Projects For Zense

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List Of Projects:

➔ Othello (A Board Game) – PyGame
➔ Connect4 (A Board Game)– PyGame with numpy.
➔ Ping Pong – Python with turtle
➔ Snake – Python with pygame and Tkinter
➔ Tetris – Python with pygame

1.)Othello:

Controls:

- Install the required module(s) (Pygame).
- The game is played using the mouse.
- Clicking on a valid cell on the game board will place your piece on that cell and flip your opponent's pieces as needed.

How to Play:

1. **Starting the Game:**
    - Run the python file.
    - A window titled "Othello" will appear, showing the initial game board.
2. **Gameplay:**
    - The game starts with Black's turn. Black is represented by black circles, and White is represented by white circles.
    - The valid moves for the current player are highlighted with a translucent blue overlay.
    - To make a move:
        - Click on an empty cell that is a valid move for your player (indicated by the blue overlay).
        - Your piece will be placed in the selected cell, and your opponent's pieces will be flipped if necessary.
3. **Switching Turns:**
    - After each move, the turn switches to the other player.
    - If a player has no valid moves, they must pass their turn.
    - The game will automatically switch to the next player when appropriate.

4. **Winning the Game:**
    - The game ends when neither player can make a valid move.
    - The player with the most pieces of their color on the board wins.
    - The game will display a message indicating the winner or a tie.
5. **Restarting the Game:**
    - After the game ends, the winner will be displayed for a few seconds.
    - The game will then automatically reset, allowing you to play another round.
    - You can close the game window at any time to exit the game.

2.)Connect4

Controls:

- Install the required module(s) (Pygame and numpy).
- Move the cursor horizontally using the mouse to preview the position where the piece will be dropped.
- Click on an available column to drop your piece.

How to Play:

1. Run the python file.
2. The Connect Four game window will open.
3. Player 1 (Red) starts the game.
4. Move your cursor over the column where you want to drop your piece. A preview piece will show your intended move.
5. Click on the column to place your piece.
6. Alternately, the game will continue until one player achieves four consecutive pieces horizontally, vertically, or diagonally.
7. If a player wins, a congratulatory message will be displayed.

3.)Ping Pong

Controls:

- Install the required module(s) (Turtle).
- Move the paddles vertically by pressing the w and s for left paddle and up and down arrow key for the right paddle.

How to Play:

1. Run the python file.
2. The Pong game window will open.

3. The ball goes to Player B first.
4. Move your paddles so that the ball does not touch the vertical edges.
5. Alternately, the game will continue until one player achieves 10 points.
6. If a player wins, a congratulatory message will be displayed.

4.)Snake Controls:

- Install the required module(s) (pygame and tkinter).
- Use the arrow keys to control the snake's movement.
- Press the **Up ,Down ,Left and Right Arrow** key to move the snake up or down or left or right.

How to Play:

1. Run the Python file to start the game.
2. The game window will open, and the snake will start moving.
3. Use the arrow keys to navigate the snake and collect the green cubes (snacks) to grow.
4. Avoid colliding with yourself, as this will end the game.
5. Each time you collect a green cube, your snake will grow longer.
6. The game continues until your snake collides with itself or grows to a length of 50.
7. If you collide, a message will appear indicating that you lost and you can play again.

5.)Tetris Controls:

- Install the required module(s) (pygame).
- Use the arrow keys to control the block’s movement.
- Press the **Down ,Left and Right Arrow** key to move the block down or left or right.
- Press the **Up Arrow** key to rotate the block.

How to Play:

1. Run the tetris_game.py file to start the game.
2. The game window will open, and the blocks will start moving down .
3. Use the arrow keys to navigate the block.
4. As the blocks fall, try to arrange them in such a way that they form complete horizontal lines from one side of the game grid to the other.
5. You’ll get 100 points for clearing 1 line, 300 for 2 line and 500 for 3 lines simultaneously.
6. The game ends when the blocks pile up and reach the top of the grid or you can no longer fit a new block due to insufficient space.

My Skills:

1. Python, working with various modules.
2. HTML and CSS
3. I can also work with C and C++.
4. **Interests to pursue:** Web development, Data science, AI/ML/DL, Unreal engine (C++).