Website URL: https://kylonc.github.io/pui-homework-8/

Part I: Website Summary

For the final assignment, I created a website inspired by the animations in this video to demonstrate the gaits of four-legged creatures. The viewer can choose between the six different classifications of dog gaits (walk, amble, pace, trot, canter, and gallop) and gain a rudimentary understanding of how each gait slightly differs from the rest. The standout feature of my design is the ability to slow down the animation to half the original speed and allow the viewer to study the nuances of a dog's gait. I added this feature because I was having difficulties parsing the movement of the paws in the video because the frames were moving so quickly.

I hope anyone who stumbles across this might become intrigued to study the intricate ways that different animals move and marvel at the wonders of our world (as I often do). I believe anyone can study gaits, but I had originally intended for this website to serve as a tool for animators to help them break up complex movements. In a future iteration (and with better animations), it would be interesting to create a tool to help animators and artists browse and capture frames from an animation to use as reference for their work.

Part II: User Interaction

- *Gait classifications*

  To the left of the dog animation is a gaits classification menu. The user can select between different gaits by clicking on the name of the gait they desire to view. The animation will change according to reflect the user selection.

- *Playback speed*

  To the right of the dog animation is a playback speed menu. The user can choose to view the animation at 1x speed, 0.75x speed, of 0.5 speed by selecting the corresponding menu item. The speed of the animation will change accordingly. The animation is slowed down relative to the base (1x) speed.

Part III: Tools

- *TypeScript*
  - **Why**: I chose to use TypeScript as opposed to regular JavaScript because I believe this architecture is less prone to bugs and errors, in addition to keeping the code legible and maintainable.
  - **How it's used:** All the scripts I wrote for this assignment were written in TypeScript, then transpiled into ES5 for browser use.
  - **What it adds:** I would argue that it makes the code for my website a lot more legible and easy to understand. Anyone reviewing/reading my code won't have to spend a lot of time scratching their head and wondering how things work because the type keeps mysteriously changing.

- *Webpack*
  - **Why**: I needed webpack to transpile my TypeScript files into JavaScript so they can be run in the browser.
  - **How it's used:** Webpack takes a TypeScript file and a "loader", translates and compiles the code into JavaScript, then outputs the result into a directory so it can be included via an HTML page.
  - **What it adds:** Webpack allows me to debug directly in the TypeScript files so I can catch errors and bugs more easily.

- *CSS Animation (Not quite a library, but still a tool)*
  - **Why**: I wanted to challenge myself to make animations without the explicit help of external animation tools because I really like to understand how libraries work under the hood.
  - **How it's used**: All the animations for this assignment are pure CSS animations! I painstakingly "rigged" all the limbs for my doggo to make the legs move as I desire.
  - **What it adds**: I think the CSS animations add a fun stop-motion feeling to the website and is effective in demonstrating the footfall pattern for different gait classifications.

Part IV: Changes

In homework 7, I hadn't considered the responsiveness of my design. So for homework 8, I had to create a different layout for smaller screen sizes. The main difference for mobile is that everything becomes more vertical. The gait classification menu moves up to the top, while the playback speed menu moves down to the bottom, but the animation is still the focus of the page.

Part V: Challenges

The animation I wanted to create was not difficult, just tedious. The biggest challenge was finding a reasonable tempo for synchronizing the leg movements to the paw patterns. The playback speed was an additional headache because each component had to be individually adjusted and tweaked so that they looked somewhat acceptable even slowed down.