Level 3 Digital Technologies 2024

91909 Present a reflective analysis of developing a digital outcome

EXEMPLAR

Merit TOTAL **05**

Instructions

The task in this assessment requires you to discuss a digital outcome you have developed within the past 12 months.

You must illustrate your answers with three images you have prepared in advance:

- a single image of the digital outcome (e.g. a website, a magazine, an electronic device)
- a single image of a digital component of the outcome in the software used to create it
- a single image of the development process and/or planning process (e.g. agile development or a planning chart).

During this assessment, you may only access the three .jpg or .png images you have prepared in advance. Access to your digital outcome, online or paper resources, other Word or PDF documents, and the Internet is not permitted.

If you developed your digital outcome as part of a group, you must only write about your role and specific contributions to the project.

Read all parts of the task before you begin. Do not repeat your response in different parts of the question.

Candidates must complete their assessments individually under teacher supervision, in accordance with the NCEA Assessment and Examination Rules and Procedures. The material submitted for assessment must be the candidate's own work.

Candidates are not permitted to access any resources (either in hard copy or online) other than those supplied in the assessment itself.

Schools, teachers, and candidates are not permitted to share or discuss the assessment or their assessment responses with any other schools, teachers, or candidates until after the final date for submission (30 October 2024).

The use of chatbots, generative AI, paraphrasing tools, or other tools that can automatically generate content is not permitted and material generated by these tools should not be submitted as part of the candidate's work.

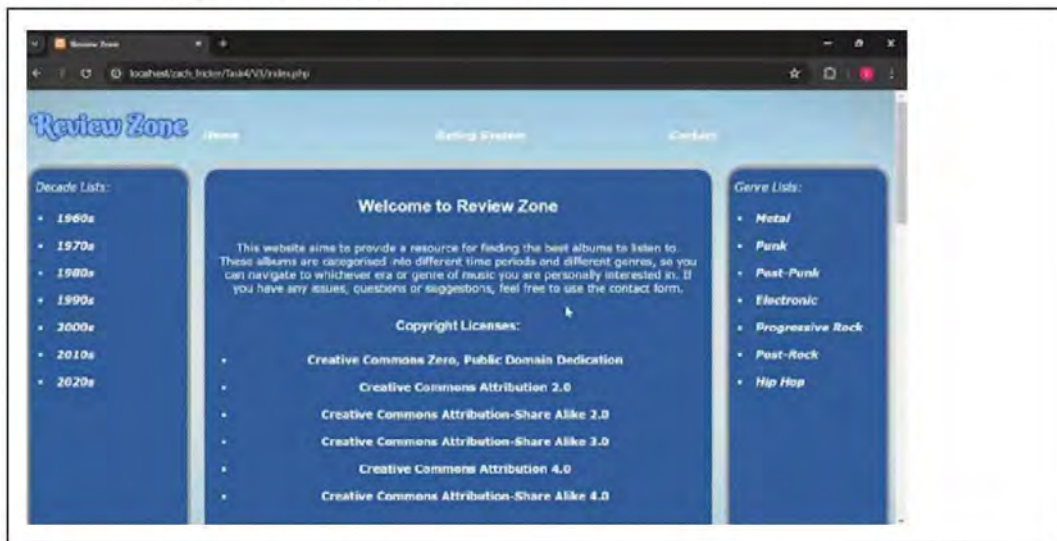*(Assessment Specifications, NZQA 2024)*

Assessment Task

Name the type of digital outcome you created, e.g. website, app, magazine, animation, etc.

Website

Purpose and key characteristics

(a)   (i)   Insert the image you prepared of your digital outcome.

(ii)   Explain the purpose of your digital outcome.

The purpose of my digital outcome as decided by my client was to provide a helpful consumer's guide to album listening & music discovery, so that users can find album recommendations to best suit their specific taste. The intended target audience of the website consists of music listeners of a wide age range (likely teenagers to adults).

(iii) What are two key characteristics of your digital outcome?

A key characteristic of my website were the dropdown boxes present in the navigation sections in each of the website's subpages, in which links to the website's different pages were organised and displayed.

Another key characteristic of the website was the page adaptability, as the website was capable of adapting its content to fit smaller window sizes than usual.

(iv) Explain how these characteristics helped to meet the purpose of your digital outcome.

Aesthetics and minimalist design refers to how aesthetically pleasing the outcome is, as well as how well clutter is minimised. Usability refers to how easily the website can be read, navigated and understood. Functionality refers to the ability of the outcome to achieve its intended purpose for the target audience.

The dropdown boxes in my website were essential for reducing clutter across the website, as they reduced the size of the navigation bars that would have needed to be displayed on every subpage otherwise, helping to increase the website's aesthetic appeal. They also increase usability by having the website's links displayed in an organised and logical manner, as each subpage was contained within a specific dropdown box according to its category (either decade lists or genre lists). These also increased the functionality of the website by allowing users to find the content of the website which best met their specific tastes, improving the website's usefulness to a wider range of user cases.

My website's page adaptability was vital for ensuring usability, as to appeal to a wide range of user cases it is necessary to account for the different devices used by end-users, which are likely to have differing screen sizes. Particularly, phone users are likely to access the website in landscape, so my website is capable of adapting its content to smaller x-resolutions. When the x-resolution of the window displaying the website reaches a small enough point, content is rearranged to fit the resolution, and a dropdown burger menu becomes visible which contains the website's navigation on the home page. This eliminates the issue of having navigation sidebars overlapping with the page's central content, and organises navigation in the most efficient and usable way possible. By reducing clutter, the aesthetic appeal of the website is increased, and
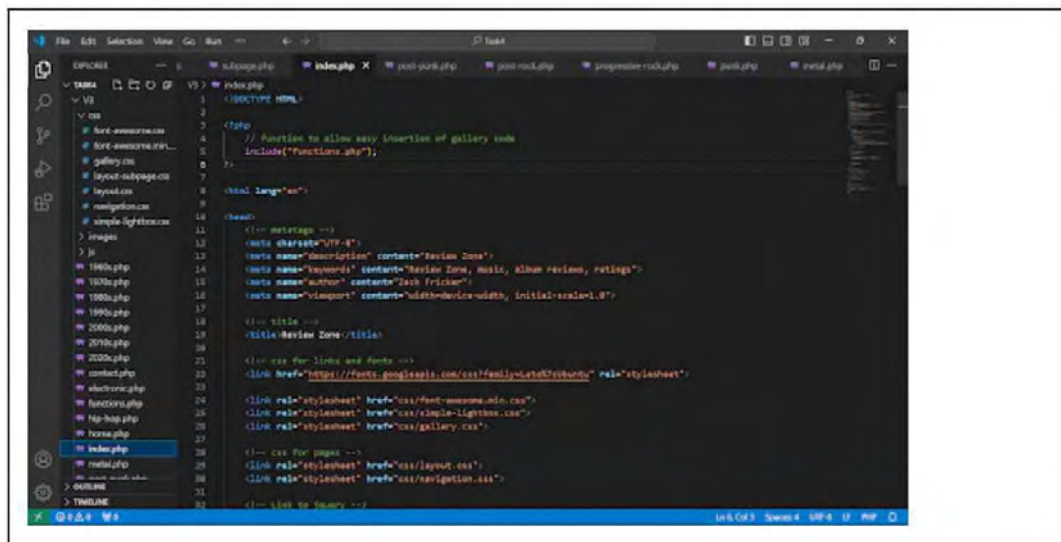
usability is maintained for a wider range of user cases.

Planning and development process

(b) (i) Insert an image from the planning / development process you followed.

(ii) Insert an image showing a relevant digital component of the outcome in the software you used to create it.

Software application decisions

(c)   (i)   What was one software application you chose to help you develop your digital outcome?

> Visual Studio Code

(ii)   Explain the importance of this application to your digital outcome.

> My development process consisted of 5 stages: the planning stage (determining the outcome's purpose with client & factors that needed to be considered), the design stage (creating wireframe designs from which feedback could be developed for the website's eventual design), the testing stage (coding the website and eliminating errors / ensuring functionality), the feedback stage (getting the final feedback to ensure the outcome appeals to end users), and the evaluation stage (determining what about the development process or outcome could have been improved).
>
> This application was used to code the website with HTML/PHP, CSS and Javascript. It helped to accelerate the development process by making the testing stage as efficient as possible. The program's sidebar, which displayed all files within the digital outcome's home folder, made it so that I could quickly navigate between, edit and save files. This eliminated the need to manually open new windows for each file I needed to access, saving valuable time throughout the development of the website. It also meant new subpages which shared similar code with other subpages could easily be duplicated and edited - this was particularly important due to the high number of subpages with different content in my website.
>
> Additionally, Visual Studio Code's debugging program made the testing stage much faster, as it could quickly highlight errors to me at the specific lines they were made, as well as diagnosing the specific reason an error was caused. This allowed me to immediately learn from any mistakes I made while coding, preventing them from occurring again and reducing time wasted in the future. It also prevented any valuable time being spent trying to determine which part of my code was incorrect, so that I could quickly diagnose the error and improve the program.
>
> As these factors of the program decreased the amount of time spent on avoidable issues, more time could be spent developing the website and incorporating stakeholder feedback to address important considerations. This improved the eventual appeal of the outcome.

(iii)   What was ONE key planning decision you made during the development of your digital outcome?

A key planning decision I made during my website's development was the decision to utilize surveys as my primary user experience methodology during the feedback stage of the development process.

(iv)   Explain the importance of this decision to your digital outcome.

In the design stage of my development process, a survey was given to my end-users to complete, which requested specific feedback on aspects of my website wireframe designs, such as fonts, colours, page layout and general formatting. In the feedback stage of my development process, a different survey was used to generate feedback on different logo designs and backgrounds for my website. From both of these surveys at their respective stages, feedback was evaluated and ended up informing the development stages at the point where they were carried out.

The feedback from my surveys significantly changed the formatting and layout of my wireframes at the design stage, which led to a final wireframe design which best addressed implications relating to aesthetics. This final wireframe design also informed the aesthetic design of the final digital outcome, resulting in the final version of the website having aesthetics that appealed to all end-users, and a layout which was agreed to be readable due to its lack of clutter (therefore a usable outcome).

For instance, the feedback on the colours of the designs allowed me to decide on the combination of a dark blue background and white foreground text, which maximised usability by making the website's text as readable as possible for all end-users, even those with eyesight difficulties. This also addressed accessibility, which refers to the outcome's ability to be accessible to as many user cases as possible, taking into account factors such as user experience and disability. Particularly, the ability to request feedback on specific elements of the website allowed me to improve vital aspects of the website which may not have been noticed by end-users. For example, I was able to provide different layout designs which tested visual hierarchy (the way content is arranged on the page in order of importance), so that the final design was as easy and natural as possible to navigate.

End users

(d) (i) Who were your end users?

> The specific end users of my digital outcome were a small sample group of music listeners, who participated in the feedback stage of my development process.

(ii) What was an important requirement that your end users requested?

> An important requirement of my website according to end-users was for there to be a wide range of content, so that my website could sustain long-term use and continually meet its purpose (to be a useful resource for music discovery). This would allow the website to better address functionality.

(iii) Explain how you implemented this requirement in your outcome.

> This requirement was addressed by implementing many different subpages, which each categorised the albums listed into decade pages (e.g. 1960s, 1970s, 1980s) and genre pages (e.g. rock, punk, hip hop). Each of these categorised subpages list many different albums relevant to the page's topic, so that the website overall contains a significant amount of music to be explored for end-users. As well as this, it contains a wide range of different music, so that the website is likely to have a significant amount of unfamiliar content. This allowed for the outcome to maintain its functionality as a tool for music discovery for longer, increasing the appeal for my end-users.

Stakeholders

(e) (i) Who was an influential stakeholder?

> The most influential stakeholder to my digital outcome was my client, who determined the initial purpose of the website.

(ii) Explain how specific feedback from this stakeholder influenced your development process.

> In the planning stage of the development process, an important suggestion made by the client was that the website should have a simplistic layout and simplistic formatting. This was suggested because of the client's own eyesight issues, as well as that they wished for the website's aesthetics to harken back to the old music forum websites that inspired the website, which would typically have relatively basic designs/layouts.
>
> This requirement played a significant factor in the designs which I developed in the design stage of the development process, which inevitably influenced the appearance and formatting of the final instance of the website. Most notably, the often-used minimalist modern style is sacrificed for a colourful style (the bold blue colour scheme). These factors largely increased the usability of the digital outcome, as this simplistic style was very easy to read and navigate for end-users and the client.

New knowledge and skills

(f) (i) What was new knowledge you needed to learn to develop your digital outcome?

> For the development process of my digital outcome I needed improved knowledge of Javascript, one of the coding languages used to create the website.

(ii) Explain how this new knowledge influenced your development process.

With my newfound knowledge regarding Javascript I was able to create a lightbox on my website which would display certain images on specific subpages. Within these lightboxes I created buttons which would transition between each image on the subpage, effectively creating interactive galleries across my website.

The ability to create these galleries allowed for a greater range of features to be presented to my client and end-users during the feedback of the development process. Having a greater range of options for them to give feedback on improved the feedback stage, by allowing me to better narrow down what combinations of features and layouts appealed best to their requirements. This eventually led to a final outcome which better addressed considerations relating to aesthetics and usability, as the galleries were agreed by end-users to be aesthetically pleasing, and were an effective method of displaying several images on each page without causing clutter.

(iii)   What was a new skill you needed to learn to develop your digital outcome?

> To develop my digital outcome, it was necessary to learn greater planning skills so that the development process could be carried out in an adequate time frame, and so an adequate final outcome could be created. One of the ways I improved my planning was by using the website Trello, which allowed me to create lists throughout the development process delineating what steps of each task still needed to be completed, as well as which tasks were a priority at each particular stage.

(iv)   Explain how this new skill improved your development process.

> By improving my planning in the way I did, I was able to better manage my time across the entire development process, by making progress on aspects of the website in the most efficient sequence. Specifically, I could finish important tasks/steps in a way that stopped me needing to split my focus across several unfinished tasks, as I could prioritise which aspects were necessary to complete before other tasks could possibly be finished. For example, my planning helped me to complete the basic coding for each page before integrating any designs, so that the aesthetics of each page could be created in one smooth step rather than split over time.
>
> It also allowed me to differentiate between the different stages of my development process, so that I could focus entirely on one aspect of the outcome at each specific stage. For instance, in the testing stage I could focus entirely on the coding and testing of my website within Visual Studio Code, as I had set aside time during the design stage to complete all the necessary designs/layouts (website wireframes) that I needed to complete different versions of the digital outcome.
>
> These factors improved the development process by allowing steps to be carried out more smoothly, and time to be used more effectively, so that there was enough time available and steps finished to complete the final website to the greatest possible quality (widest possible appeal to user cases).

Reflective analysis

In this section you are required to write critical evaluations of both the positive aspects and potential issues with your development process and outcome.

In the development of your outcome, implications needed to be considered. These included:

- cultural issues
- legal issues
- ethical issues
- issues relating to intellectual property
- issues relating to sustainability
- issues relating to privacy

- issues relating to accessibility
- issues relating to usability
- issues relating to functionality
- issues relating to aesthetics
- end-user requirements
- health and safety issues.

(g) (i) What were the most significant implications you addressed from the above list?

> In the development of my website, it was important to consider any innovative connections which would be necessary to address because of the nature of my outcome. Due to the topic of my website, which centers around the discussion of copyright material (music), it was crucial to consider issues relating to intellectual property and legal issues.

(ii) Explain how you addressed these significant implications.

> Since images were a critical aspect of my website for making the user experience visually interesting (thus better addressing aesthetics), it was imperative for me to find a way of including images while still addressing intellectual property and legal implications. This included considering copyright, creative commons licences, and intellectual property. A particular issue was that many images of musicians contain copyrighted imagery such as logos. To address this, I only included images which were able to be displayed on the website in accordance with their respective copyright licences - for example, an image of the Beatles with an appropriate creative commons licence and not including their logo was displayed. Links to these licences as well as image credit were displayed under each image within the image galleries.
>
> It was also necessary for me to not directly include any of the music being discussed, as I did not have permission from any of the intellectual property owners of the music. To work around this, external links to each album on websites such as Spotify were added, so that the music could still be accessed by users in a legal manner. This meant that the functionality of the website was maintained as the music could still be easily found and listened to.

(iii) What did you learn from addressing these significant implications?

While addressing these implications I learnt that a notable downside of addressing legal and intellectual property implications is the quality of each image. For certain musicians being discussed on the website, there was a significant lack of aesthetically pleasing images which would be interesting to users and fit the colour scheme of the website. Additionally, for musicians who were less well-known, there were no relevant images of them which I could legally include on the website. As well as this, many otherwise legal and usable images were of a low quality resolution. These factors may have affected the address of aesthetics across the website by displaying images which are less visually engaging.

(iv)   What strategies did you use to check that your outcome addressed these implications?

The main strategy which helped me to ensure legal implications were met was the use of Wikimedia Commons, a website containing an extensive database of images which can be categorised based on their copyright licences. This allowed me to efficiently find relevant images to include on the website with licences that allowed me to legally include them on the website. As well as this, each image has an associated link to its licence, allowing me to quickly find and include a link to each image's licence on my website. This allowed me to address the legal implications of the website, without sacrificing valuable time throughout the development process which otherwise would have been spent manually locating usable images and their licences.

(v)   Reflecting on your outcome and its development, what have you learned about developing a digital outcome that you did not know before?

One particular part of developing a digital outcome I have learnt is the limits of using the specific programming languages that I used (HTML/PHP, CSS and Javascript). While these languages allowed me to develop a website which addressed a wide range of implications and user cases, it presented an unexpected issue regarding the implication of functionality. Because of the limits of these programming languages, it was only possible for me to manually include additional albums and subpages on the website, as data could not be stored or organised. This proved to be inefficient, as a significant portion of time throughout the testing stage of the development process was spent manually adding album information.

(vi)   How could you apply the learning from creating this digital outcome to future outcomes you may develop?

In future iterations of the website it may be valuable to implement a database utilising SQL, so that information about more albums can be easily added in the future to the website's database. This would increase the ease at which content could be added, which would also result in a more expansive range of content in the website being possible, increasing the website's functionality for end-users. Particularly, a search function could be implemented so that instead of it being necessary to manually create subpages for categories, users can search for specific items in the database or filter their search by factors such as release date and genre. This would increase usability by increasing navigability, and increase functionality by allowing end-users to more easily find the content which meets their specific taste, better meeting the website's purpose.

It is however important to consider the difficulties which would come with

a database. Notably, it would require a significant time cost to learn SQL (and potentially even a monetary cost for educational resources), which may not be realistic. Furthermore, even if I were to create the database for my client, they may struggle to implement changes to the database to expand the range of data it tracks, for example tracking individual songs instead of just albums. It may also be necessary to introduce a moderation system if they wish to open the database to users, which the client may not know how to make. These factors mean that implementing a database in the website may be unviable in the long-term.

Lastly, in future projects it may be a valuable investment to purchase higher quality images for use, rather than relying solely on freely usable images. This would increase the extent to which implications relating to aesthetics are addressed in the outcome, while still addressing legal implications and intellectual property laws. This may however not be possible depending on the project due to monetary cost.

Merit

Subject: Digital Technologies

Standard: 91909

Total score: 05

Task	Grade score	Marker commentary
	M5	The candidate has presented a sound report on a music recommendations website.
		The outcome represents an authentic opportunity for a digital technology solution at Level 8 of the New Zealand Curriculum. Authentic stakeholder feedback was regularly used within the candidate's practice to inform and re-inform the development of their outcome to meet user UI / UX requirements.
		The candidate's reflections on the planning undertaken to make use of their time in the most efficient way were a good indication of the level of analysis required at this level.
		This is an example of a good Merit-level submission. To move to the Excellence grade, the candidate would need to have made a number of significant insightful reflections about how their outcome improved (and could further improve) end-user experience of the outcome itself.