Final Report for The 404’s

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The game:

We made an arcade system that consists of Ping Pong, Tic Tac Toe, and Snake.

Ping Pong – The aim of this game is to score the ball beyond the opponent's paddle and reach 10 points first. This game has medium complexity, but extra features will be added to increase its complexity and aesthetics for casual gameplay.

Pong is one of the first computer games ever created and was developed by Allan Alcorn and released in 1972 by Atari corporations (Britannica, 2023). It is a table tennis type game and consists of two paddles and a ball, the goal being to beat your opponent by reaching 10 points (Pong Game, 2023). The game can be played by two players, or one player against a computer-controlled paddle. Each paddle is located on each side of the screen, and the ball bounces back and forth across the screen to and from each paddle. A player earns points by hitting the ball beyond their opponent's paddle, i.e when the ball hits the boundary behind the opponent’s paddle. We decided to choose a ping pong game rather than a card game because we wanted a challenge and to learn new concepts along the way and, quite frankly, we collectively agreed that a card game would be too boring. Pong was the first commercially successful arcade game to be created, selling over 35000 arcade machines and being in the Guinness Book of World Records (The Gamer, 2019).

A while loop is used for the game to run. The use of if statements are used to check for various game aspects such as collision detection. Switch cases are used to decide an action to call when a certain button is pressed to move the paddles up and down. Major aspects of the game are broken down into multiple classes such as the game panel, the game frame which dictates the boundaries in which the ball freely moves in, and the paddles themselves.

The complexity of the game will be increased by adding GUIs to enhance the look and feel of the game, and adding sound effects for when the ball hits the paddles and walls for extra immersion. The complexity was further enhanced by adding a single player mode in which a single player plays against an AI controlled paddle.

Snake – The objective is to control a snake and collect apples to score points while avoiding collisions with the game boundaries and snake’s own body. Regular red apples and special blue apples appear on the screen. Eating regular apples increases the player’s score by 1 point, while eating the special blue apples increases the score by 2 points. The special blue apple appears periodically and disappears after a certain time and offers a higher score reward when eaten. The game ends when the snake collides with the game boundaries or itself.

Tic Tac Toe – The goal of the game is to get three X’s or 3 O’s in a row either vertically, horizontally, or diagonally. This game has medium complexity as it uses buttons, a panel, and frame to operate.

The game is made up of a grid of buttons that are stored in a 1D array. The buttons are laid out within a frame and panels for the title of the game and the buttons themselves. ActionListener is implemented for user interaction with the panels and different methods were created to determine which player wins, which player turn it is, which winning combination on the grid occurred, and a method to handle user interactions regarding to which player placed their sign on the grid.

The Arcade – The main menu has 3 buttons which take the user to each different game. Each button has an action listener and opens a panel for each game to start. Each game has a quit button to take the user back to the main menu.

This link will direct you to the Pong Development Gantt chart which will show the estimates the time span that the game will take to be developed. Tasks have been labelled with their estimated time frames in a 4-week period:

<https://infograph.venngage.com/ps/Z43GLGOv4rs/simple-green-blue-gantt-chart>

Reference list

Britannica, 2023. *Pong*. [online] Available through: [Pong | Video Game, Arcade, Atari | Britannica](https://www.britannica.com/topic/Pong) [Accessed 31 August 2023].

Pong Game, 2023. *Pong Game*. [online] Available through: [Pong Game](http://www.ponggame.org/) [Accessed 31 August 2023].

The Gamer, 2019. *Pong: 10 Fascinating Facts About the World’s First Video Game*. [online] Available through: [Pong: 10 Fascinating Facts About the World’s First Video Game (thegamer.com)](https://www.thegamer.com/pong-fascinating-facts-first-video-game/#it-was-the-first-successful-arcade-game) [Accessed 31 August 2023].