

# Process and Decision Documentation

**Project:** GBDA302 Week 2 Side Quest - Sad Blob

**Student:** Moosa Malik (m57malik, 20913010)

**Date:** January 27, 2026

**Emotion:** Sadness

## Project Goal

The goal of this side quest was to redesign the blob's movement and environment to express sadness. I wanted the viewer to feel the weight and lethargy of melancholy through visual and animated elements.

## Design Decisions

### 1. Movement Speed and Animation

**Decision:** Reduced the animation speed from `tSpeed: 0.01` to `tSpeed: 0.003`.

**Rationale:** Sadness is characterized by lethargy and slow movement. By drastically slowing the blob's breathing animation, it creates a sense of heaviness and exhaustion. The blob appears to struggle with each breath, reinforcing the emotional state.

### 2. Droop Effect (Gravity)

**Decision:** Added a `droopAmount` variable that gradually increases over time and affects the y-coordinates of vertices differently based on their vertical position.

**Rationale:** Sadness often manifests physically as slouching or drooping posture. The blob sags downward as if weighted by emotional burden. Bottom vertices droop more than top vertices (using a `droopFactor` based on `sin(angle)`), creating an asymmetrical, gravity-pulled shape.

### 3. Color Palette

**Decision:** Changed from bright blue (`rgb(20, 120, 255)`) to muted, desaturated blue-grey (`rgb(80, 100, 140)`) with reduced opacity.

**Rationale:** Bright, saturated colors convey energy and positivity. Muted, cool tones (especially blues and greys) are culturally associated with sadness and melancholy. The reduced opacity makes the blob appear more fragile and less substantial.

### 4. Tears

**Decision:** Implemented a `Tear` class that spawns teardrops randomly from near the blob, which fall and fade out.

**Rationale:** Tears are a universal visual symbol of sadness. The falling, fading tears add emotional narrative and reinforce the blob's distressed state. They're spawned randomly (2% chance per frame) to feel organic rather than mechanical.

### 5. Background

**Decision:** Replaced the flat grey background with a blue-grey gradient using `lerpColor()`.

**Rationale:** A gradient creates atmospheric depth and a more contemplative mood. The darker top transitioning to slightly lighter bottom suggests a heavy, overcast sky—commonly associated with gloomy weather and sadness.

## Technical Challenges

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### Challenge 1: Making the droop effect look natural

Initially, all vertices moved down equally, which looked stiff and unnatural. I used `sin(angle)` mapped to a `droopFactor` range of 0.5 to 1.5, so vertices at the bottom of the circle droop significantly more than those at the top, creating an organic sagging effect.

### Challenge 2: Tear opacity and cleanup

Tears need to fade out gracefully and be removed from the array to prevent memory issues. I decremented opacity by 2 each frame and used a reverse loop (`for (let i = tears.length - 1; i >= 0; i--)`) with `splice()` to safely remove completed tears.

## GenAI Usage

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**Tools Used:** ChatGPT/Claude for ideation and coding assistance

**Purpose:**

- **Ideation:** Discussed visual and movement strategies for expressing sadness (droop effect, tears, color choices, speed)
- **Coding Assistance:** Helped implement the Tear class structure, gradient background function, and droop calculation using trigonometry
- **Debugging:** Troubleshoot opacity fading and array management for tears

**What I Learned:** All generated code was reviewed, tested, and understood before implementation. I verified the mathematical relationships (`sin/cos` for circular motion, `lerp` for gradients) and modified parameters to achieve the desired emotional effect.

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## Appendix: GenAI Transcript

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### Ideation Phase

**User:** I need to express sadness through the blob for my week 2 side quest. What are some ways to show emotion through movement and visuals?

**AI:** For expressing sadness through animation, consider these approaches:

- Slow, lethargic movement (reduce `tSpeed` significantly)
- Downward droop or sagging effect (gravity pulling down)
- Muted, desaturated colors (greys, blues)
- Adding visual elements like tears or rain
- Irregular, less energetic wobbling
- Dark or moody background

**User:** I like the droop idea and tears. How would I add a droop effect to make it sag downward?

**AI:** You can add a `droopAmount` variable that increases over time and affects the y-coordinates of the bottom vertices more than the top ones. Use `sin(angle)` to determine which points are at the bottom.

## Coding Assistance

**User:** Can you help me add tears that fall from the blob?

**AI:** You'll want to create a Tear class with x, y position, falling speed, and opacity that fades. Store tears in an array, spawn them occasionally with random(), update their position each frame, and remove them when they fade out or leave the screen.

**User:** How do I make the background look more sad/melancholic?

**AI:** Create a gradient using lerpColor() from darker blue-grey at top to slightly lighter at bottom. This creates atmospheric depth. You can write a setGradient() helper function.

## Debugging

**User:** The tears aren't fading properly

**AI:** Make sure you're decreasing the opacity in the update() method and passing it as the 4th parameter to fill(). Also check that you're removing tears when opacity <= 0.

**User:** How do I make the droop effect stronger at the bottom?

**AI:** Use a droopFactor based on sin(a) mapped from 0.5 to 1.5, so bottom points (where sin(a) is positive) droop more than top points.