
- For network play, ensure your firewall isn't blocking the connection
- If using Python version, ensure all required packages are installed
- If the game runs slowly, close other applications to free up memory

Credits

Two Flags Game was developed as a chess variant with simplified rules focusing on pawn movement strategies.