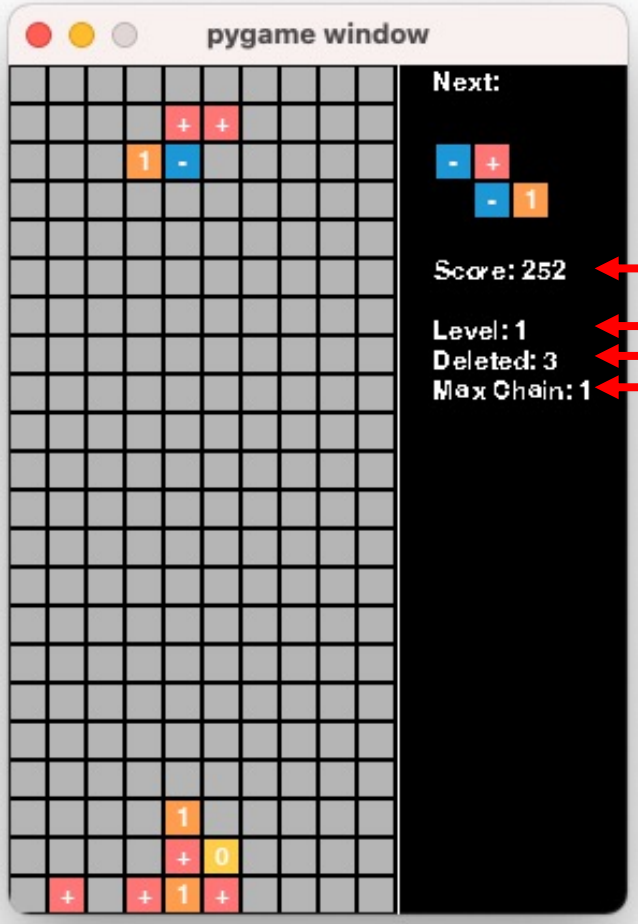
Quantum Tetris Rulebook

Delete quantum-state blocks (|0>, |1>, |+>, |->) by connecting three blocks of same states!
Quantum states change when gate blocks (|H>, |X>, |Z>) touch to its top.

Detailed Rule:

- 「← ↓ →」: move, 「↑」 rotate, 「Enter」 drop to bottom, 「p」 pause
- Gate blocks vanish when they hit the floor.
- Gradual acceleration of falling speed as quantum-state blocks are deleted.



Score:
Increase when you press 「↓, Enter」 keys, or quantum-state blocks are deleted.

Level:
Falling speed index

Deleted:
Number of deleted blocks

Max Chain:
Highest number of chains achieved.

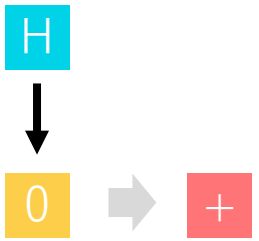
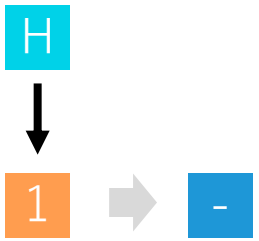
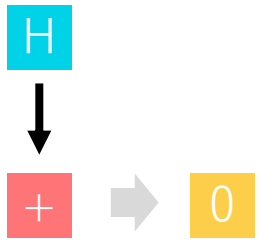
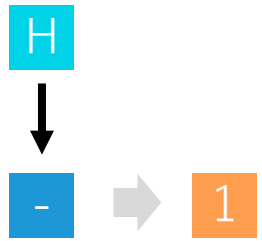
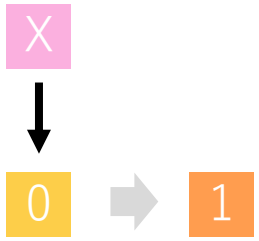
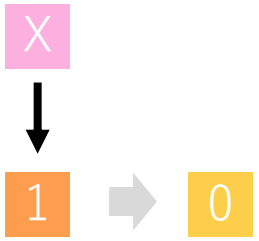
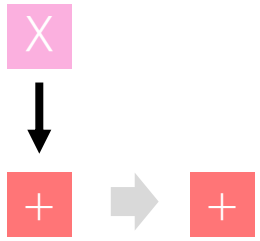
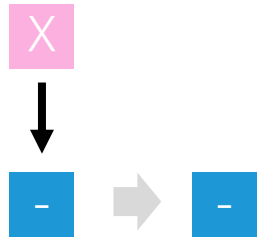
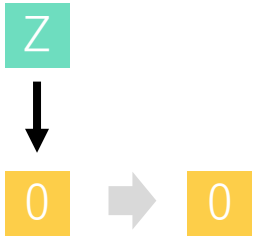
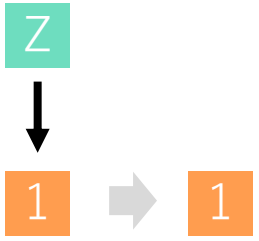
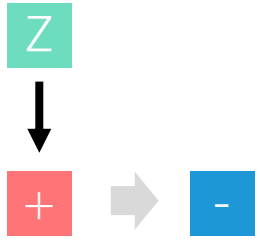
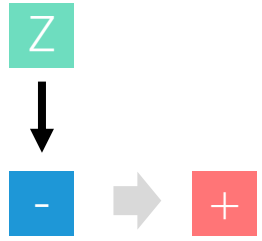
Quantum-State Block

0	|0> state	
1	|1> state	
+	|+> state	$\|+\rangle = \frac{1}{\sqrt{2}}(\|0\rangle + \|1\rangle)$
-	|−> state	$\|-\rangle = \frac{1}{\sqrt{2}}(\|0\rangle - \|1\rangle)$

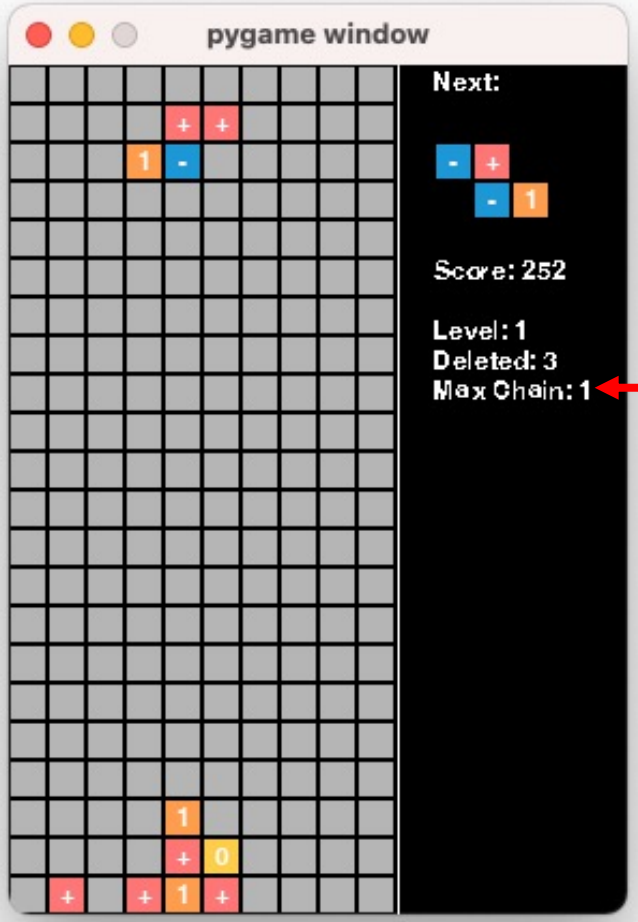
Gate Block

H	H gate
X	X gate
Z	Z gate

Effect of Gate Block

		0> state		1> state		+> state		−> state
H gate i.e. |0>⇄|+> |1>⇄|->		$H\|0\rangle = \|+\rangle$		$H\|1\rangle = \|-\rangle$		$H\|+\rangle = \|0\rangle$		$H\|-\rangle = \|1\rangle$
X gate i.e. |0>⇄|1>		$X\|0\rangle = \|1\rangle$		$X\|1\rangle = \|0\rangle$		$X\|+\rangle = \|+\rangle$		$X\|-\rangle = -\|-\rangle$
Z gate i.e. |+>⇄|->		$Z\|0\rangle = \|0\rangle$		$Z\|1\rangle = -\|1\rangle$		$Z\|+\rangle = \|-\rangle$		$Z\|-\rangle = \|+\rangle$

Play the game and understand the rule of quantum computer!
Aim for a chain of seven!



Max Chain:
Highest number of chains achieved.

2-chain: it can happen
3-chain: possible if you aim
4-chain: not that easy
5-chain: very hard
6-chain: genius !
7-chain: mastermind!

Future Plan

Extra Rule

- Add Y gate, |i>, |-i> state
- Consider ± sign of state
- Add entangle gate (CX)

Spread Strategy

- Deploy smartphone application
- Add online match mode