

Assignment 2

by Kyle Aldridge

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Changemakers: Creativity and Value Creation

ACCA5033

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Introduction

This report will document the progress of the project to create a Smart Magic Mirror. A Smart Magic Mirror is a usable mirror that displays important information on a hidden display positioned behind the glass, such as the user's calendar, news, weather, and other personalised information the user may wish to view.

This report will cover the implementation, feedback, innovation, reflection, and skills gained throughout the project. This project was chosen because smart technology is becoming increasingly common within households; therefore, a Smart Magic Mirror could provide a practical and innovative way to improve people's daily lives while remaining relatively low-cost to implement.

Task 1

Q1 – Initial Feedback

For the initial feedback on the smart magic mirror, SurveyMonkey was utilised and contained 9 questions. This was shared via a QR code to participants within my workplace. This was used because there was a range of people likely to participate, and a range of ages and backgrounds to better reflect the general public. It also aided in anomaly and made it easy to participate in the survey and easy to analyse the data.

The questions asked were the following:

1. How useful do you find the concept of a smart mirror that displays your daily information?
2. Would you personally want a device like this in your home?
3. Why or why not?
4. How valuable do you find the integration of a personal digital calendar synced to the mirror?
5. Looking at the proposed layout, does the interface look clean and easy to read quickly while getting ready?
6. Does the screen feel too cluttered, too empty, or just right?
7. Do you like the additions of scrolling breaking news and an optional daily compliment at the bottom, or would you prefer that space be used for something else?
8. Is there any specific information or feature you feel is missing from this display that you would want to see every morning?
9. What is one thing you would change or improve about this project idea before I build the final version?

(These are also evidenced in figures 1 to 12.)

At the end of the feedback period, 5 responses were received from the online survey. The majority found the concept of a smart mirror that displays information very useful, and most would like to have the device in their own home, with a few who may not. Most people believe it would be very useful, depending on the information it displays; however, there are concerns about its affordability or whether there's too much information it may be distracting. However, all participants found that integrating a digital calendar into the mirror and that the initial interface layout was relatively clean and easy to read. But in the country, 2 people did find it cluttered, so this may change depending on the weight/information presented. On Q7, there were mixed responses on whether they liked the news and the daily complement feature with some saying they wish the space to be used differently.

Some of the feature suggestions were interesting and very mixed, with some focusing on facial recognition for personalised profiles, while others focused on to-do lists, smart home controls, and music controls. These are some very good ideas for improvements later on.

Some suggested improvements were larger text, improved brightness and visibility on the display, an added voice assistant, and improved layout. Most of these will be addressed, such as the issues with the display's clarity along with the text size; however, unfortunately, at the moment, a voice assistant will not be integrated yet due to the complexities with the Application Programming Interface (API) required for the assistant to work properly.

Overall, the feedback was valuable as it showed that there is an appetite for a Smart Mirror which aids day-to-day life. Some features suggested will be integrated into the product's framework in the future, and some suggestions will be acted upon during the product's development cycle to improve the overall design and usability.

Task 2

T2-Innovation

Q1

The Smart Magic Mirror project could be implemented by a large company such as Apple, Google or Amazon. This is because these organisations already possess much of the fundamental software infrastructure widely used within smart ecosystems, alongside existing AI technologies that could be integrated into the product [1]. Large organisations also require a stringent and structured product development process, which would benefit the development of this type of product [2]. This section will therefore discuss the methods, tools, deployment and maintenance of a Smart Magic Mirror.

For product development, an Agile methodology would be best suited, as it enables iterative development, flexibility and team collaboration at the centre of the research and development process[3], [4]. Within a large organisation, Agile allows multiple departments to contribute towards the development of the product simultaneously [3], [4]. For example, the hardware engineering department could focus on the physical design and manufacturing of the mirror, while AI development teams could help develop and integrate intelligent assistant features into the system. Agile also allows features to be developed in stages, enabling issues to be identified and resolved earlier in the development lifecycle[4]. Consequently, this increases opportunities for feedback and improves the overall quality and reliability of the product [3].

Table 1 - Table showing what tools/technologies could be utilised for different aspects of product development

Area	Tools/Technology's
Programming	JavaScript, Python
Hardware	Raspberry Pi
APIs	OpenWeather API, Google Calendar API
Version Control	GitHub
Project Management	Jira, Trello
Testing	Selenium, Python

Table 1 lists several technologies that could be utilised to support the development of a Smart Magic Mirror product within a large organisation[5]. By utilising the suggested tools, the overall quality, maintainability and longevity of the product could be significantly improved.

GitHub is a widely used platform for version control and collaborative software development due to its ability to manage conflicts efficiently and support hundreds of developers working on code simultaneously. This would be highly beneficial within a large organisation where multiple development teams may be contributing to the project at the same time[2], [5].

During the prototyping and development stages, a Raspberry Pi could be utilised due to its affordability, flexibility, low heat output and energy efficiency [6]. However, within a fully commercial product, a large organisation may instead develop custom-designed hardware that is specifically optimised for the final product and its performance requirements.

APIs such as OpenWeather, Google Calendar and other third-party integrations could be utilised to provide useful real-time functionality that enhances convenience, accessibility and user experience[7]. These integrations would enable the mirror to provide weather updates, scheduling reminders and personalised information directly to the user.

For overall project management, tools such as Jira or Trello could be utilised to organise sprint cycles, monitor development progress and ensure all project tasks are completed efficiently[8]. These tools would also improve communication and collaboration between departments[8].

Lastly, Selenium and Python could be utilised during testing to support automated testing, user interface testing and performance validation[9]. This would help ensure the final product performs reliably and aligns with the project's aims and objectives [9].

Before a full rollout and deployment of the system, the product would need to undergo thorough testing to ensure it is stable, secure and user-friendly[10], [11]. The first stage would likely involve a pilot rollout where a smaller group of users could test the product, provide feedback and help identify technical issues. Once validated, the system could then be deployed on a larger scale, with future updates distributed remotely through cloud-based software updates[10], [11]. End-to-end encryption and secure authentication methods would also be important to protect user data and prevent unauthorised access [12], [13].

For ongoing support and maintenance, the product would require a process of continuous improvement to address bugs, software issues and user feedback. When issues are identified, they would need to be resolved by the software development team and distributed through system updates. Furthermore, if security vulnerabilities or API-related risks were identified, security patches would need to be released quickly to minimise the risk to users and their personal data[14]. This would involve continuous API monitoring, security auditing and occasional hardware maintenance where required[14].

By allowing the product to adapt and improve over time, it could continue evolving and attracting new customers while retaining existing users[15]. Future features could include AI assistants, facial recognition and integration with smart home ecosystems such as Apple HomeKit and Google Nest. This would enable the mirror to act as a central smart-home control hub while still blending seamlessly into home décor[16]. Consequently, the product would become increasingly useful and personalised for everyday life.

Overall, a structured development approach is required to effectively manage the large teams involved within a major organisation and achieve efficient progress throughout the product lifecycle. This results in Agile being the most suitable development methodology due to its flexibility, collaborative nature and support for continuous improvement. Large organisations also rely heavily on continuous improvement strategies to integrate future technologies and respond to customer feedback. This allows existing customers to experience new features over time, potentially increasing customer loyalty and encouraging future product adoption.

Q2 – PESTLE analysis

Political	Political factors such as data privacy laws and government regulations could significantly affect the development of a Smart Magic Mirror. Regulations such as GDPR within the United Kingdom and Europe require organisations to securely store and process user data[12]. Because the Smart Magic Mirror may utilise calendars, personalised information and potentially AI features, companies must ensure user data is protected correctly[17], [18], [19]. Government investment into smart technologies and AI innovation may also positively support development within this sector[20].
Economic	Economic conditions may affect consumer demand for smart home technology products. During periods of economic instability or increased living costs, consumers may be less likely to purchase luxury smart devices[21]. However, the smart home market is continuing to grow rapidly, creating opportunities for companies such as Google to expand into new markets [7]. Additionally, advancements in technology may reduce manufacturing costs over time, making products such as Smart Magic Mirrors more affordable to consumers[22].
Social	Social factors strongly influence the adoption of smart technology products. Modern consumers increasingly value convenience, automation and personalised technology within their homes[23]. A Smart Magic Mirror could help improve organisation, accessibility and time management for users by displaying useful real-time information. However, there are also social concerns surrounding screen dependency, excessive reliance on technology and user privacy[24]. Some users may also feel uncomfortable with AI-driven systems collecting personal information[25].
Technological	Rapid advancements in Artificial Intelligence, Internet of Things (IoT), cloud computing and smart home ecosystems create major opportunities for products such as the Smart Magic Mirror. Existing technologies such as voice assistants, facial recognition and cloud synchronisation could be integrated to significantly improve functionality and user experience[26]. However, technology changes rapidly, meaning products may quickly become outdated if they are not continuously updated and improved[27]. Cybersecurity threats also continue to increase, meaning strong security systems are essential [28].
Legal	There are several legal considerations associated with the development of a Smart Magic Mirror. Because the system may process personal data such as calendar information, reminders and potentially facial recognition data, organisations must comply with regulations such as GDPR and the Data Protection Act[12], [29]. Additionally, APIs such as Google Calendar and OpenWeather are subject to licensing agreements and usage restrictions which organisations must follow correctly. Failure to comply with these regulations could result in legal penalties, financial losses and reputational damage [12], [29].
Ethical	There are also several ethical considerations associated with smart technology products. One of the primary concerns is user privacy and how personal data is collected, processed and stored[30], [31]. Users must be clearly informed about what data is being collected and how it will be used[30], [31]. Another ethical concern is the increasing reliance on AI and smart technologies within daily life[12]. Some individuals may become overly dependent on smart systems, reducing privacy and increasing reliance on technology for routine tasks[30], [31]. Additionally, environmental concerns such as electronic waste and energy consumption should also be considered during product manufacturing and development[32], [33]. To address these ethical concerns, organisations should prioritise transparency, secure data handling and sustainable manufacturing processes.

Appendix

Survey questions

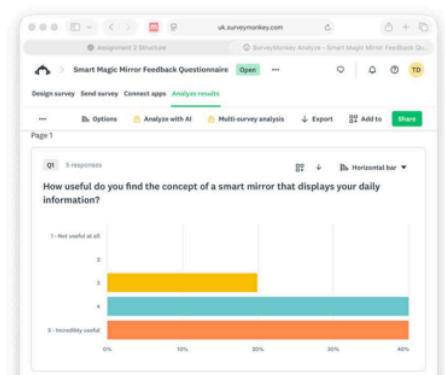


Figure 1 - Questionnaire results to Q1

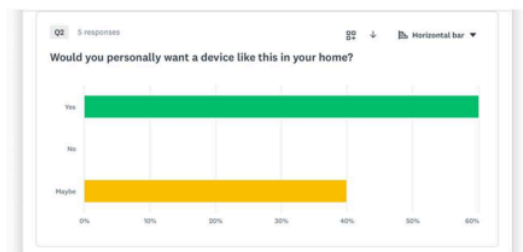


Figure 2 - Questionnaire results to Q2

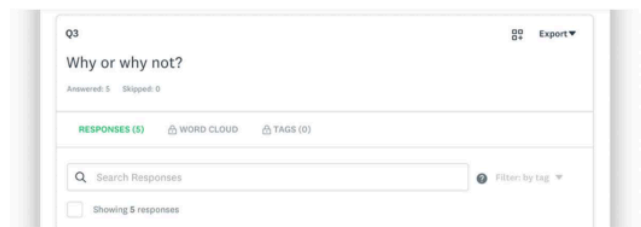


Figure 3 - Questionnaire Question 3

☐	It looks futuristic and practical, especially for checking weather and schedules quickly.	12/05/2026 15:35	View full response	Add tags
☐	I like the idea but I think too much information on a mirror could become distracting.	12/05/2026 15:34	View full response	Add tags
☐	It would help me stay organised before leaving for university or work.	12/05/2026 15:33	View full response	Add tags
☐	The idea is modern and useful, but I would only want one if it was affordable.	12/05/2026 15:33	View full response	Add tags
☐	I think it would make mornings much easier because all important information would be visible in one place.			

Figure 4 - Questionnaire results to Q3

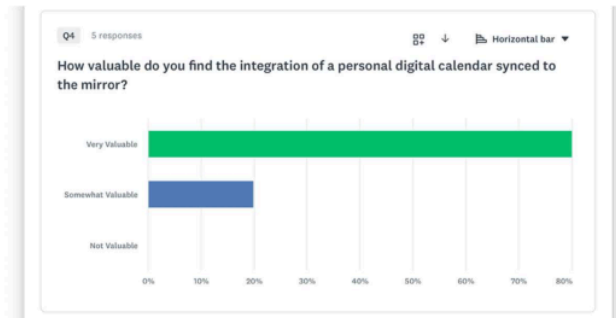


Figure 5 - Questionnaire results to Q4

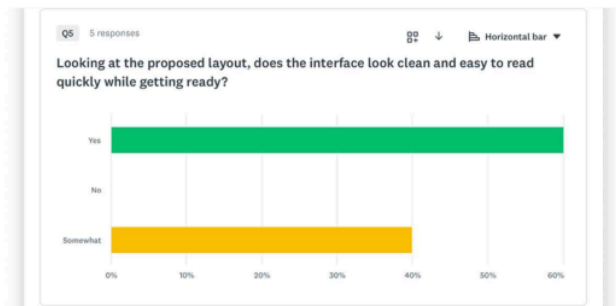


Figure 6 - Questionnaire results to Q5

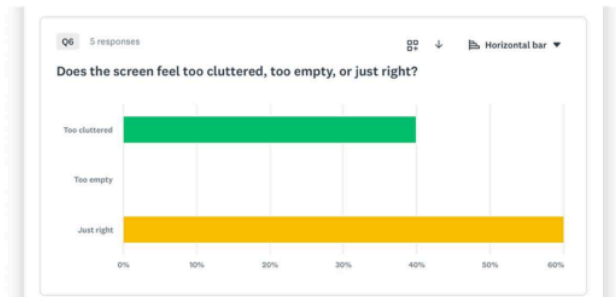


Figure 7 - Questionnaire results to Q6

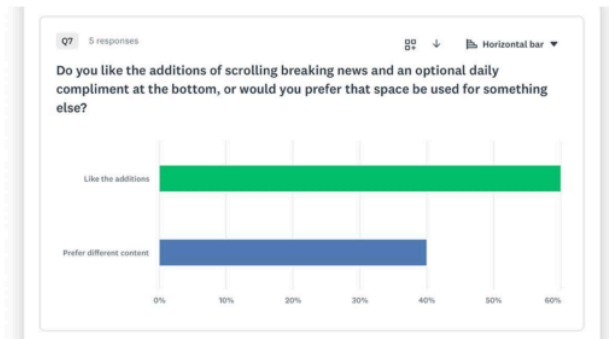


Figure 8 - Questionnaire results to Q7

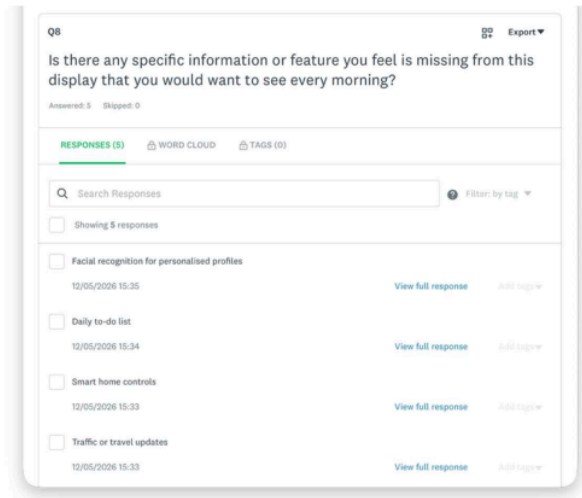


Figure 9 - Questionnaire results to Q8 part 1



Figure 10 - Questionnaire results to Q8 part 2

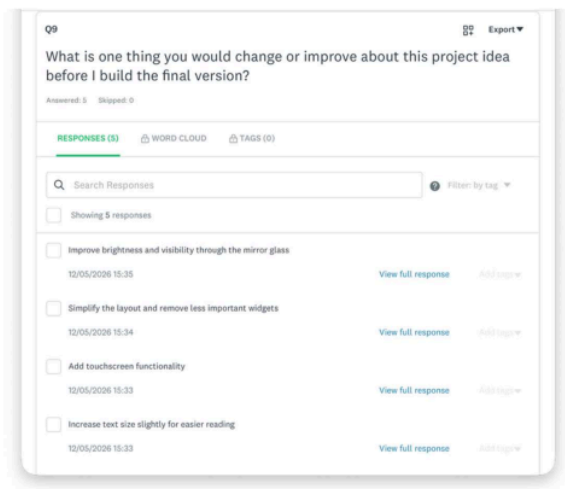


Figure 11 - Questionnaire results to Q9 part 1

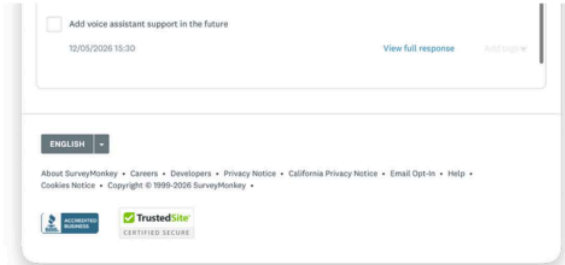


Figure 12 - Questionnaire results to Q9 part 2

CPD evidence

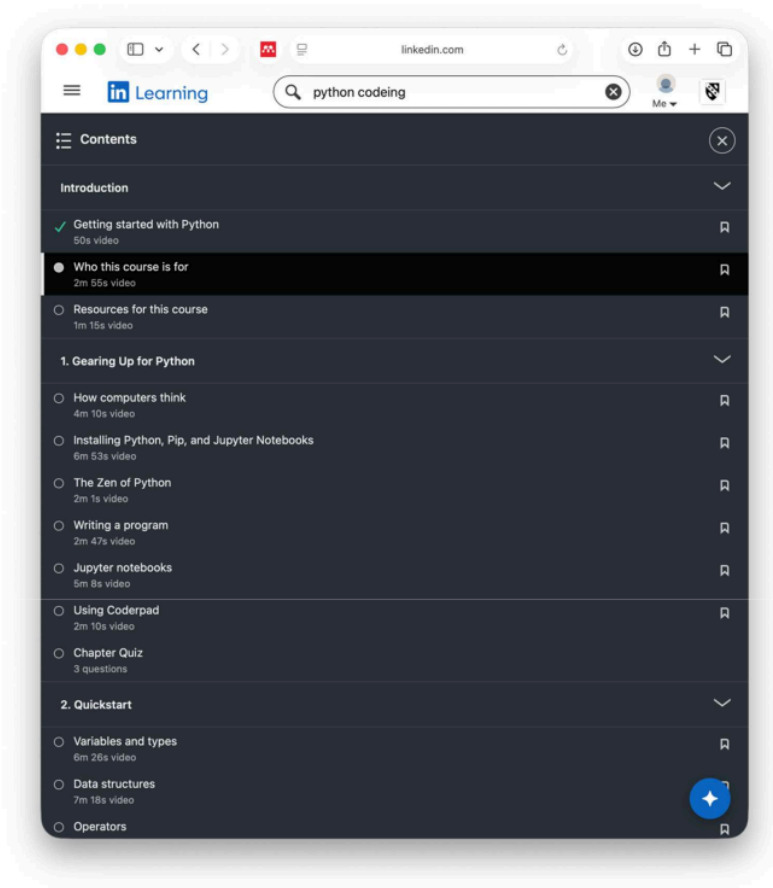


Figure 13 - Photo of the start of the Python Essential training course on LinkedIn Learning

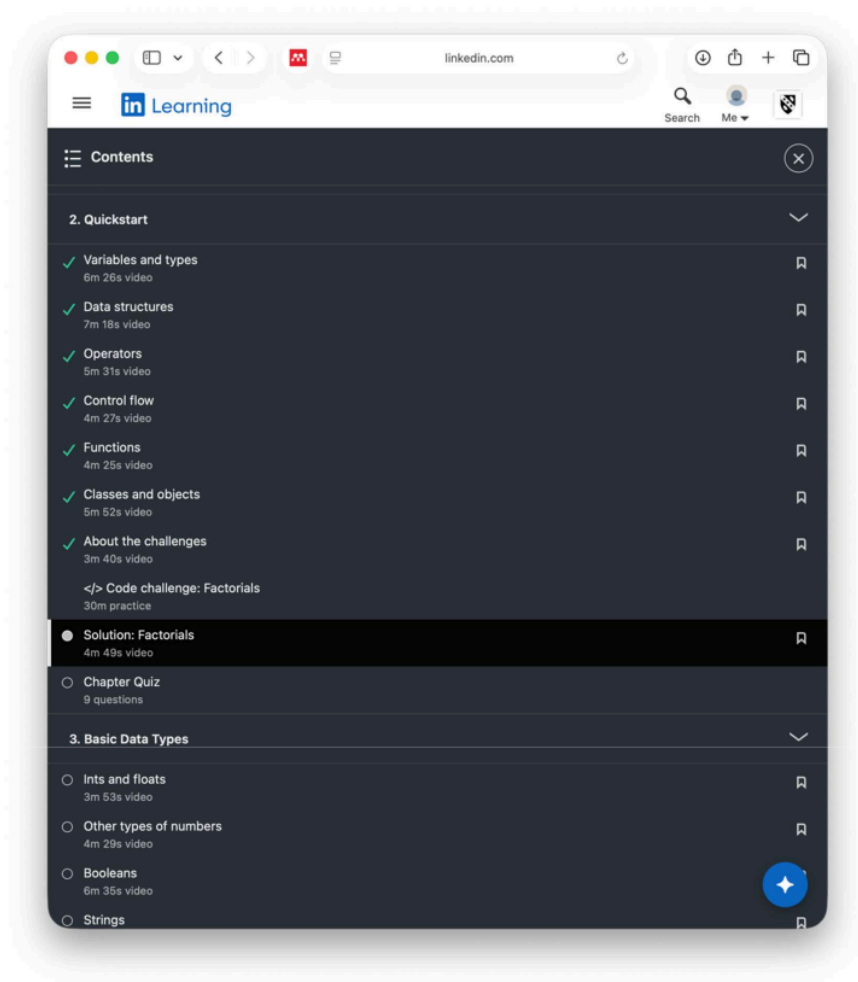


Figure 14 - Evidence of engagement with the Python Essential training course on LinkedIn Learning

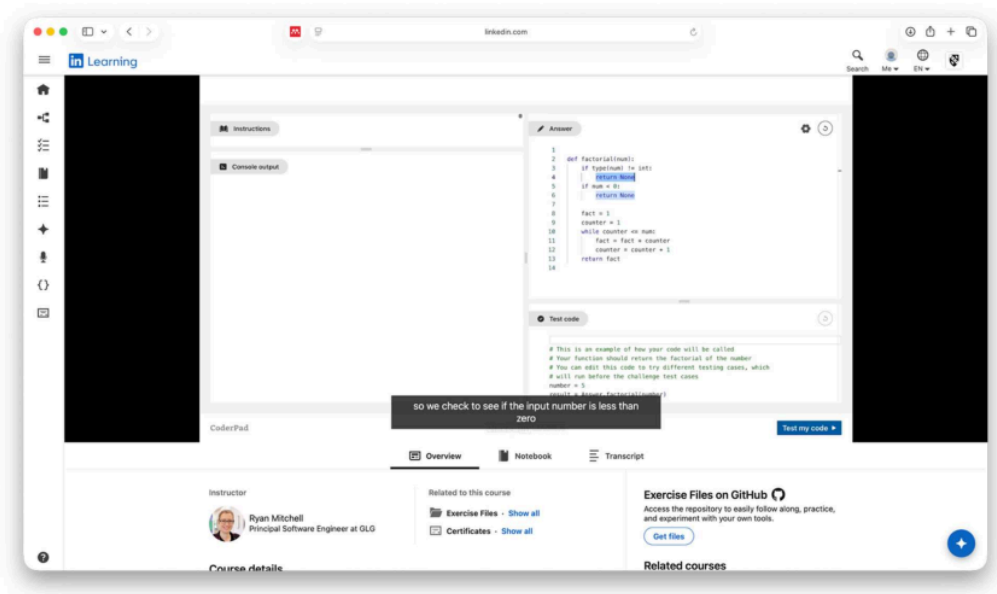


Figure 15 - Evidence of engagement with the Python Essential training course on LinkedIn Learning

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Assignment 2

GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

31 /100

Marks

awarded

Total 31

1. Engagement with Literature Skills 10

+ Good use of citations included. 8

+ Well-formatted reference list with occasional errors

2. Knowledge and Understanding Skills 5, 10

T2 Q1:

+ Appropriate concepts, methods, practices and tools to develop, deploy, maintain & evolve the practical element of the project is considered and documented. 5

T2 Q2:

+ **PEST analysis** summary includes some relevant considerations for each category and documents some key professional legal & ethical considerations but too descriptive

- Some additional professional legal & ethical considerations could be included and each category supported by relevant citations. 7

3. Cognitive and Intellectual Skills 5, 5, 5, 5

T3 Q1: - 0
Data collection method for practical feedback has not been designed, and feedback has not been acquired and considered.

T3 Q2: - Project management reflection (including review of weekly progress sheets) not documented.

T3 Q3: - Skill development reflection not documented. 0

T3 Q3: - Project's positive impact on society is not described.

0

0

4. Practical Application Skills 10, 30, 10

T1 Q1: + 8

Data collection method for initial feedback designed, and some feedback acquired and considered but stronger analysis and clearer summary of participant numbers and trends would improve this further

+ Data collection tool and question set are documented.

T1 Q2: - key features of the **implementation** process and practical output have not been clearly documented.

- Some additional practical implementation work could be included to gain the additional marks in this category.

Progress sheets (Appendix): - No documentation of weekly progress sheets.

0

5.

Transferable Skills for Life and Professional Practice 5

· +/- Very good report presentation structure and format 3

·

+
Title page & Table of contents.

·

+/-
Introduction & Conclusion.

·

Tasks
complete.

·

+
Appendix: CPD course.

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