

Topics of Choice:

1. Version control

- Done via GitHub
- Branches for main/dev + possibly for features
- Sensible commits based on features

2. Game development

- Clocks
- Game Design; add sources for why these features improve the game experience
 - Rendering sprites
 - Animations
 - Key-bind overlay
 - Controls
 - 'P' for pause
 - 'R' for retry
 - Information on what apples do what
 - Have the player figure out what the apples do, which would be based on their color (ex: red apples would imply that they are good; black apples would imply they are bad)
 - Players would then receive information about the apples they have discovered throughout their gameplay at the beginning of their new attempt
 - Feedback system
 - Death tip messages

Sources:

1. General model of the Snake Game Google:

We used the basic google snake game as an initial inspiration to our game. Both games feature the snake and the apples, which are of course the core features of the game. We also took inspiration by the multiple additional game modes of the snake game, however ours is unique, as the logic behind the apples and their effects are made by use.

“Google Snake - Google Search.” Share.google, 2019, share.google/tZX3w6uFVvkO4X7JXy. Accessed 24 Oct. 2025.

2. Why is a pause button needed:

As stated in the article, a pause button is a crucial part of an arcade game, such as ours. We have implemented one in the top right corner, which can be distinguished by the commonly associated shape of a pause sign “||”. The button activates upon

pressing it or pressing the letter “P” on the user’s keyboard. This pauses the game, and vice versa un-pauses it upon a following activation.

MaddOx. “How the Pause Button Changed the World: The Tiny Feature That Reshaped Gaming.” FULLSYNC, Sept. 2025, fullsync.co.uk/how-the-pause-button-changed-the-world/. Accessed 24 Oct. 2025.

3. **Why is a tutorial needed:**

At the start of the game the user is presented with a tutorial panel, which explain the main controls and the objective of the game. A personally created png image was created and implemented to showcase that arrow keys are used for the navigation of the snake. In addition to this, it is explained to the user what the shortcuts are for reaching the pause menu and restarting the game run.

“What UX Designers Can Learn from Game Onboarding.” Imaginarycloud.com, 2023, www.imaginarycloud.com/blog/videogame-onboarding-design-lessons.

4. **Why the tutorial doesn’t explain everything:** (how do you lose and what each apple does):

Our tutorial panel does mention the different types of apples; however, it does not mention what they do. We have implemented personally created png images of each apple. This is done deliberately, to make the game more engaging for the player. This is mentioned in our source, and it is explained that in general players find shorter arcade games more interesting and engaging if the tutorials do not fully explain the whole game play, but rather rely on the game design choices, which should hint at the effects of a certain feature (in our case the apples). It is also mentioned in the source that it is part of the fun to figure the mechanics of the game yourself: *“they just dump you into a system and tell you that figuring it out is half the fun”*

Madigan, Jamie. “How Game Tutorials Can Strangle Player Creativity.” The Psychology of Games, 28 Sept. 2012, www.psychologyofgames.com/2012/09/how-game-tutorials-can-strangle-player-creativity/. Accessed 24 Oct. 2025.

5. **Death Tip Messages**

Because we do not have specified the effect of the apples or how to counter the black apple (which upon being eaten, you automatically lose), we have included another feature “Death Tip Messages”. In the sources we used it is mentioned that: *“The trick is to redefine failure as a form of progress. Not in the traditional “level up” sense, but in terms of story and understanding.”*. Upon death the player is brought to the death panel, where depending on how the game has ended, they are presented with useful information, which can be used in the re-run. For example, if the player died by a black apple, there are 3 randomly chosen options of a tip message: either that black usually means death, or that they

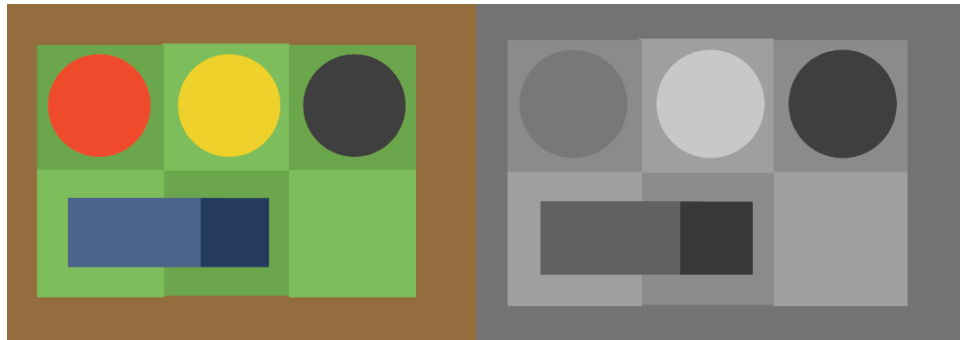
should wait some time for the black apple to change, etc. This is also implemented for dying by colliding with the snake's body or with a border. All of those provide useful information to the player and make sure that the game play is both engaging but also that the player does not hit a wall and is confused how to proceed further.

Ellison, Gemma. "Rethinking Death in Games: From Punishment to Narrative - Wayline." *Wayline.io*, 30 Apr. 2025, www.wayline.io/blog/rethinking-death-in-games. Accessed 26 Oct. 2025.

6. Colors of the panels, apples, and snake:

For this game, we took upon ourselves to create an immersive color palette that was both intriguing but also practical. The article used, mentions that for creating such a color palette, one must focus on few aspects: what is the game's main identity (in our case the game falls more into the arcade aspect); having contrasting and easily differentiable elements; keeping in mind color blindness and usability for impaired players. Our game includes vivid contrasting colors of primarily green, blue, red, yellow, and black. This decision is supported by the source as mentioned: *"For example, an arcade game aimed at the general public and casual gamers will have a more contrasting color palette with bright colors, such as the iconic Mario Kart below."* The top panel, which includes the high score counter and the pause button is also deliberately chosen to be a pastel brown. This is done for two reasons: it completes the world building of the game, as the game is set on a grass field, hence the brown part is essentially dirt; it is also chosen to be this way, as not to distract the player from the actual game, as bright and vivid colors tend to grab one's attention: *"Too many colors at once can detract from the synergy on screen."* This is also the reason why the colors of the text and buttons in that panel are also a similar color.

Another pivotal point in the reasoning behind our color palette was that: *"This is why it's important to define the color palette with the game as a whole in mind, not just the setting or the interface."* I am inserting two thumbnail images that showcase this concept. One is the actual color palette, the other one is the same color palette, but in black and white, so it is clear the colors are contrasting not only in hue, but also in value as well.



Indieklem. “#21 - Creating a Harmonious Color Palette: Tips and Resources.” Substack.com, A Good Interface, 4 June 2025, indieklem.substack.com/p/21-creating-a-harmonious-color-palette. Accessed 24 Oct. 2025.

7. Colors of apples:

We have chosen to have three types of apples; they have different effects depending on the connotation of their respective color. Red is usually connected with energy, life, and happiness; yellow with change and caution; black with death and danger:

Red Apple: “The typical emotions that warm colors reflect are: passion, happiness, enthusiasm, energy.”

Yellow Apple: “Being the color of changing season it’s often associated with change and, more in general, movement.”

Black Apple: “Black is often associated with night and death and it holds the positive meanings of power, authority, weight, sophistication, elegance, formality, seriousness, dignity, solitude, mystery as well as stylishness and the negative meanings hold fear, negativity, evil, secrecy, submission, mourning, heaviness, remorse and emptiness”
Game Design and Perception of Colors, page 27

All of those deliberate game design choices help to create an immersive and interesting game play for the user, as it integrates not only inside game knowledge, but also outside life knowledge, that one acquires throughout their life.

Lisandro, Roberto. “Color Theory: Balancing Warm and Cool Colors | Bootcamp.” *Medium*, Bootcamp, 22 Oct. 2023, medium.com/design-bootcamp/the-art-and-science-of-color-theory-warm-and-cool-colors-c38fdbdfeeae.

Haapalainen, Ayako. Game Design and Perception of Colors. May 2023, https://www.theseus.fi/bitstream/handle/10024/803092/Haapalainen_Ayako.pdf?sequence=2&isAllowed=y.

8. Implementing consistent FPS and clock in the game:

Most modern online multiplayer games rely on consistent FPS, this is to ensure a consistent game play and visuals for the players. It is proven to be extremely distracting if the game runs with a different speed each moment, as the player cannot predict what will happen in the next frame. This is the same case for our game, despite it not being multiplayer. In order to ensure that the snake moves with a consistent speed and that the player can predict when to press the next direction button, we had to implement a code that creates an inside clock and FPS. The article that we used for this idea states the following: *“The GPU can complete frames faster or slower than the display can show them. This variation in frame time is caused by differences in the complexity of the 3D scene being rendered — for example, an explosion in one scene may take more time to render than the prior scene.”*

This also ensures that the effect of each apple can be applied at each frame, so that the game continues smoothly.

Tamasi, Tony. “Why Does High FPS Matter for Esports?” Wwww.nvidia.com, 3 Dec. 2019, www.nvidia.com/en-us/geforce/news/what-is-fps-and-how-it-helps-you-win-games/.