

Pong

DESIGN DOCUMENT

By Kathryn for Learning Game Dev

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Introduction

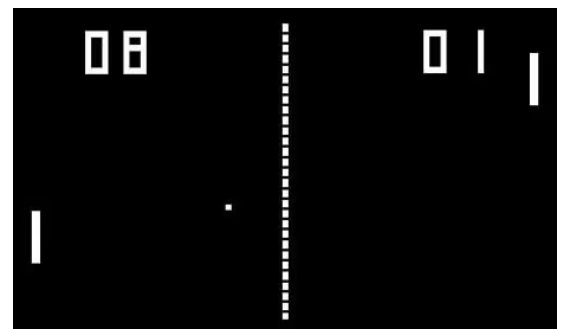
Game Summary Pitch

Pong is a table tennis themed twitch arcade sports video game, featuring simple two-dimensional graphics. It was originally made by Atari. I am remaking this game to learn more about game Dev.

Inspiration

Pong

Because it is one of the most simple video games ever made, I decided to see if I could copy it.



Player Experience

In Pong, players engage in fast-paced matches on a single screen, controlling paddles to intercept the ball and outmaneuver opponents. The goal is to score the most points, with the AI increasing in difficulty every 3 points. Power-ups add an extra layer of complexity to the gameplay. The game ends when the computer scores 5 points.

Platform

The game is developed to be released on Linux PC. May also do windows PC to send to friends.

Development Software

- Godot version 4.3 for programming
- Aseprite for graphics and UI
- OpenGameArt.org for all music and SFX

Genre

Singleplayer, Arcade, Sports

Target Audience

Without heavy or complicated ideas, and intuitive-to-grasp mechanics, this game is marketed to anyone. It's simple and fun.

Concept

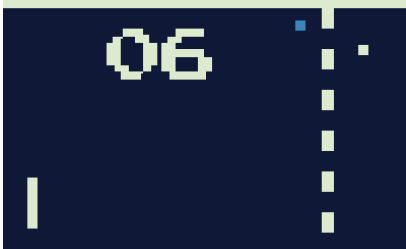
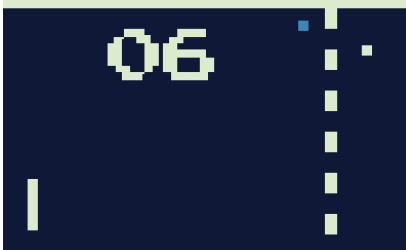
Gameplay overview


In Pong, the player controls a paddle that moves vertically along the screen to intercept a ball. The paddle's position influences its ability to

deflect the ball, with its angle determining the ball’s trajectory. Players must navigate the gameplay area strategically, anticipating the ball's movement and their opponent's actions.

As players score points, they must adapt their strategy to counter an increasingly challenging AI, which changes its behavior based on the player’s performance. The introduction of power-ups adds complexity, allowing players to temporarily enhance their paddle's abilities or alter the ball’s speed, requiring quick thinking and precise timing to maximize their advantage.

Secondary Mechanics

Mechanic	Animated Mockup <i>(Art not necessarily final)</i>
<p><u>Powerups: Speed-Up</u></p> <p>When the ball hits the “power-up”, the player’s paddle gets 30% faster for 5 seconds.</p>	
<p><u>Powerups: Slow-Down</u></p> <p>When the ball hits the “power-up”, the enemy’s paddle gets 50% slower for 3 seconds.</p>	

Mechanic	Animated Mockup (Art not necessarily final)
<p><u>Powerups: Split</u></p> <p>When the ball hits the “power-up”, the ball is split into two.</p> <p>When this ball is scored, it disappears.</p>	

Art

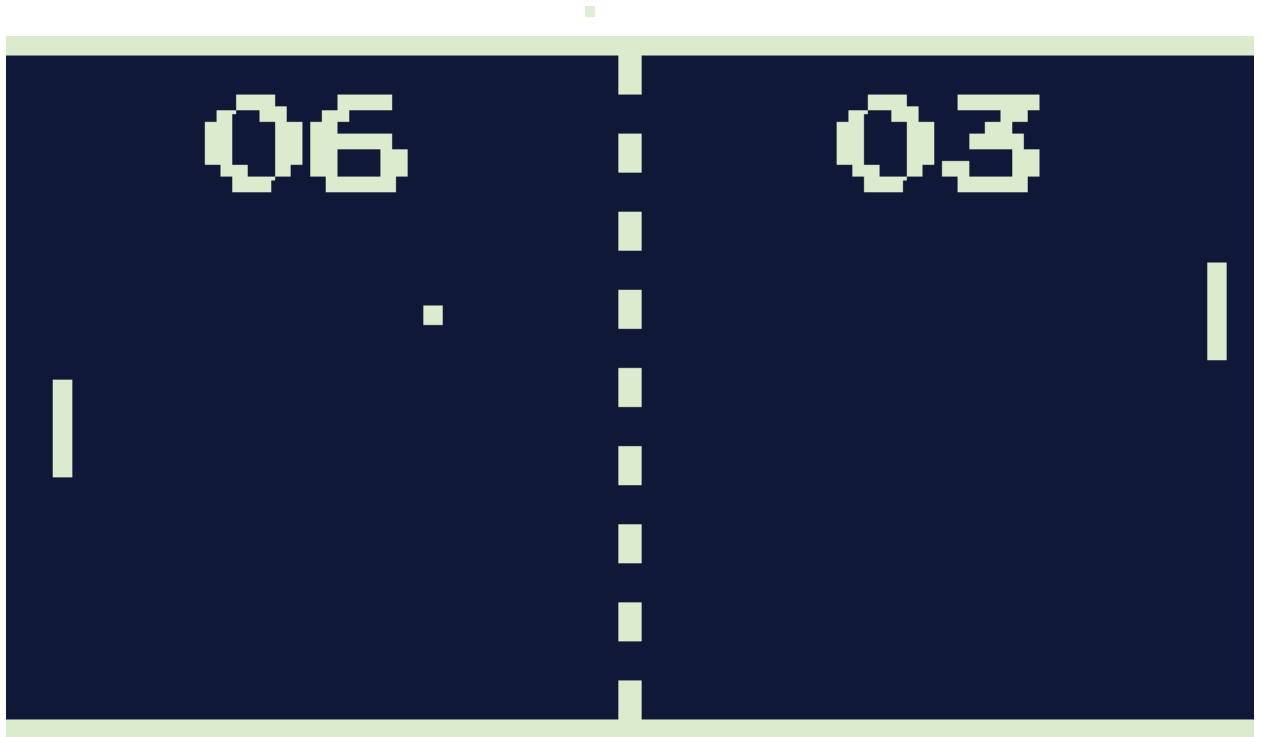
Theme Interpretation



While maintaining the very limited color palette theme, the sole use of black in white seems way too common, and a bit harsh as a color scheme. To circumvent this, a soft, **dark blue color** will act as the unique accent color as opposed to black with **chrome white** being the primary, carrying color to base the sprites off of. The colors **glacial blue**, **pale cyan**, and **summer gray** are used for power-ups. Speed-Up, Slow-Down, and Split Ball respectively.

Design

A very **minimalistic** approach will go into the design of the game, heavily relying on the severe contrast of the limited colors to provide detail. Though, the design still is clean and smooth in the sense that, the use of many shades of a color will not be as present to confront the **retro style** and pixel art.



Not an actual level, merely a full example of the art style

Audio

Music

To add to the overall theme and vibe of the game, there will be no music used for this game, to make the art of the game.

Sound Effects

As this game will be very simple only a few sound effects will be used. These sound effects are made to sound retro to call back to the Pong of the past.

- “Wall” sound of the ball hitting the wall
- “Paddle” sound of the ball hitting the paddle
- “Power-Up” sound of the power up being activated
- “Point” sound of the point counter being incremented

Game Experience

UI

There will be a title screen, a leaderboard to view (optionally), and a score at the top.

Controls

Keyboard

Arrow keys / WASD

Development Timeline

Due Date: Oct 20th

MINIMUM VIABLE PRODUCT

#	Assignment	Type	Status	Curr Due	Notes
1	Design Document Text	Oth... ▾	Finished ▾	Oct 7, ...	
2	Animations for Design Document	Art ▾	Finished ▾	Oct 7, ...	If superpowers implemented, will need to be redone. Finished Oct 7
3	Create Official Title Screen	Art ▾	Finished ▾	Oct 8, ...	Finished Oct 7
4	Create Godot Project	Co... ▾	Finished ▾	Oct 8, ...	Finished Oct 7
5	Implement Title Page in Godot	Co... ▾	Finished ▾	Oct 9, ...	Finished Oct 7
6	Make paddle,	Art ▾	Finished ▾	Oct 9, ...	Note: These

#	Assignment	Type	Status	Curr Due	Notes
	background, wall, boundary, and ball				things are built via scenes instead of images since they are just... squares made of one color... soo fin? Oct 7.
7	Make player scene, and attach script	Co... ▾	Finished ▾	Oct 10,...	Oct 7
8	Make enemy scene, and attach script	Co... ▾	Finished ▾	Oct 10,...	Currently, just a copy of Player. Oct 7
9	Make ball scene and attach script	Co... ▾	Finished ▾	Oct 8, ...	Oct 7
10	Make main scene that instantiates all other scenes	Co... ▾	Finished ▾	Oct 8, ...	oct 7
11	Implement user input to move paddle	Co... ▾	Finished ▾	Oct 9, ...	oct 7. (may need to calibrate speed)
12	Implement ball movement	Co... ▾	Finished ▾	Oct 9, ...	Basic movement implemented for ball, but bounce needs to be implemented. Oct 7
13	Create all collision detection	Co... ▾	Finished ▾	Oct 8, ...	Oct 8
14	Create Wall	Co... ▾	Finished ▾	Oct 8, ...	Forgot I needed this until now. Oops. Oct 8.

#	Assignment	Type	Status	Curr Due	Notes
15	Fix Physics for Wall	Co... ▾	Finished ▾	Oct 8, ...	See above. Oct 8.
14	Adjust ball movement for collision detection	Co... ▾	Finished ▾	Oct 8, ...	Oct 8.
15	Create "kill" area for ball to reset ball	Co... ▾	Finished ▾	Oct 8, ...	Oct 8. Also created main game code.
16	Implement basic movement for enemy	Co... ▾	Finished ▾	Oct 10,...	right now it moves but it's not good oct 7
17	Make HUD with point tracker	Co... ▾	Finished ▾	Oct 9, ...	finished oct 8
18	Implement code to increment points	Co... ▾	Finished ▾	Oct 9, ...	finished oct 8
19	Implement Code to change speed of enemy and ball after every 3 points	Co... ▾	Finished ▾	Oct 9, ...	forgot about this and had to add in later oct 8
20	Implement Code to End game if enemy has 5 points	Co... ▾	Finished ▾	Oct 9, ...	forgot about this and had to add in later oct 8 - right now it just kills the process, end screen needs to be implemented
21	Create End	Art ▾	Finished ▾	Oct 9, ...	forgot about this and had to add

#	Assignment	Type	Status	Curr Due	Notes
	Screen Art				in later Mostly just done in godot Oct 8.
22	Implement End Screen	Co... ▾	Finished ▾	Oct 9, ...	forgot about this and had to add in later Oct 8.
23	Have end screen send you to title page	Co... ▾	Finished ▾	Oct 10,...	forgot about this and had to add in later Oct 8.
24	Make enemy AI move more specifically towards ball	Co... ▾	Finished ▾	Oct 9, ...	This took more work and effort than expected Oct 9
25	Implement Wall Sound Effect	Co... ▾	Finished ▾	Oct 10,...	Oct 10. Added Pitch randomizer as well.
26	Implement Point Sound Effect	Co... ▾	Finished ▾	Oct 10,...	Oct 10. Nice.
27	Implement Paddle Sound Effect	Co... ▾	Finished ▾	Oct 10,...	Oct 10. See wall.
28	Set Title Page as Main Page	Co... ▾	Finished ▾	Oct 10,...	Oct 10.
29	Add any Extra Polish	Oth... ▾	Not started ▾	Oct 15,...	
30	Export Game	Oth... ▾	Not started ▾	Oct 15,...	
31	Choose Power Up Colors	Art ▾	Finished ▾	Oct 11,...	Oct 11

#	Assignment	Type	Status	Curr Due	Notes
32	Update GDD Color Pallate	Oth... ▾	Finished ▾	Oct 11,...	Oct 11
33	Update GDD Power Up Descriptions	Oth... ▾	Finished ▾	Oct 11,...	Oct 11
34	Make Speed Up Animation for GDD	Art ▾	Finished ▾	Oct 11,...	Oct 11
35	Make powerup spawner	Co... ▾	Finished ▾	Oct 12,...	Oct 12
36	Make speed up scene	Co... ▾	Finished ▾	Oct 12,...	Oct 12
37	write code for speed up scene	Co... ▾	Finished ▾	Oct 12,...	Oct 12
38	make code for powerup spawner	Co... ▾	Finished ▾	Oct 12,...	Oct 12
39	fully implement speed up scene	Co... ▾	Finished ▾	Oct 12,...	Oct 12
40	implement power up sound	Au... ▾	Finished ▾	Oct 13,...	Oct 12
41	Make Slow-down scene	Co... ▾	Finished ▾	Oct 13,...	Oct 12
42	Update code for slow-down	Co... ▾	Finished ▾	Oct 13,...	Oct 12
43	Fully Implement Slow-Down Scene	Co... ▾	Finished ▾	Oct 13,...	Oct 12
44	Make Split Ball Scene	Co... ▾	Finished ▾	Oct 14,...	Oct 13

#	Assignment	Type	Status	Curr Due	Notes
45	Update Powerup Spawner	Co... ▾	Finished ▾	Oct 14,...	Oct 13
46	Implement Split Ball	Co... ▾	Finished ▾	Oct 14,...	Oct 13
47	Have Split Ball Despawn after point	Co... ▾	Finished ▾	Oct 15,...	Oct 13
48	Finish Implementation of Split Ball	Co... ▾	Finished ▾	Oct 15,...	Oct 13
49	Create Animation For Slow Down	Art ▾	Finished ▾	Oct 16,...	Oct 13
50	Create Animation for Split	Art ▾	Finished ▾	Oct 16,...	Oct 13

BEYOND (if ahead of schedule / extra time)

Power-Up: Speed Up	Coding ▾	Finished ▾	Create a power up that spawns randomly and can speed up the paddle.
Power-Up: Slow Down	Coding ▾	Finished ▾	Create a power up that spawns randomly and can slow down the enemy paddle and/or ball.
Power-Up: Split Ball	Coding ▾	Finished ▾	Create a power up that spawns randomly and can split the ball into two.
Implement Power-Up Sound	Audio ▾	Finished ▾	
Update GDD for	Other ▾	Finished ▾	

Power-Ups			
Design Leaderboard	Art ▾	Not sta... ▾	Decided not to
Implement Leaderboard	Coding ▾	Not sta... ▾	Decided not to
Update GDD with Leaderboard	Other ▾	Not sta... ▾	Decided not to
Make Leaderboard accessible through main screen	Coding ▾	Not sta... ▾	Decided not to
Implement Particle effect system fireworks for if you got high score	Coding ▾	Not sta... ▾	Decided not to
Implement fireworks sound if you got high score	Audio ▾	Not sta... ▾	Decided not to