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COMMON ASSESSMENT TASK

Level 2 Digital Technologies and Hangarau Matihiko 2021
91899 Present a summary of developing a digital outcome

Credits: Three

Achievement	Achievement with Merit	Achievement with Excellence
Present a summary of developing a digital outcome.	Present an in-depth summary of developing a digital outcome.	Present a comprehensive summary of developing a digital outcome.

Type your School Code and 9-digit National Student Number (NSN) into the space below. (If your NSN has 10 digits, omit the leading zero.) It should look like "123-123456789-91899".

Answer ALL parts of the assessment task in this document.

You should aim to write **800–1500 words** in total.

Your answers should be presented in 12pt Times New Roman font, within the expanding text boxes.

The only resource you may access during this assessment is your digital outcome (including any images of this that you prepared in advance). Internet access is not permitted.

Save your finished work as a PDF file as instructed by your teacher.

By saving your work at the end of the examination, you are declaring that this work is your own. NZQA may sample your work to ensure this is the case.

Merit

TOTAL | **05**

ASSESSOR'S USE ONLY

INSTRUCTIONS

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

You may illustrate your answers with up to THREE images:

- a single image of the digital outcome (e.g. a website; a poster; an electronic device)
- a single image of the planning process (e.g. agile development; a planning chart)
- a single image of the digital components of the outcome (e.g. the HTML / CSS for a website; the "layers" view of a poster; the code for an electronic device).

You may also quote short pieces of relevant information from the digital outcome in your answers.

Read all parts of the task before you begin.

ASSESSMENT TASK

(a) (i) Briefly describe your digital outcome and its intended purpose or function.

> The digital outcome I have created is a GUI-based quiz program based on the topic Covid-19. My program is aimed for end-users ranged from ages 16-19 years old and is about quizzing the user on Covid-19 and teaching them how to prevent it in the process. Its purpose is to challenge the user on their knowledge of Covid-19. I chose to make a GUI-based program because the end-user is able to interact with the program and click answer buttons instead of writing down a, b or c as their answer while reading command lines, which I feel wouldn't be very engaging for the end-user.

(ii) What were the steps you followed (or milestones that you met) in the development of your digital outcome? In what ways did having these steps or milestones help you?

> The sequence of steps I followed in the development of my digital outcome were based on the methods of SDLC which helped me organize and plan everything before starting on my actual outcome.
>
>
>
> The first step was finding out what out the quiz was going to be about. My peers and I suggested different ideas and wrote them down in a brainstorm to start off our planning of the digital outcome. I initially picked to create a video game, but as I started planning more things, I realized that it would need to be very advanced which Python can't handle, so I changed my digital outcome to a GUI-based quiz program instead.
>
> Another step was planning out what my questions would be, how the GUI would look and how the quiz would even work. I made diagrams of how the coding would work and after some time, starting typing out the code. I used websites like Trello to keep track of everything I was going to do, everything I was doing and everything I had done in order to keep myself from getting off track or not remembering.
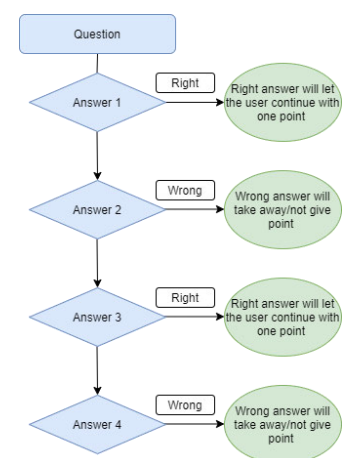
(iii)   What were the most important resources that you used to develop your digital outcome? Why were these resources so important?

Examples of types of resource are shown below.

The resources I have used in the months developing my digital outcome were very helpful to me because they guided me and had many features I could use to make my workflow a lot better when making my program.

An example of an important resource I used throughout my digital outcome development is Repl.it, a website used online to code programs. I used this website instead of the Python IDLE on the school desktops during the entirety of development because it was very convenient seeing as you can work on your code both at school and at home. The Python software on the school desktops didn't even have PIL installed so we couldn't use images, but on Repl.it, PIL was already built into the website's code which made it a lot easier to work on. Repl.it also had a feature that let you go back to a previous save file on your code, so if you made a mistake and exited the program you could go back to the files and retrieve a previous version. Another feature would be the 'commit' button which you could use if you finished an important block of code like your questions, and you could press the commit button with the caption "questions finished", which let you see what you did in program and when you did it.

Another example of an important resource could be tool websites such as Trello. The website helped me keep myself on the right path regarding my progress on my development. It lets you write on sticky notes and pastes it on a board which I used for the SDLC method and writing down various notes on what to work on and what I needed to do the next day.

Another example of an important resource could be the internet, because I could research coding techniques and things I needed help with on websites like StackOverflow, which I used to check why certain errors weren't working or if I wanted to try something new. I also

asked my teacher for help as well, at times when I needed help on debugging my code in general.

(b) (i) Who were the end-users of your digital outcome? What special requirements did they have, and how did these requirements influence your decision-making during the development process?

The end-users of my digital outcome are for teenagers ranging from 16-19 years old, and because the peers in my class were these ages, I put out Google Forms in order to get suggestions and feedback from them when I first started making my program. For example, I put out a Google Form with the question "Should the quiz be multiple choice or Boolean form?", and the results were all 'multiple choice', so I made the decision and integrated it into my program. Another question I put on the form was how many questions should there be in the program, with the majority picking the '10 questions' option, which I also put into my work.

Another way my end-users influenced my decision making was when I asked my peers who also take computer science to give their feedback on my quiz designs so I could find the design that fit best. My friends and teacher emailed me their answers and I narrowed them down to two designs which eventually developed into my starting window and my questions window.
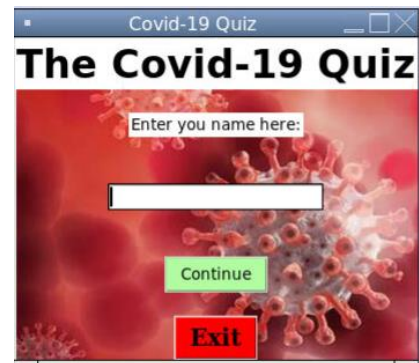
(ii) Explain how you were influenced by TWO of the following factors during the development process, and the effect each had on your digital outcome:
- aesthetics
- usability
- functionality.

Factor (1) Usability-

Usability in a digital outcome is very important because it is what the end-user is able to interact with and what they can't. Giving end-users control and freedom when it is due is what usability essentially is. My program addresses usability many times, and one example is when the user types in their name in the starting window. I coded this part to make sure there are limits to how many and what letters you can continue with. To do this, I made sure a message box would appear to tell you to try again if you entered

```
#This function is error handling for the entry box on the starting
window
  def name_supply(self):
    name = self.entry_box.get()
    if str.isalpha(name) == True and len(name) >0 and len(name)
<=10:#isalpha is a function that returns something if it equals
to zero
      name_record.append(name)
      self.open_frame.destroy()#destroys/clears entry box
      Start(root)
    elif str.isalpha(name) == False:
      messagebox.showerror("Please enter your username again:",
      "Either you haven't typed your username, or you used special
      characters/numbers in your username, which is not allowed.
      Please try again.")#the messagebox is shown as a pop up, which
      will show the errror that needs fixing
    elif len(name) >10:#refrains from letting more than 10
characters from being written
      messagebox.showerror("Please enter your username again:","Make
      sure you have entered a name with up to 10 characters.")
```

more than 10 letters or if you either didn't type your username or used special characters in it. Another example of usability being addressed in my program would be that there is an exit button available in every question in my quiz so that the end-user can stop playing the program in the middle of it if they wanted to.

Factor (2) Aesthetics-

Aesthetics in a GUI based program plays a huge part in a program because it is all about how the program looks. If the program was well-refined and robust in coding, It wouldn't matter because if the background colours were bright red and the text black, nothing would be readable. You also have to keep in mind how your layout looks because if it is hard to figure out where the start button or exit button is, it isn't up to standard. My program, in terms of aesthetics, uses a limited colour palette which makes it easy for the end-user to use it. For example, My image background is a red covid-19 image which has a good colour palette and doesn't distract from the enter name bar because the colours are very different yet a good combination to each other, which makes it easier for the image to be seen while also blending into the background. Another example of this would be in my questions window, where the colour palette is different shades of blue. It is easy to read the questions because the buttons are a darker blue than the background.

(c) (i) In what ways was the development process successful? You might consider:
- whether the end-users were satisfied with the digital outcome
- things you learned during the process.

> I would say that my development process was successful because I made a very good outcome that I think works really well. Because I used methods and planned everything out before the development stage, I had known what to do and didn't waste time. My peers, as the end-users, also gave me feedback on the final version of my program and really liked it because it was easy to play and they liked the questions. During the process, I learned about GUI-type programs and how to code them on python, as well as gaining new coding skills in the process.

(ii) In what ways could the digital outcome have been improved? What would you have had to do differently during the development process to make this improvement?

> I think that I could've done a lot more to make my program better but didn't have enough time. For example, I wanted to integrate new features, such as making a mascot for the quiz that gave the end-user hints to the answer of questions. I also wanted to try and code a timer for the questions to be harder for end-users who wanted to challenge themselves.

Merit Exemplar 2021

Subject	Level 2 Digital Technologies		Standard	91899	Total score	05
Q	**Grade score**	**Annotation**

Q	**Grade score**	**Annotation**
-	M5	The candidate has done well to describe the digital outcome and explain the decisions made.
		The response includes good use of images to illustrate the digital outcome and the development process.
		The discussion of requirements and their implications could have been more defined and gone into more depth, and it would have benefited the candidate to evaluate the effects of the decisions they made.