

Tetris Game

User Guide

Version: 1.0

Welcome to Tetris! This guide will help you get started and master the game.

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Getting Started

System Requirements

- **Operating System:** Windows, macOS, or Linux
- **Python:** Version 3.x
- **Dependencies:** Pygame library
- **Display:** 600x500 pixel window

Launching the Game

1. Open a terminal/command prompt
2. Navigate to the game directory
3. Run: `python app.py`
4. The game window will open with the start screen

Getting Started (Continued)

First Launch

When you first start the game, you'll see:

- **Start Screen** with game title
- **Controls diagram** showing keyboard layout
- **Start Game** button (or press Enter)
- **Exit** button (or press ESC)

Click "Start Game" or press **Enter** to begin playing!

Game Controls

Movement Controls

Arrow Keys:

- ↑ (Up Arrow): Rotate piece clockwise
- ← (Left Arrow): Move piece left
- → (Right Arrow): Move piece right
- ↓ (Down Arrow): Soft drop (move down faster)

Space Bar: Hard drop (instantly drop piece to bottom)

Game Controls (Continued)

Game Management Controls

P: Pause/Resume game

ESC: Pause game (also quits from start/game over screens)

R: Restart current game

Enter: Start new game (from start screen)

Mouse: Click buttons in menus

Note: You can also click the "Pause" button in the top-right corner during gameplay.

Gameplay Basics

Objective

The goal of Tetris is to:

1. **Rotate and position** falling pieces to create complete horizontal lines
2. **Clear lines** by filling them completely
3. **Prevent** the stack from reaching the top
4. **Score points** and advance to higher levels

Gameplay Basics (Continued)

How Pieces Work

- Pieces fall from the top of the board
- Each piece has a unique shape (I, Z, S, L, J, T, O)
- Pieces can be rotated and moved left/right
- Pieces lock in place when they land
- Complete horizontal lines are automatically cleared

Gameplay Basics (Continued)

Game Over

The game ends when:

- A new piece cannot spawn because the spawn area is blocked
- The stack reaches the top of the playing field

When the game ends:

- Your final score is displayed
- You can choose to "Play Again" or "Quit"
- Your high score is tracked for the session

Scoring System

Base Scoring

Points are awarded when you clear lines:

- **1 line cleared:** 100 points
- **2 lines cleared:** 300 points
- **3 lines cleared:** 500 points
- **4 lines cleared:** 800 points

Tip: Clearing multiple lines at once gives bonus points!

Scoring System (Continued)

Level-Based Scoring

As you progress through levels, you earn additional points:

- A **level multiplier** increases your score
- Higher levels = higher multipliers
- The multiplier formula: $1.0 + (\text{level} - 1) \times 0.1$

Example: At level 3, you get a 1.2× multiplier on base points.

Scoring System (Continued)

High Score

- Your **current score** is displayed during gameplay
- Your **high score** (best score this session) is tracked
- High score persists across game restarts in the same session
- Beat your high score to set a new record!

Levels & Progression

Level System

- **Starting Level:** Level 1
- **Level Advancement:** Every 10 lines cleared = +1 level
- **Display:** Current level shown in top-left corner

Example:

- Clear 10 lines → Level 2
- Clear 20 lines total → Level 3
- Clear 30 lines total → Level 4

Levels & Progression (Continued)

Gravity System

As levels increase, pieces fall faster:

- **Level 1:** Base speed (30 frames per move)
- **Each level:** Pieces fall 3 frames faster
- **Minimum speed:** Caps at 10 frames per move

Display: Current gravity delay shown in top-right corner

Challenge: Higher levels require faster decision-making!

Game Features

Visual Aids

Ghost Piece:

- Semi-transparent outline shows where the piece will land
- Helps you plan placement
- Only visible during active gameplay (not when paused)

Next Piece Preview:

- Shows the upcoming piece in the preview box
- Located on the right side of the screen
- Helps you plan ahead

Game Features (Continued)

On-Screen Information

Top-Left Display:

- Current **Level**
- Total **Lines** cleared

Top-Right Display:

- **Gravity** delay (frames)

Right Side Display:

- Current **Score**
- Session **High Score**

Game Features (Continued)

Pause Functionality

To Pause:

- Press **P** or **ESC**
- Click the "Pause" button (top-right)

While Paused:

- Game stops completely
- Pause menu shows current score and high score
- Options: Resume, Restart, or Quit

To Resume:

- Press **P** or **ESC** again

Tips & Strategies

Basic Tips

1. **Plan Ahead:** Use the next piece preview to think ahead
2. **Use Ghost Piece:** The ghost outline shows landing position
3. **Clear Multiple Lines:** Aim for 2-4 line clears for bonus points
4. **Keep Left Side Clear:** Leave space for the I-piece (long vertical)
5. **Don't Panic:** Take your time, especially at higher levels

Tips & Strategies (Continued)

Advanced Strategies

Tetris (4-line clear):

- Try to build a well on one side
- Save the I-piece for clearing 4 lines at once
- Highest scoring move!

Soft Drop vs Hard Drop:

- Use **Down Arrow** for controlled placement
- Use **Space** when you're sure of placement
- Hard drop locks immediately

Tips & Strategies (Continued)

Rotation Tips

- Pieces rotate **clockwise** (Up Arrow)
- Some pieces have 4 rotation states, others have fewer
- The O-piece (square) doesn't change when rotated
- Practice rotating pieces in tight spaces

Pro Tip: Learn the rotation patterns for each piece type!

Troubleshooting

Common Issues

Game won't start:

- Ensure Python 3.x is installed
- Check that Pygame is installed: `pip install pygame`
- Verify you're in the correct directory

Controls not responding:

- Make sure the game window has focus (click on it)
- Check that no other application is capturing keyboard input
- Try clicking the window to refocus

Troubleshooting (Continued)

Display Issues

Window too small/large:

- Game window is fixed at 600x500 pixels
- Cannot be resized in current version

Graphics look blurry:

- This is normal for pixel-based graphics
- Game uses 20x20 pixel cells for optimal retro look

Pieces not visible:

- Ensure game is not paused
- Check that pieces are within board boundaries

Troubleshooting (Continued)

Gameplay Issues

Piece stuck or not moving:

- Game may be paused (check for pause menu)
- Piece may have locked in place (normal behavior)
- Try pressing P to toggle pause

Score not updating:

- Score only increases when lines are cleared
- Check that you're completing full horizontal lines
- Score updates immediately after line clear

Quick Reference

Essential Controls

Action	Key
Rotate	↑
Move Left	←
Move Right	→
Soft Drop	↓
Hard Drop	Space
Pause	P or ESC
Restart	R
Start Game	Enter

Quick Reference (Continued)

Scoring Reference

Lines Cleared	Base Points
1 line	100
2 lines	300
3 lines	500
4 lines	800

Remember: Level multiplier increases these values!

Quick Reference (Continued)

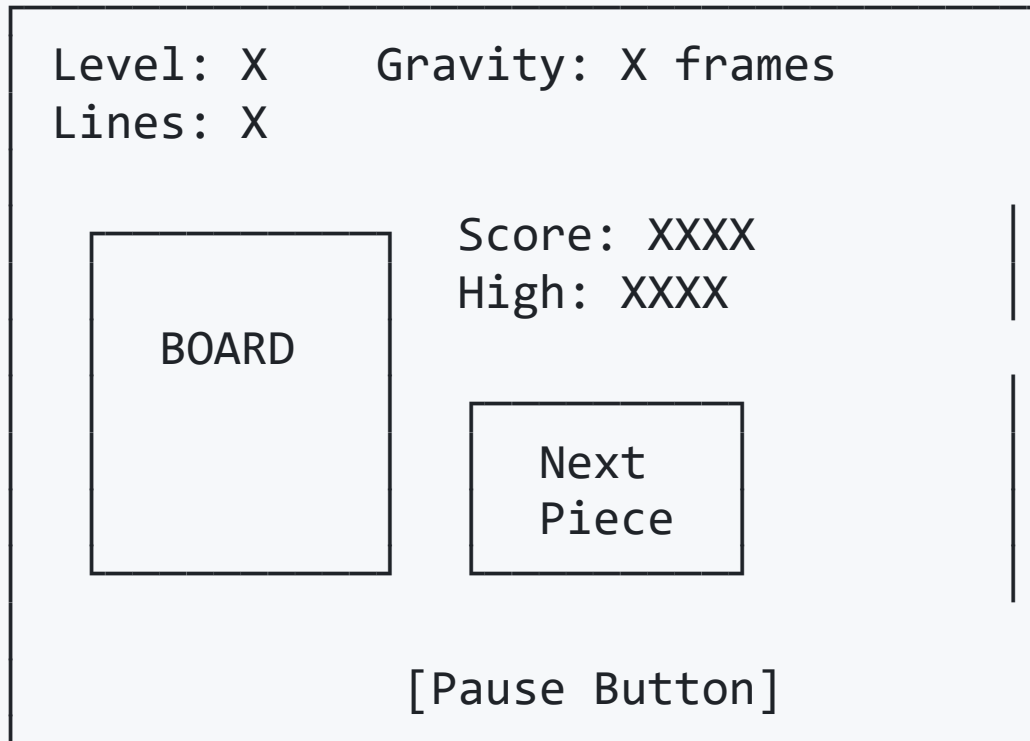
Level Progression

- **Level 1:** Start here
- **+1 Level:** Every 10 lines cleared
- **Speed Increase:** 3 frames faster per level
- **Minimum Speed:** 10 frames (reached around level 8)

Challenge yourself: How high can you go?

Game Screen Layout

Visual Overview



Piece Types

The Seven Tetris Pieces

I-Piece (Line):

- Long vertical/horizontal bar
- Best for clearing 4 lines (Tetris!)

O-Piece (Square):

- 2x2 block
- Doesn't rotate
- Good for filling gaps

Piece Types (Continued)

T-Piece:

- T-shaped
- Versatile for many situations

L-Piece & J-Piece:

- Mirror images of each other
- Good for corners and edges

S-Piece & Z-Piece:

- Mirror images
- Useful for interlocking patterns

Best Practices

For Beginners

1. **Start Slow:** Focus on clearing 1-2 lines at a time
2. **Learn Rotations:** Practice rotating each piece type
3. **Watch the Preview:** Always check the next piece
4. **Use Pause:** Don't hesitate to pause and think
5. **Have Fun:** Enjoy the challenge!

Best Practices (Continued)

For Advanced Players

1. **Build Strategically:** Create wells for Tetris clears
2. **Manage Gaps:** Avoid creating unfillable holes
3. **Speed Control:** Master soft drop for precision
4. **Pattern Recognition:** Learn common piece sequences
5. **High Score Challenge:** Compete against yourself!

Game States

Understanding Game Flow

Start Screen:

- Initial screen when game launches
- Shows controls and start options
- Press Enter or click "Start Game"

Playing:

- Active gameplay state
- Pieces falling and gameplay happening
- Can pause at any time

Game States (Continued)

Understanding Game Flow

Paused:

- Game temporarily stopped
- Can resume, restart, or quit
- Score and high score still visible

Game Over:

- Game has ended
- Final score displayed
- Options to play again or quit

Additional Information

Session Management

- **High Score:** Tracks your best score for the current session
- **Session Persistence:** High score remains until you close the game
- **New Game:** Each new game starts fresh (score resets, level resets)

Note: High scores are not saved between game sessions (closing and reopening the application).

Additional Information (Continued)

Technical Details

Frame Rate: 60 FPS

Board Size: 10 columns × 20 rows

Cell Size: 20×20 pixels

Starting Position: Pieces spawn at column 3, row 0

These settings are optimized for smooth gameplay and classic Tetris feel.

Getting Help

Resources

- **This User Guide:** Comprehensive reference
- **In-Game Controls:** Shown on start screen
- **Design Documentation:** See `docs/design_architecture.marp.md` for technical details

Common Questions

Q: Can I change the controls?

A: Not in the current version. Controls are fixed as documented.

Q: Can I save my high score?

A: High scores persist during the session but reset when you

Getting Help (Continued)

Common Questions

Q: Why do pieces fall faster over time?

A: This is the level progression system. Every 10 lines cleared increases the level and speed.

Q: What's the ghost piece for?

A: It shows where your current piece will land, helping you plan placement.

Q: Can I play with a gamepad?

A: Currently only keyboard and mouse are supported.

Conclusion

Enjoy the Game!

You now have all the information you need to play Tetris!

Remember:

- Practice makes perfect
- Start slow and build speed
- Challenge yourself to beat your high score
- Most importantly, have fun!

Good luck and happy stacking!

End of User Guide

Thank you for playing Tetris!

For technical documentation, see:

`docs/design_architecture.marp.md`

For project information, see:

`docs/final_presentation.marp.md`