

# **Communication Labs**

**Spring 2023**

## **Assignment 3**

### **A Dive into Resurgence**

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<b>[1] INTRODUCTION</b>	<b>4</b>
<b>[2] ROLES &amp; RESPONSIBILITIES IN THE TEAM</b>	<b>4</b>
<b>[3] PHASE ONE: PLAN</b>	<b>4</b>
3.1 PRACTICE SOUND PRODUCTION FUNDAMENTALS	4
3.2 BRAINSTORMING STORY IDEAS	5
3.3 DETAILED STORYLINE	5
<b>[4] PHASE TWO: DESIGN</b>	<b>6</b>
4.1 INSPIRATION AND ROUGH DRAFT OF ILLUSTRATIONS	6
4.2 DIALOGUE SCRIPT	7
4.3 DESIGN WEBSITE ORIENTATION	7
<b>[5] PHASE THREE: IMPLEMENTATION</b>	<b>8</b>
5.1 RECORD ORIGINAL SOUND EFFECTS	8
5.2 RECORD DIALOGUE	8
5.3 EDIT SOUND	8
5.4 CREATE ILLUSTRATIONS USING CSS AND SOURCED ASSETS	9
5.4.1 index.html:	9
5.4.2 Scene 1 & Scene 5:	9
5.4.3 Scene 3 & Scene 6:(figure 11)	9
5.4.4 Scene 2: (figure 10)	9
5.5 ADD INTERACTIVE ELEMENTS	10
5.5.1 Ripple effect (Scene 1 and Scene 5)	10
5.5.2 Scene 2	10
5.5.3 Sea wave and cloud movement effects (Scene 3 and Scene 6)	10
5.5.4 Bubble	10
5.5.5 Navigation	11
5.5.6 Landing page	11
5.5.7 The end page	11
5.6 ADDING THE FINAL SOUND EFFECTS/DIALOGUE INTO WEBSITE	12
<b>[6] PHASE FOUR: DELIVERY</b>	<b>12</b>
6.1 FINAL GROUP MEETING	12
6.2 SUBMISSION AND DOCUMENTATION	12
<b>[7] REFLECTION/EVALUATION</b>	<b>12</b>
<b>[8] TABLE 1: THREE WEEK OVERVIEW PLAN</b>	<b>13</b>
<b>[9] REFERENCES</b>	<b>14</b>
<b>[10] APPENDIX A</b>	<b>15</b>
10.1 Scene one code	15
10.2 Scene two code	16
10.3 Scene three code	18

10.4 Scene four code	19
10.5 Scene five code	21
10.6 Scene six code	22
<b>[11] APPENDIX B</b>	<b>23</b>
11.1 Behind the scenes	23

## LIST OF FIGURES

Figure 1: Storyboard	5
Figure 2: Scene one inspirations	6
Figure 3: Scene three sketch	6
Figure 4: Dialogue script	7
Figure 5: Basic wireframe	7
Figure 6: The team using Zoom H4n audio recorder	8
Figure 7: Lifeguard jumping in the pool	8
Figure 8: Editing sound using Ableton Live	9
Figure 9: Final soundscape	9
Figure 10: Scene two final illustration	10
Figure 11: Scene three final illustration	10
Figure 12: Bubbles in scene four	11
Figure 13: Landing page	11
Figure 14: End page	12

## LIST OF TABLES

Table 1. Production Timeline	13
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## **[1] INTRODUCTION**

The aim of this project was to create a 2-3 minute sound piece that takes the user on a journey. The piece should be structured as a story and ultimately be live on a web page. Hence, the challenge was to create a piece that tells a story, live on a web page, includes some form of interactivity and the piece must be created with some originally recorded audio and sound effects.

“A Dive Into Resurgence” tells the short story of a little girl who loved swimming. She would spend hours playing in the bathtub dreaming of the day when she could swim in a real pool. As she grew older, her parents enrolled her in swimming lessons, and she quickly became an excellent swimmer. She would spend every free moment at the pool. But one day, while swimming at the beach, she got caught in a strong current and almost drowned. After that, she became terrified of the water and refused to swim again. For years, she avoided pools and beaches, even though she missed the feeling of being in the water. Eventually, with the support of her mother, she mustered up the courage to swim again. She slowly eased herself into the water, feeling her fear start to fade away. From that day on, she never let fear stop her from doing what she loved.

The project was divided into four phases, the planning phase, design phase, implementation phase, and delivery phase. Each phase was also divided into several subsections which will be discussed in detail in the report. A three week timeline was also created in order to maintain a suitable and time friendly pace throughout the project in order to meet the deadline with high quality work.

## **[2] ROLES & RESPONSIBILITIES IN THE TEAM**

In the team, Daniel was the leader whose main focus was to edit the recorded sound to create a smooth soundscape for the project as well as guide the team throughout the whole process. Sarah worked on web development, particularly the interactive elements such as the ripple effect (Scene 1 and Scene 5) and moving the swimmer using the space bar in Scene 2. Alongside that Sarah created illustrations using CSS and sourced assets. Lincoln worked on the end page and the illustration for scene two. Ingry was in charge of documentation work, writing the documentation report and taking images/videos of the whole process.

The process of recording the original sound effects were done as a team. The group went to the pool on campus and recorded all the needed sound effects for the project. The dialogue recordings were done by Ingry and Sarah. Finally, all members collaborated on the story, the theme, and the overall look and feel of the project.

## **[3] PHASE ONE: PLAN**

### **3.1 PRACTICE SOUND PRODUCTION FUNDAMENTALS**

Phase one started off by practicing sound production fundamentals in class. A sound recording workshop was conducted where the group learned about sound recording

equipment available from the EC and how to implement its use in the project. The group also learned how to use ‘Audacity’ which is an easy-to-use, multi-track audio editor and recorder. Audacity was the main platform used to create the soundscape for this project.

### 3.2 BRAINSTORMING STORY IDEAS

After brainstorming several ideas for the project, a decision needed to be made between two different ideas. The first idea was showing the morning routine of a student at NYUAD from start to finish. The project would include sounds such as the alarm clock ringing, the student brushing his/her teeth, the student showering, making breakfast etc.. The second idea which ended up being the final idea for the project, takes a more story-like approach as it includes a beginning, climax and end. The idea consists of a little girl who basically loved swimming all her life, but one day she almost drowned and she refused to swim again. Eventually, with the support of her mother, she mustered up the courage to swim again. The reason why this idea was chosen is because the water sounds would be so much more interesting and unique to record and the idea has a clear storyline and message. After choosing the final idea, a title was needed for the project. The goal was to find a strong and memorable title that fit the theme of the comic. The name “A Dive Into Resurgence” was decided on.

### 3.3 DETAILED STORYLINE

After finalizing the idea and the title of the comic, the next step was to create a detailed story line(see figure 1).The storyboard below aided in visualizing how the story is going to flow and what sound effects are needed for each scene. The storyboard was an effective way to plan most aspects of the project design as it contained the storyline,images, captions, and sound effects for each panel in the comic.

Scene 1	Child >>> boy playings in the tub with a rubber duck Sounds: <ul style="list-style-type: none"><li>- Duck sounds</li><li>- Splashes <input checked="" type="checkbox"/></li><li>- Giggles</li></ul>
Scene 2	Child grows and starts learning to swim and playing in the pool <ul style="list-style-type: none"><li>- Dialogue: mother encouraging</li><li>- Swimming splashes</li><li>- Panting</li></ul>
Scene 3	Teenager enjoys the sea (sound of the ocean) <ul style="list-style-type: none"><li>- Wave sounds</li><li>- Underwater diving sounds</li></ul>
Scene 4	One day playing at the ocean he drowns Ripple sound and low pass filter <ul style="list-style-type: none"><li>- Dialogue: parent warning child of not going too far</li><li>- Underwater diving sounds</li><li>- Underwater muffled bubbling</li><li>- Beeping sound</li></ul>

	<ul style="list-style-type: none"> <li>- Foreboding instrumentals (strings)</li> </ul>
Scene 5	<p>How is he saved? (Don't specify how is he saved)</p> <ul style="list-style-type: none"> <li>- Light at the end of the tunnel</li> <li>- Some kind of beep</li> </ul>
Scene 6	<p>Traumatized scene &gt;&gt;&gt; he got scared of the water        Listens to his mother's advice and takes a leap of faith and regains his courage and love towards swimming again.</p>

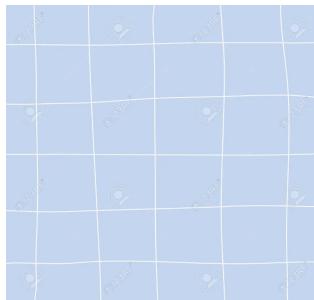
**Figure 1: Storyboard**

## [4] PHASE TWO: DESIGN

### 4.1 INSPIRATION AND ROUGH DRAFT OF ILLUSTRATIONS

The main aspect of the project was the sound production. Hence, a more simple approach to the illustrations was taken in order to allow the group to dedicate more time to the sound, and to maintain the user's focus on the sound rather than the illustrations. The aim was to create simple illustrations that help guide the audience and portray the story so that people understand it.

For each scene there would be one animated/interactive image to represent that scene. The team gathered inspiration images or sketched rough drafts for each scene in order to create a blueprint for the actual illustration of the scene. For scene 1 the visual decided on was to make the background look like bathtub tiles under water to represent what Katie would see as a child in a bathtub (see figure 2 for inspiration picture). For scene 2 the visual was of a pool as Katie starts learning to swim and playing in the pool. For scene 3 where Katie enjoys the ocean, the visual represented would be of a beach (see figure 3 for rough draft sketch). For scene 4 which is the drowning scene, the visual was of air bubbles on a black background to represent what she sees while she is drowning. Scene 5 was a similar version of the visuals in scene one. The last scene where Katie gathers the courage to go to the beach again would be the same visual as scene 3 which is the beach but with an orange/red color scheme to show that it is a different time of day.



**Figure 2: Scene one inspiration**



**Figure 3: Scene three sketch**

## 4.2 DIALOGUE SCRIPT

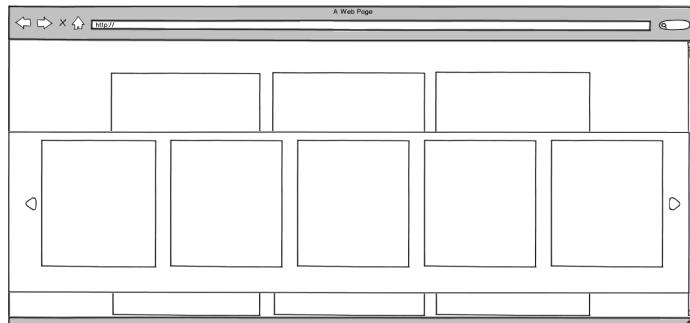
The second step of the design phase was to write the script to be used when recording the dialogue for the characters (see figure 3). The group wanted to keep the dialogue minimal and simple to allow the original sound effects to speak for themselves as well. The dialogue's purpose is to add another element that helps the audience understand the storyline and make it more realistic. The script is divided into scenes and consists of conversations between the two characters in the story, Katie and her mom.

- Dialogue:
  - Scene 1:
    - Katie: "I want to learn how to swim"
    - Mom: "okay honey"
  - Scene 2:
    - Mom: "good job, Katie! You're doing amazing sweetie"
  - Scene 3:
    - Mom: "Be careful, Katie, don't go too far"
    - Katie: "don't worry Mom, I got this!"
  - Scene 4:
    - Mom: "Katie!! My daughter is drowning! Help!!"
  - Scene 5:
    - Mom: "Do you want me to take you to the pool again?"
    - Katie: "I want to but I'm scared of drowning again"
    - Mom: "Honey, you can't let fear stop you from doing what you love"
  - Scene 6:
    - Katie: "I can do this!"
    - Mom after Katie starts swimming: "Look at you go! I am proud of you!"

**Figure 4:Dialogue Script**

## 4.3 DESIGN WEBSITE ORIENTATION

Initially the website layout was going to be vertical scrolling through each scene. However, after discussing it more, the group decided to create the layout horizontally in order to create a more story book-like effect for the user (see figure 4). The user would scroll horizontally through each scene.



**Figure 5: Basic wireframe for website orientation**

## [5] PHASE THREE: IMPLEMENTATION

### 5.1 RECORD ORIGINAL SOUND EFFECTS

This was the most exciting and important part of the project. The Zoom H8 audio recorder is a powerful tool for capturing high-quality sound effects, making it a perfect choice for recording water sounds such as ripples, splashes, and ocean waves . With its advanced microphone system, it can capture even subtle water sounds with great detail and clarity. The group took advantage of this device to record various water sounds in the pool on campus. At the pool the team recorded all water sound effects needed for the project like the gentle ripples used in scene one to imitate the sound of Katie playing in the bathtub water and the sound of crashing waves against the pool walls which was used in scene three (see figure 6 for documentation). In addition, the group asked the lifeguard on duty to jump in the pool and start swimming in order to record the sound of the big splash and katie swimming in the pool in scene two (see figure 7). Lastly the team also asked the lifeguard on campus to blow in his whistle to use in scene five when Katie drowns.



Figure 6: The team using Zoom H4n audio recorder

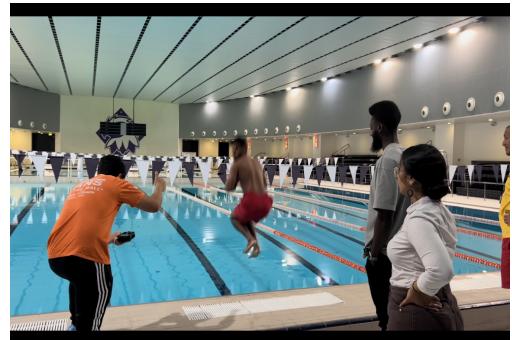


Figure 7: The lifeguard jumping to record splashing sound

### 5.2 RECORD DIALOGUE

Simultaneously with recording the sound effects for the water the team had to record dialogue for the mom and Katie based on the script written in the design phase. To get the most realistic effect, Sarah's little sister was recorded as the sound of Katie and Ingry's mom was recorded as the sound of Katie's mom.

### 5.3 EDIT SOUND

Once the group had recorded all the water sound effects with the Zoom H8 audio recorder, Ableton Live, a popular digital audio workstation was used to create a smooth soundscape that would tell the story aimed to be conveyed. Ableton Live is an incredibly versatile program that allows users to cut, trim, fade, layer and automate different parameters of different audio tracks, making it perfect for creating a polished soundscape. Using Ableton Live, the group was able to combine the various water sound effects as well as the dialogue previously recorded and carefully edit them to create a cohesive and immersive listening experience. Subtle sound effects (not original) were added such as seagulls [4], rubber duck [2], heartbeat [3], and underwater bubbles [5] to make the

soundscape feel more realistic and create an overall mood. Simple and calm background music was composed as well to add to the overall mood of the soundscape. The end result was a smooth and captivating soundscape that told the story of Katie and her love for water, complete with the sounds of the water and the ambiance of the surrounding environment (see figure 9).



**Figure 8: Editing the sound using Ableton Live**



**Figure 9: Final Soundscape**

#### 5.4 CREATE ILLUSTRATIONS USING CSS AND SOURCED ASSETS

The illustrations and the visuals were compiled as assets from Unsplash or freepik.com (see references) or were created with CSS using a combination of elements such span and divs to create different visuals, or a combination of both approaches of course. Here's a detailed breakdown of how each scene was illustrated:

##### 5.4.1 *index.html*:

- Both the duck and wave illustrations were sourced from freepik.com, sources in References [7],[8]

##### 5.4.2 *Scene 1 & Scene 5*:

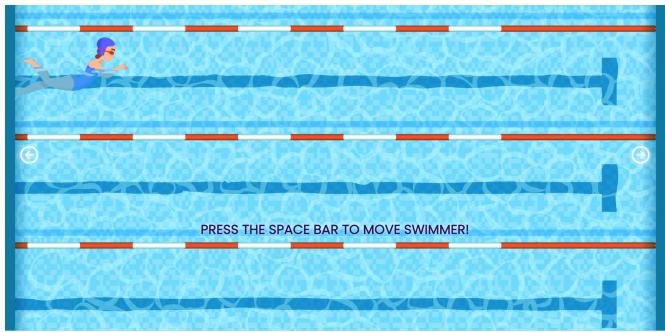
- Using water image assets as the background [11]

##### 5.4.3 *Scene 3 & Scene 6:(figure 11)*

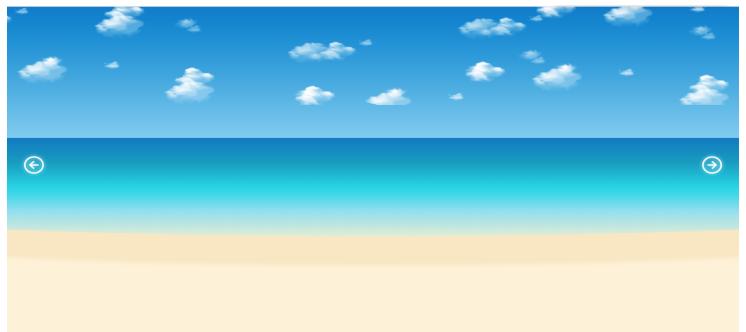
- Sky was a div section that was styled to have a gradient background
- The sea was also a div section that was styled to have a gradient effect
- The sand was another div section
- We also had dynamic div sections for the sea foam and wet sand that created the interactive scene

##### 5.4.4 *Scene 2: (figure 10)*

- Sourced assets (in reference) of olympic pool and kid [9], [10]



**Figure 10: Scene two final illustration**



**Figure 11: Scene three final illustration**

## 5.5 ADD INTERACTIVE ELEMENTS

We implement interactivity by using a combination of Javascript and CSS. Here are the main interactive elements of the site and how they were implemented; you can find the code in the Appendix (10):

### 5.5.1 Ripple effect (*Scene 1 and Scene 5*)

We had the jQuery and ripple.js modules downloaded into the directory of the project under the js directory to enable the ripple effect. In both those scenes, we invoked the ripple effect on the main div section of the scene, and set its parameters. Upon clicking or dragging, the ripple effect will be produced according to the set parameters.

### 5.5.2 Scene 2

Scene 2 involves moving the kid swimmer, Katie, across the pool by clicking on the space bar. On the bottom of the page, there are instructions prompting the user to click on the space bar to activate movement. Once the kid swims across the screen and is off bounds, the instructions text changes to a celebratory text (“YOU DID IT!”) and the kid div section is moved back to the upper leftmost part of the page. The display on this page was made with grid to help with the proper placement of the kid onto the page and because it is easier to use in responsive website design

### 5.5.3 Sea wave and cloud movement effects (*Scene 3 and Scene 6*)

The scene involves dynamic manipulation of HTML elements via CSS to create a portrait of a beach, moving sea waves, and moving clouds. The sky and the sand are static divs so they are not changed. Keyframes are used to move the sea by creating vertical translations and control the appearance of sea foam and wet sand by manipulating the opacity of the div in every frame. As for the clouds, keyframes are used to move the cloud png horizontally with every frame infinitely to achieve the effect of infinitely moving clouds.

### 5.5.4 Bubble

Each bubble element is a span element in the section of the container div that was created using CSS. They are spawned at a random location and size using Javascript and injected into the HTML DOM and disappear after a few seconds. (figure 12)

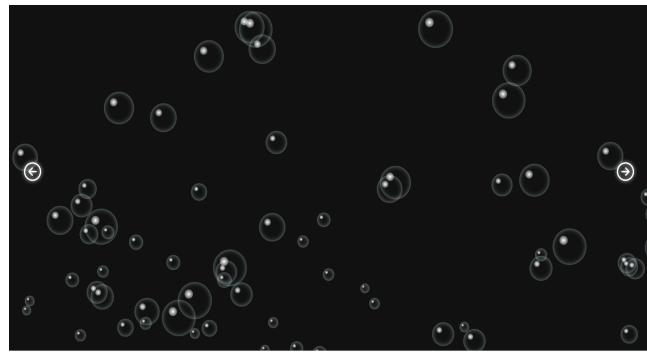


Figure 12: Bubbles in scene four

#### 5.5.5 Navigation

All scenes have forward and backward buttons to navigate to the next or previous scenes, respectively. The end page also has a button that takes you back to the landing page. The landing page displays animated text with Javascript that displays a text as if it were typed out by a typewriter.

#### 5.5.6 Landing page

The waves on the landing page are also animated using CSS keyframes by a horizontal translation every frame. The multiple waves belonged to the same image, just with different opacities and positions to give dimension. The duck is enlarged when hovered over and there is a button on the upper right that, once clicked, an overlay pops up with a short synopsis of the story. This was achieved using both CSS and Javascript toggle function (figure 13)

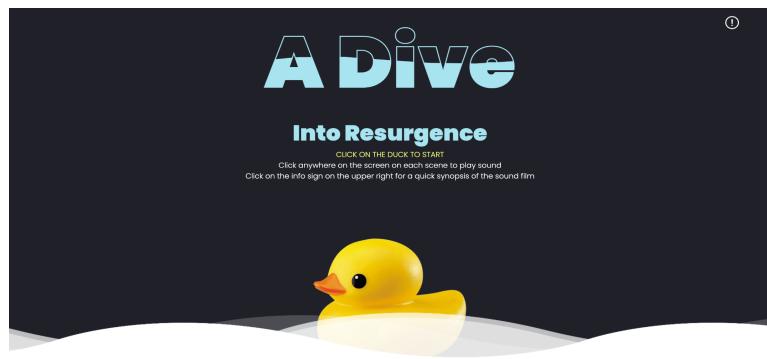
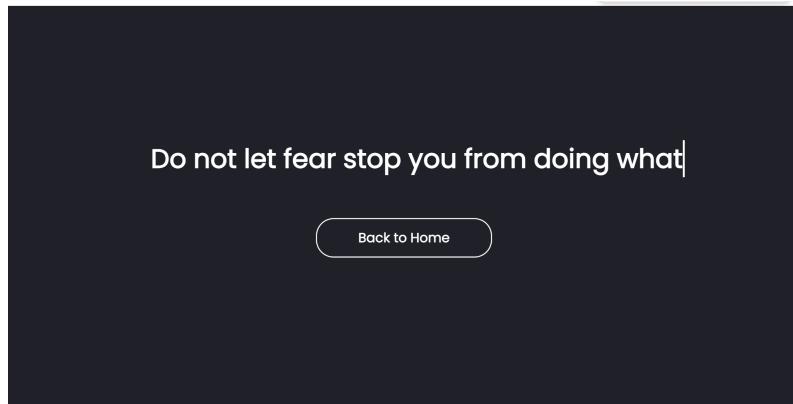


Figure 13: Landing page

#### 5.5.7 The end page

The end page has a centered text that is animated to play as if it were written by a typewriter using JavaScript by dynamically typing out each letter and then dynamically subtracting characters from the string after the whole string is written out. There is also a button that directs the user to the landing page. The text and the button colors alternate when the button is hovered over. (figure 14)



**Figure 14: End page**

## 5.6 ADDING THE FINAL SOUND EFFECTS/DIALOGUE INTO WEBSITE

The last step to wrap up everything together was to add the soundscape to the website and align it properly to be cohesive with the illustrations as well.

## [6] PHASE FOUR: DELIVERY

### 6.1 FINAL GROUP MEETING

The last step before submitting the project was meeting together as a group to finalize the website and look at all the aspects in conjunction. In the meeting the how the presentation will take place was also discussed and agreed on.

### 6.2 SUBMISSION AND DOCUMENTATION

Publish the comic on github, write up documentation and submit to the professor and present in class.

## [7] REFLECTION/EVALUATION

Creating a sound project for the first time can be an exciting and rewarding experience. It allows for creativity and expression through storytelling and sound. The group was pleasantly surprised about the power of using sound to enhance a visual project, creating a mood and conveying a story. It was fascinating to explore different water sound effects using the Zoom H4n audio recorder and to see how those sounds could be edited and combined using Audacity to create a smooth and immersive soundscape. This project was very fun and exciting; however, it was also a challenging and time-consuming task that required patience and dedication. Creating this project embedded a new found respect for sound production and the complexities behind it which people often overlook.

One of the primary challenges in creating a story through sound is developing a simple and attainable storyline that is also unique and engaging that will attract and retain the audience. Additionally, creating a visually appealing website that is easy to navigate

is essential to ensuring the users have a positive experience. In order to create that experience for users, there was a lot of trial and error as stated in the report. It was also very challenging to try to think about how to evolve the conventions of sound and art to the dynamic space of the web page. Another challenge faced in creating the comic website was producing high-quality content consistently. This required creating a production schedule and sticking to it while maintaining a high standard of quality in both the artwork and the storylines. What helped the group with maintaining good pace and high quality work was the three week overview plan (see table one). Overall, creating a sound project for the first time can be a rewarding experience that allows for self-expression and the development of new skills. However, it is essential to approach it with dedication, patience, and a willingness to learn and adapt.

**[8] TABLE 1: THREE WEEK OVERVIEW PLAN**

<b>Plan</b>	Week 1	Week 2	Week 3
- practice sound production fundamentals			
- Brainstorming Idea			
- Brainstorm titles for the project			
- Create storyboard/wireframe for comic			
- Allocate design/implementation roles			
<b>Design</b>			
-Find inspiration and rough draft of illustrations			
- Write script for the dialogue			
-Design website orientation			
<b>Implementation</b>			
- Record water sound effects			
- Record dialogue audio			
-Edit sound using audacity			
- Create holding site structure			
- Create illustrations using CSS			
- Add interactive elements			
- Add final soundscape to the website			
- Meet together to finalize all aspects in conjunction			
<b>Delivery</b>			
- publish the website			
- write documentation			
- Present in class			

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[11] zaie. (n.d.). Swimming pool with waves. Retrieved March 29 2023, from [https://www.freepik.com/free-vector/swimming-pool-bottom-texture-ripple-flow-with-waves\\_10817177.htm#query=pool%20surface&position=1&from\\_view=search&track=ais](https://www.freepik.com/free-vector/swimming-pool-bottom-texture-ripple-flow-with-waves_10817177.htm#query=pool%20surface&position=1&from_view=search&track=ais)

## [10] APPENDIX A

### 10.1 Scene one code

```
<!DOCTYPE html>
<html lang="en">
<head>
    <!-- Useful metadata to be parsed and used by browsers-->
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="stylesheet" href="css/scene-1.css">
    <!-- Link to CSS stylesheet -->
    <link href="https://fonts.googleapis.com/css2?family=Poppins:wght@300;600;900&display=swap" rel="stylesheet">
        <link rel="stylesheet"
        href="https://fonts.googleapis.com/css2?family=Material+Symbols+Outlined:opsz,wght,FILL,GRAD@20..48,100..700,0..1,-50..200" />
    <!-- Javascript files -->
    <script src="js/jquery-3.6.4.min.js"></script>
    <script src="js/jquery.ripples.js"></script>
    <script src="js/script.js"> </script>
    <script type="module" src="https://unpkg.com/ionicons@5.5.2/dist/ionicons/ionicons.esm.js"></script>
    <title>Scene 1</title>
</head>
<body>
    <!-- audio of scene to be played -->
    <audio src="audio/final/Chapter1-DiveIntoResurgence.mp3" id="sound" loop="loop" autoplay="autoplay" type="audio/mp3"></audio>
    <!-- container div to hold page elements -->
    <div class="container">
        <!-- navigation div; includes arrows and instruction text -->
        <div class="navigation">
            <a class="arrow-back" href="index.html">
                <ion-icon name="arrow-back-circle-outline"></ion-icon>
            </a>
            <h1 id="text">
                MOVE THE CURSOR AROUND; CLICK FOR RIPPLE
            </h1>
        </div>
    </div>
</body>
```

```

<a class="arrow-forward" href="scene-2.html">
  <ion-icon name="arrow-forward-circle-outline"></ion-icon>
</a>
</div>
</div>
</body>
</html>

```

## 10.2 Scene two code

```

<!DOCTYPE html>
<html lang="en">
<head>
  <!-- Useful metadata to be parsed and used by browsers-->
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <link rel="stylesheet" href="css/scene-2.css">
  <!-- Link to CSS stylesheet -->
  <link href="https://fonts.googleapis.com/css2?family=Poppins&display=swap" rel="stylesheet">
  <link rel="stylesheet"
    href="https://fonts.googleapis.com/css2?family=Material+Symbols+Outlined:opsz,wght,FILL,GRAD@20..48,100..700,0..1,-50..200" />
  <!-- Javascript files -->
  <script src="js/jquery-3.6.4.min.js"></script>
  <script src="js/jquery.ripples.js"></script>
  <script src="js/sound.js"></script>
  <script type="module"
    src="https://unpkg.com/ionicons@5.5.2/dist/ionicons/ionicons.esm.js"></script>
  <title>Scene 2</title>
</head>
<body>
  <!-- audio to be played in scene -->
  <audio src="audio/final/Chapter2-DiveIntoResurgence.mp3" id="sound" loop="loop"
  autoplay="autoplay" type="audio/mp3"></audio>
  <!-- div of scene elements -->
  <div class="scene-2">
    <!-- kid div -->
    <div class="kid" >
      <a href="#">
        
      </a>
    </div>
    <!-- navigation div -->
    <div class="navigation">

```

```

<a class="arrow-back" href="scene-1.html">
  <ion-icon name="arrow-back-circle-outline"></ion-icon>
</a>
<a class="arrow-forward" href="scene-3.html">
  <ion-icon name="arrow-forward-circle-outline"></ion-icon>
</a>
</div>
<!-- instructions div -->
<div class='instructions'>
  <center>
    <h1 id="heading">
      PRESS THE SPACEBAR TO MOVE SWIMMER!
    </h1>
  </center>
</div>
</div>

<script>
/* this function checks whether the element has gone off screen by checking if any of the
bounds of clientRec of the element are beyond the screen */
function isElementOffScreen(element) {
  const rect = element.getBoundingClientRect();
  const viewWidth = window.innerWidth || document.documentElement.clientWidth;
  const viewHeight = window.innerHeight || document.documentElement.clientHeight;

  return (
    rect.bottom < 0 ||
    rect.right < 0 ||
    rect.left > viewWidth ||
    rect.top > viewHeight
  );
}

/* this function moves the kid element by 50 pixels everytime the spacebar is pressed */
function move() {
  if (event.keyCode === 32 || event.which === 32) {
    // code to be executed when spacebar is pressed
    var kidpos = document.getElementById('kid').offsetLeft
    kidpos = kidpos + 50
    document.getElementById('kid').style.left = kidpos + 'px'
    if (isElementOffScreen(document.getElementById('kid'))) { // if the kid has gone off screen
      const myHeading = document.getElementById("heading");
      myHeading.textContent = "YOU DID IT!"; // change text to "YOU DID IT! "
      document.getElementById('kid').style.left = 0 // set the position of the kid back to the start
      if (myHeading.textContent != "YOU DID IT!") { // stop moving the kid if the kid managed
        to get across the pool
        document.addEventListener('keydown', move)
      } else {
    
```

```

        document.removeEventListener('keydown', move) // remove event listener if the user
successfully got the kid across the pool
    }
}
}
}

document.addEventListener('keydown', move); // add event listener on the document
</script>
</body>
</html>

```

### 10.3 Scene three code

```

<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta http-equiv="X-UA-Compatible" content="IE=edge">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<!-- Link to CSS stylesheet -->
<link rel="stylesheet" href="css/scene-3.css">
<!-- Javascript files -->
<script type="module" src="https://unpkg.com/ionicons@5.5.2/dist/ionicons/ionicons.esm.js"></script>
<script src="js/sound.js"></script>
<title> Scene 3</title>
</head>
<body>
<!-- audio to be played -->
<audio src="audio/final/Chapter3-DiveIntoResurgence.mp3" id="sound" loop="loop"
autoplay="autoplay" type="audio/mp3"></audio>
<!-- sky div -->
<div class="sky"></div>
<!-- add clouds -->

<!-- sand div -->
<div class="sand"></div>
<!-- wet sand div -->
<div class="wet-sand"></div>
<!-- sea div -->
<div class="sea">
<!-- sea foam div -->
<div class="seafoam"></div>
</div>
<!-- front of the see div -->
<div class="sand-front"></div>
<!-- navigation div with arrows -->

```

```

<div class="navigation">
  <a class="arrow-back" href="scene-2.html">
    <ion-icon name="arrow-back-circle-outline"></ion-icon>
  </a>
  <a class="arrow-forward" href="scene-4.html">
    <ion-icon name="arrow-forward-circle-outline"></ion-icon>
  </a>
</div>
</body>
</html>

```

## 10.4 Scene four code

```

<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <!-- Link to CSS stylesheet -->
  <link rel="stylesheet" href="css/scene-4.css">
  <!-- Javascript files -->
  <script type="module"
src="https://unpkg.com/ionicons@5.5.2/dist/ionicons/ionicons.esm.js"></script>
  <script src="js/sound.js"> </script>
  <title> Scene 4</title>
</head>
<body>
  <!-- audio to be played -->
  <audio src="audio/final/Chapter4-DiveIntoResurgence.mp3" id="sound" loop="loop"
autoplay="autoplay" type="audio/mp3"></audio>
  <div>
    <!-- section to add bubbles as span elements with vanilla javascript -->
    <section>
      <!-- navigation div -->
      <div class="navigation">
        <a class="arrow-back" href="scene-3.html">
          <ion-icon name="arrow-back-circle-outline"></ion-icon>
        </a>
        <a class="arrow-forward" href="scene-5.html">
          <ion-icon name="arrow-forward-circle-outline"></ion-icon>
        </a>
      </div>
    </section>
  </div>
  <script type="text/javascript">
    function createBubble(){

```

```

const section = document.querySelector('section');
const createElement = document.createElement('span'); // create span
var size = Math.random() * 60; // randomize size
// set height and width
createElement.style.width = 20 + size + 'px';
createElement.style.height = 20 + size + 'px';
// set location randomly
createElement.style.left = Math.random() * innerWidth + 'px';
// add to section
section.appendChild(createElement);

// remove span bubble after 4 seconds
setTimeout(() => {
    createElement.remove()
}, 4000);
}
setInterval(createBubble, 50); // create bubbles in every interval
</script>
</body>
</html>

```

## 10.5 Scene five code

```

<!DOCTYPE html>
<html lang="en">
<head>
    <!-- Useful metadata to be parsed and used by browsers-->
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="stylesheet" href="css/scene-5.css">
    <!-- Link to CSS stylesheet -->
    <link
        href="https://fonts.googleapis.com/css2?family=Poppins:wght@300;600;900&display=swap" rel="stylesheet">
    <!-- Javascript files -->
    <script src="js/jquery-3.6.4.min.js"></script>
    <script src="js/jquery.ripples.js"></script>
    <script src="js/script.js"> </script>
    <script src="js/sound.js"> </script>
    <script type="module"
        src="https://unpkg.com/ionicons@5.5.2/dist/ionicons/ionicons.esm.js"></script>
    <title>Scene 5</title>
</head>
<body>
    <!-- audio of scene to be played -->

```

```

<audio src="audio/final/Chapter5-DiveIntoResurgence.mp3" id="sound"
loop="loop" autoplay="autoplay" type="audio/mp3"></audio>
    <!-- container div to hold page elements -->
    <div class="container">
        <!-- navigation div; includes arrows and instruction text -->
        <div class="navigation">
            <a class="arrow-back" href="scene-4.html">
                <ion-icon name="arrow-back-circle-outline"></ion-icon>
            </a>
            <h1 id="text">
                MOVE THE CURSOR AROUND; CLICK FOR RIPPLE
            </h1>
            <a class="arrow-forward" href="scene-6.html">
                <ion-icon name="arrow-forward-circle-outline"></ion-icon>
            </a>
        </div>
    </div>
</body>
</html>

```

## 10.6 Scene six code

```

<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <!-- Link to CSS stylesheet -->
    <link rel="stylesheet" href="css/scene-6.css">
    <!-- Javascript files -->
    <script type="module"
src="https://unpkg.com/ionicons@5.5.2/dist/ionicons/ionicons.esm.js"></script>
    <script src="js/sound.js"> </script>
    <title> Scene 6</title>
</head>
<body>
    <!-- audio to be played -->
    <audio src="audio/final/Chapter6-DiveIntoResurgence.mp3" id="sound"
loop="loop" autoplay="autoplay" type="audio/mp3"></audio>
    <!-- sky div -->
    <div class="sky"></div>
    <!-- add clouds -->
    

```

```
<!-- sand div -->
<div class="sand"></div>
<!-- wet sand div -->
<div class="wet-sand"></div>
<!-- sea div -->
<div class="sea">
    <!-- sea foam div -->
    <div class="seafoam"></div>
</div>
<!-- front of the see div -->
<div class="sand-front"></div>
<!-- navigation div with arrows -->
<div class="navigation">
    <a class="arrow-back" href="scene-5.html">
        <ion-icon name="arrow-back-circle-outline"></ion-icon>
    </a>
    <a class="arrow-forward" href="end-page.html">
        <ion-icon name="arrow-forward-circle-outline"></ion-icon>
    </a>
</div>
</body>
</html>
```

## [11] APPENDIX B

### 11.1 Behind the scenes

