**SCHOOL OF ENGINEERING AND TECHNOLOGY**

**ASSIGNMENT / PROJECT SUBMISSION FORM**

**PROGRAMME : BSc (Hons) in Computer Science**

**SEMESTER : Jan / Apr / Aug 2023**

**SUBJECT : WEB1201 / WEB2014 Web Fundamentals**

**DEADLINE : 3August 2023 23:59 MYT**

**INSTRUCTIONS TO CANDIDATES**

* This is a(n) individual / ~~group~~ project.

**IMPORTANT**

# The University requires students to adhere to submission deadlines for any form of assessment. Penalties are applied in relation to unauthorized late submission of work.

# Coursework submitted after the deadline but within 1 week will be accepted for a maximum mark of 40%.

# Work handed in following the extension of 1 week after the original deadline will be regarded as a non-submission and marked zero.

**Lecturer’s Remark** (Use additional sheet if required)

List down the name of the group members and the student IDs here.

Shape

Description automatically generated with low confidenceI.....**Lim Xiwei**...... (Student’s Name) ...**21045596**... (Student ID) received the assignment and read the comments.

**7/7/2023**

....................................... (Signature/Date)

**Academic Honesty Acknowledgement**

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Description automatically generated with low confidence“I ....**Lim Xiwei**....(Student’s Name) verify that this paper contains entirely my own work. I have not consulted with any outside person or materials other than what was specified (an interviewee, for example) in the assignment or the syllabus requirements. Further, I have not copied or inadvertently copied ideas, sentences, or paragraphs from another student. I realize the penalties *(refer to page 16, 5.5, Appendix 2, page 44 of the student handbook diploma and undergraduate programme)* for any kind of copying or collaboration on any assignment.”

**7/7/2023**

….................................. (Student’s signature / Date)

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**1**. **Reflection**

Building our BLACKPINK website from scratch has been an enriching and insightful learning experience. Throughout the design and development of the site, I encountered various challenges and opportunities for growth.

One key realization was the seamless synergy between HTML, CSS, and JavaScript. Learning how these languages interact to create a cohesive web experience, where each plays a unique role in the website's functionality and aesthetics, was truly fascinating. Before this subject, I used to view HTML, CSS, and JavaScript as separate and unrelated programming languages, but building this website showed me their true power when combined.

JavaScript was a game-changer for our website's functionality, especially on the album playlist page. Its flexibility in modifying styles, text content, and elements within the divisions was empowering. I learned to handle events like clicks and input and manipulate the DOM. Without a doubt, understanding event listeners and the DOM significantly enhanced user interactivity.

Designing a responsive layout was an essential aspect of the project, and I found media queries to be an invaluable tool. I learned to adapt the website's design to various screen sizes, ensuring accessibility and usability across different devices. However, I faced challenges with units like "vw" and "vmin," particularly in maintaining consistent font sizes across screens, so I decided not to use them. Besides, I discovered that while using the percentage of width approach was suitable for certain situations, it still required media queries to adjust image widths effectively.

Moreover, designing the website encouraged me to explore my creative side. I focused on aesthetics, colour schemes, and layout, striving to create an appealing visual experience for users. Balancing creativity with usability and accessibility was challenging, given my inclination to prioritize visual appeal in interface design.

Managing the project and organizing the files taught me the value of structured development. Planning the site's structure and keeping a clear folder organization made the development process more efficient and manageable. I recognized the value of reusable code, which greatly facilitated future maintenance and enhancements. Keeping the files organized proved vital for easy reference and troubleshooting. In addition, writing clear and concise comments in the code helped me understand the functionality during review and future maintenance.

In my experience, the most challenging part of this assignment was collaborating with teammates with diverse design and coding skills. As someone who strives for excellence, it was hard to accept design choices that I believed lacked overall quality. My concern was not based on personal aesthetics but on objectively assessing the overall design quality. Furthermore, assisting teammates with debugging issues was difficult due to their poorly structured code. Correcting the code structure was impractical as they were adamant about their coding style and refused to start over, which would render their previous work in vain.

In conclusion, building the BLACKPINK website was a valuable growth opportunity, equipping me with practical skills for future projects and emphasizing effective communication and compromise in teamwork. I will carry these lessons forward, understanding that building engaging web experiences requires technical skills and harmonious collaboration.

(504 words)

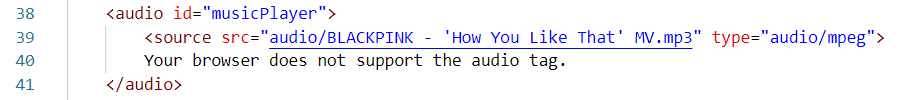
**2. Explanation and Description of Code**

A screenshot of a music player

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**Figure 1.** Music Player Interface

In this section, I will focus on the music player interface, a feature I worked on for our website (Figure 1). The <audio> tag forms the foundation of the music player.



The above code embeds an audio file on a web page and includes a fallback message for unsupported browsers. The src attribute indicates the audio file's location, while the type attribute specifies the audio format.

A close up of text

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The main content of the music player interface is within the "interface" <div>. This section displays information about the current album, such as its name, release year, and the number of songs. Below the album information, there is a soundwave visualization represented by the "soundwave" <div>, using multiple <div> elements to create sound bars:

A screenshot of a computer code

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I implemented CSS animations for the soundwave visualization. While working on them, I gained insights into key animation concepts like keyframes, transforms, and animation properties.

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| CSS | CSS Animations |
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I have defined four keyframes animations: quietAnimation, loudAnimation, normalAnimation, and moveGradient. These animations create dynamic effects for the divisions, including changing size, opacity, and animating background gradients. For instance, quietAnimation starts with a height of 10px and scales vertically to 0.2 with full opacity. At 50%, it increases the height to 20px and scales vertically to 1.5 with reduced opacity of 0.5. Additionally, moveGradient smoothly transitions the background position from 0% to 100%, creating a moving gradient effect. Classes, such as the ".quiet," invoke animations like "quietAnimation," running indefinitely for 1.2 seconds with an "ease-in-out" timing function. JavaScript is responsible for adding the animation classes to the respective divisions:

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Note: The animationClasses array is defined in JavaScript.

I avoid assigning them in the HTML initially to have control over the animation play state in different scenarios. Additionally, the "transform-origin" property ensures transformations occur around the bottom centre of the element.

A screenshot of a computer code

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Next is a paragraph with the id "songName" displaying the song name, followed by a slider (an input element) to track the song's progress. Another paragraph displays the current song's duration and time progress, floating to the right. Afterwards, a section features control icons for the music player, including buttons for shuffle, loop, play/pause, and volume control. Each button has an associated <img> tag in separate divisions with adjusted widths for a suitable size ratio between buttons. JavaScript and Audio DOM Reference enable most music player's functionality, including dynamic updates for the song name and time during playback. The play/pause button utilizes the onclick event to trigger the playPause() function, while the volume button reveals a slider for adjusting the volume level, both achieved using JavaScript.

JavaScript

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Integrating an audio player into the site promotes user engagement, allowing them to enjoy their favourite tracks without leaving the page. The visually appealing interface aligns perfectly with the project's goal of creating a captivating web experience. The cohesive and stylish appearance contributes to the website's overall aesthetics, providing a professional and immersive environment for users. Volume, loop, and shuffle features offer greater control over the listening experience, enhancing user satisfaction. The interactive soundwave animation is a standout feature that further elevates the user experience. By visually representing the audio's intensity, users can connect with the music on a deeper level, fostering a stronger emotional connection with BLACKPINK's music and the website. It was fascinating to see how animations can enhance user engagement and make the website more dynamic. However, I must admit that certain complex functionalities, such as an audio-responsive soundwave, exceeded my current coding capabilities.

(558 words excluding codes)