**Research**

**Scroll-Based Animations**

Explore animation libraries or CSS examples for scroll-triggered effects.

**Options to look into:**

GSAP ScrollTrigger

Locomotive Scroll

AOS (Animate on Scroll)

**Links:**

**Website References:**

[**https://days.christou1910.com/en/**](https://days.christou1910.com/en/)

**Libraries:**

**AOS (Animate on Scroll)**

[**https://michalsnik.github.io/aos/**](https://michalsnik.github.io/aos/)

**GSAP ScrollTrigger**

[**https://gsap.com/demos/**](https://gsap.com/demos/)

**gsap starter template:**

[**https://codepen.io/GreenSock/pen/aYYOdN**](https://codepen.io/GreenSock/pen/aYYOdN)

**Docs:**

[**https://gsap.com/docs/v3/**](https://gsap.com/docs/v3/)

**Locomotive Scroll**

[**https://locomotivemtl.github.io/locomotive-scroll/**](https://locomotivemtl.github.io/locomotive-scroll/)

**Docs:**

[**https://scroll.locomotive.ca/docs#/**](https://scroll.locomotive.ca/docs#/)

[**https://github.com/locomotivemtl/locomotive-scroll**](https://github.com/locomotivemtl/locomotive-scroll)

**Program Skills and Enhancement: Scroll-Based Animations Research & Development**

**Project Overview**

**Objective: To explore and implement scroll-triggered animations for web interfaces using modern libraries.**

**Daily Progress Log**

**Day 1 – Research Phase**

* Task: Researched animation libraries for scroll effects.
* Libraries Identified:  
  + [AOS (Animate on Scroll)](https://michalsnik.github.io/aos/)
  + [GSAP ScrollTrigger](https://gsap.com/docs/v3/)
  + [Locomotive Scroll](https://locomotivemtl.github.io/locomotive-scroll/)
    - [Docs](https://scroll.locomotive.ca/docs#/)
* Inspiration Website:<https://days.christou1910.com/en/>

**Day 2 – Initial Implementation**

* Task: Implemented horizontal scroll animation using GSAP.
* Library Used: GSAP with ScrollTrigger.
* Outcome: Basic horizontal scrolling effect successfully applied to a sample section.
* Challenges:  
  + Responsive View: The layout broke or didn't scale well across different screen sizes.
  + Non-Home Pages: Other pages (besides the homepage) appeared broken or disorganized after applying the scroll effect; these require layout-specific adjustments.
  + CSS Modifications: Existing styles need updates to support the horizontal scrolling behavior effectively (e.g., widths, positioning, overflow settings).

**Day 3 – Sprite Animation Integration**

**Task:**  
 Integrated a sprite-based character animation that runs in sync with horizontal scrolling behavior.

**Libraries Used:**

* GSAP with ScrollTrigger
* Sprite animation using background position logic

**Outcome:**

* A character sprite was added that animates frame-by-frame as the user scrolls.
* The sprite moves horizontally across the viewport based on scroll progress.
* The sprite flips direction dynamically when the user scrolls up or down, simulating forward and backward movement.

**Challenges:**

* Sprite Dimensions: Determining precise frame width and height required calculating based on the sprite sheet resolution and layout (columns × rows).
* Scroll Direction Detection: Initially, the sprite did not flip correctly when scrolling up; this was resolved by tracking the scrollY position on onUpdate.
* Positioning Logic: Aligning the sprite’s position with the scroll progress required fine-tuning the horizontal formula relative to viewport width and sprite dimensions.
* Integration with ScrollTrigger: Ensuring the sprite’s movement and animation stayed in sync with the horizontal wrapper scroll logic.