

Assignment 2

by Charlie Keirl

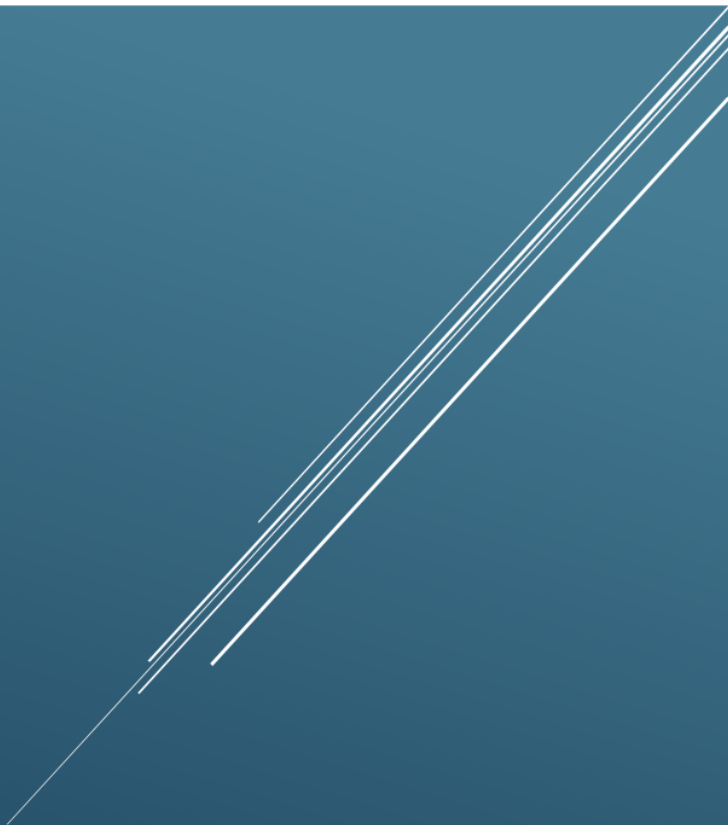
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An abstract graphic consisting of several thin, white, parallel lines that originate from the bottom left and extend towards the top right, creating a sense of movement and direction. The lines are set against a solid blue background.

CHANGEMAKERS: CREATIVITY AND VALUE CREATION (ACCA5033) – ASSIGNMENT 2

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Introduction

During this paper I will be covering many aspects of my project. The project I wish to take on is to create an educational game for younger people that will hopefully teach

them new skills or at least help to build upon them. The paper will go over the project scope and desired outcomes as well as some of the design documents, cover the PEST and SWOT analyses and my project reflection which includes how this project will help me to develop new skills.

Task 1: Project Management

Project Scope

Project Timeline – Summer/ September 2024 to April 2025

Stages:

- Summer/ September 2024 to November/ December 2024 – create a game design document with plans about information on the game, what it does and what you hope the outcome to be.
- December 2024 to February 2025 – Create a first draft of the game with all the basic features required for the game to be successful.
- February 2025 to March 2025 – Create a second draft of the game with some additional features within the game.
- March 2025 to April 2025 – Produce a final draft of the game with all the desired features implemented.

Project Outcome

I plan on creating a basic game that will demonstrate that learning can be achieved while playing a game as well as a report document that will include research into the mentioned subject as well as taking a look at some examples of video games that utilise the medium of games to provide learning to the player.

Required resources:

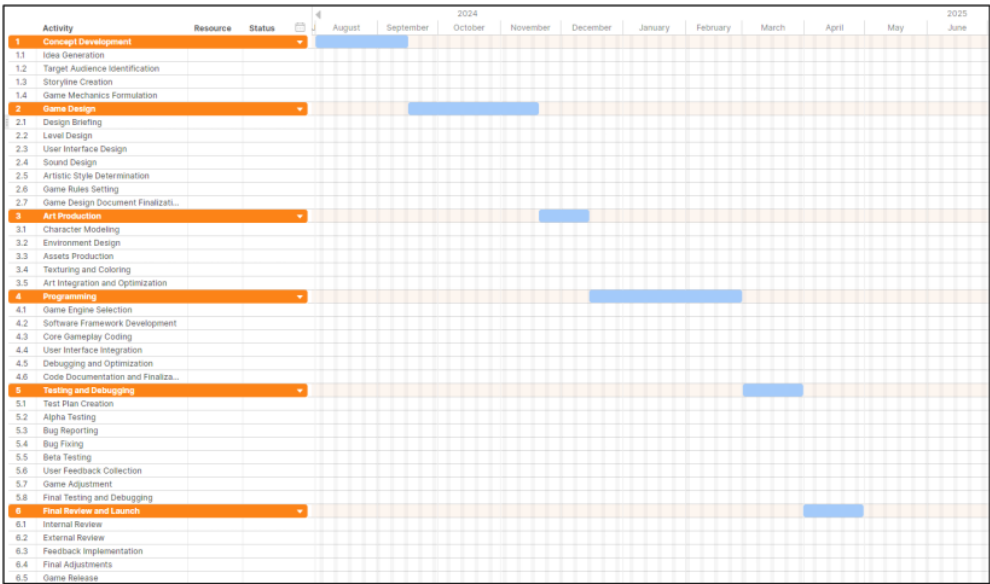
1. PC to be able to create and play the desired game on.
2. Game creator software to be able to design a game to demonstrate my point.
3. Word document in order to document my creation of the game as well as to help design the game itself whilst in the design stages.

Most suitable Development method:

When it comes to designing a game, I would suggest using the prototyping development method. This is where the designer would create a game to the point where it is considered MVP (minimum viable product). This essentially means that a game would be created to the minimum point in which it could be classed as a successful game. So, in my case, I would need to create a game in which at least one form of learning is implemented. Then after testing the game, you would bring out new versions of the game with improvements and added features and repeat the process again and again until you are happy with the game that you have created and see no further versions. [1]

My Gantt Chart

Below I have created a Gantt Chart. Gantt Charts are a really useful tool to use when creating a project that you know will take some time. They help us to plan and schedule tasks and show us how long we have left to complete a certain task. It also helps to motivate us to complete a task before the deadline. [2]



Requirements Specification:

Functional Requirements:

Player Character:

The game shall feature a player character avatar that represents the player throughout the game.

Tutorial Level:

The game shall include a tutorial level that introduces players to basic game mechanics.

The tutorial level will provide the player with instructions on how to play and progress throughout the game, including demonstrations on different level types.

Skill Levels:

The game shall consist of multiple levels, each focusing on a specific skill or concept.

Each skill level shall present challenges and tasks related to the targeted skill, such as mathematics, spelling, problem solving etc.

Boss Battles:

At the end of each set of levels, the game shall include a “boss battle” that tests the player's mastery of the skills learned in those levels.

Feedback and Assessment:

The game will include a counter which will keep track of the player's score. Depending on what score the player receives, a grade will be given at the end of the game.

Non-Functional Requirements:

User Interface:

The game shall have an intuitive user interface that is easy to navigate and understand, especially for the target audience (e.g., children).

User interface elements shall be visually appealing and accessible, with clear instructions and feedback.

Performance:

Load times between levels and responsiveness of player controls shall be optimized to provide a seamless gaming experience.

Accessibility:

The game shall be accessible to players with disabilities, including support for alternative control schemes and options for adjusting visual and audio settings.

Constraints:

Development Platform:

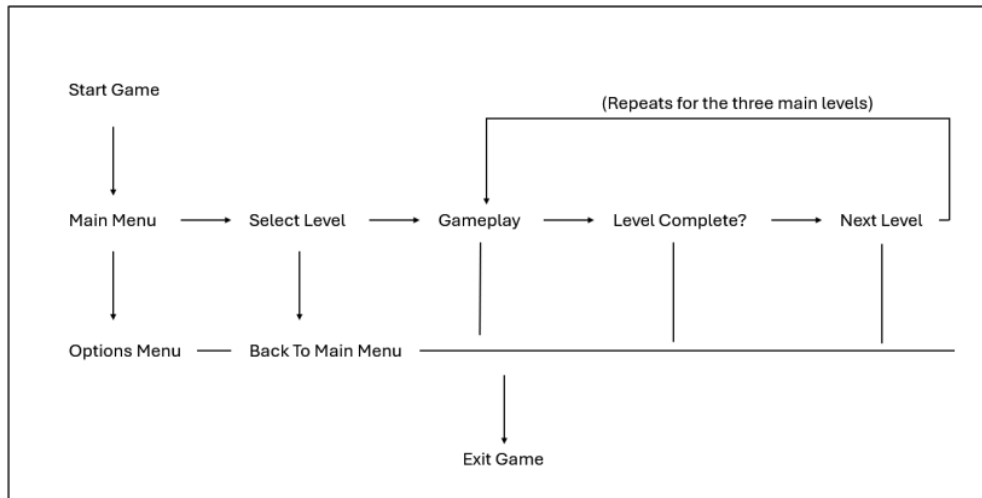
The game shall be developed using a game design software, such as GDevelop.

Acceptance Criteria:

The game shall be considered complete and ready for release when all functional requirements are implemented and tested.

Beta testing shall be conducted with a sample group of players to gather feedback and identify any remaining issues or bugs.

Game Flowchart



This flowchart depicts the following main steps:

- From the start, the player can choose to start the game.
- The player is directed to the main menu, where they can choose to start the game, access options, or exit the game.
- If the player selects "Start Game," they are prompted to select a level.
- Once a level is selected, the player proceeds to gameplay.
- During gameplay, the player engages with the challenges and tasks of the selected level.
- After completing the level's objectives, the game checks if the level is complete.
- If the level is complete, the player is given the option to proceed to the next level or return to the main menu.
- If the player selects "Next Level," they proceed to select the next level and repeat the gameplay loop.
- If the player chooses to return to the main menu or exit the game, they are directed accordingly.

Task 2: Innovation

PEST and SWOT Analysis

What is a PEST analysis? A PEST (Political, Economic, Social and Technological) analysis is a type of tool used by companies and corporations to be able to understand the external factors (found within the name of PEST) that could have an effect on their company. [3] Political factors would include government policies, regulations and laws that the company would have to follow and economic factors

would include exchange rates, consumer behaviour, demand for products and economic growth in general. Social factors will include current trends within society, lifestyle changes and consumer preferences while technological factors could include the pace that technology changes, research and development and emerging technologies. [3]

A company such as NVIDIA (a company that mainly focuses on the development of GPUs and AI) [4] would need to perform these PEST tests to ensure that their company can understand and combat any challenges that may appear.

Here are some examples of factors that NVIDIA would need to consider when doing a PEST analysis:

Political:

- GDPR would need to be considered and maintained by law to ensure that data is kept secure. [5]
- Intellectual property rights would also need to be considered when making new products.
- Trade policies would also need to be considered as it could affect trading between suppliers.

Economic:

- Exchange rates need to be considered when selling their products.
- Economic conditions that would affect how consumers buy and sell products.

Social:

- Trends between consumer's and their preferences need to be considered in order to target the market effectively.
- The general attitude in society to the current trends in technology would need to be considered.
- Social trends such as education, gaming and work are key considerations as this would be a primary target for them.

Technological:

- Advancements in GPU production and technology would need to be a primary consideration as GPU production is NVIDIA's main product.
- Trends in computing and technology including the data analytics that comes with them would need to be taken into account also.
- The advancement in AI is also key as it is rapidly changing and developing every day.

What is a SWOT analysis? A SWOT analysis is similar to a PEST analysis however it focuses on a company's strengths and weaknesses as SWOT stands for "Strengths, Weaknesses, Opportunities and Threats". [6] A company like NVIDIA would use a SWOT analysis to identify their strengths and weaknesses as well as any aspects

they could improve on or focus more on. Here are some example factors NVIDIA might consider when looking at a SWOT analysis:

Strengths:

- NVIDIA is one of the leading GPU technology companies and holds a firm grip on the market with their graphic cards.
- They are also a reputable brand name when it comes to computing and technology and are trusted by society to provide great quality products.

Weaknesses:

- Because their primary market is computing and PC gaming, if the market fluctuates then it will more than likely mean that their sales will also.
- Supply chains are essential so keeping an eye on those is required to ensure that their supply does not stop.

Opportunities:

- As technology moves forward, so will the technology need to at NVIDIA. Graphics cards will continuously get better which will then in turn generate more money for them.
- With the use of AI, NVIDIA could delve into new markets to branch out their advancements in the industry.

Threats:

- As their main focus at NVIDIA is graphics cards, there are a lot of different companies that also manufacture graphics cards which makes the marketplace a much more competitive space.
- Consumer spending will affect the sales within the company depending on the current economic status.

When developing my own game, there are many different tools, methods and concepts that can help to develop, maintain and deploy the game if it were implemented within a larger organisation.

For development, using methods such as Agile Development could be useful as it can help to manage in such a way that it allows for some flexibility and adaption throughout the whole process while also using a game engine such as Unity or Unreal Engine. [7]

For Deployment, you could use a variety of different platforms to release the game such as Steam and itch.io for PC games, Google Play Store and the App Store for mobile games and even Xbox and PlayStation stores for the console users.

When it comes to maintaining the game, asking for feedback from your users is a key element on improving your game as they can help to provide feedback for many aspects of the game including bug fixes and game features. [8] Also, checking the

game yourself is also key as it then you as the developer can produce regular updates and patches to help keep your game playable for the users.

And some tools that could be used in this game environment include Git, Visual Studio, Adobe Photoshop and Blender. Git could be used to help distribute any new code/ changes to the game with all the developers currently working on the game. Visual Studio can be used to help program the game and to help test out your game logic. Both Adobe Photoshop and Blender can then be used to design your games and assets including characters, enemies, environments and even assets such as menu buttons.

Task 3: Project Reflection

During the creation of this project, there will be many opportunities for me to learn and develop new concepts and skills. One of the main skills I will be learning will be the software in which I create my game. I intend on using the software called GDevelop and have not used this type of software before. Throughout the project, I will be learning how to effectively use this software which could in future help me out with any other projects I would like to do. I will also be learning how to publish the game once it has been finished and what that whole process entails.

As I want my game to focus on teaching new skills and building upon already existing ones, I believe that my game will make a positive impact upon society, mainly on young children. I believe that learning new skills and concepts through the medium of video games is now a key element in a child's learning cycle and hopefully, my game will also aid in this by educating the players with these new skills.

When creating this game, I am bound to come up with a few challenges and risks that could negatively impact the design and progress of my game. Technical risks are of course a big risk that would need to be considered when making a game. Things like performance issues could arise which could be combatted by regularly optimising the game as well as adjusting any features that are known for causing performance issues.[9] If this were a multiplayer game, I would need to consider the security risks involved when creating this game such as hackers or data breaches. To mitigate this, you would need to ensure that all data is encrypted and that the correct security features are in place such as authentication. Time constraints are also a concern. As I would have a deadline for when to complete this game, any unforeseen circumstances that might occur could affect the progress in which the game is completed. To mitigate this, I will need to set realistic milestones as well as keep up the motivation to ensure I stick to the schedule by using the Gantt chart created earlier. [2]

By anticipating these risks when creating my game, I can carefully plan out my strategies to try and reduce the damage done to the progress of my game while still staying on schedule to finish the game by my desired deadline.

Conclusion

To conclude, this paper has covered many aspects about the planning of creating my project of creating an educational game for young people. The project will span from end of summer/ early September 2024 to April 2025, giving me plenty of time to design and create this game to the quality I wish to have whilst also giving me plenty of time to work on it if I were not happy with it. PEST and SWOT analyses are critical when it comes to businesses as it helps them to combat any challenges that may occur and help to fix any internal factors that might be affecting the company. And when reflecting on my project, I have identified some new skills I might learn during the project creation as well as covering any challenges that might appear and how to combat them.

References

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Assignment 2

GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

88/100

Total:		88
1. Engagement with Literature Skills:		
+ Some good use of citations & a formatted reference list. – could be extended to include some additional citations and sources. - Some additional high-quality Professional/academic reference sources could also be included in the reference list, to gain extra marks in this category.	20	16
2. Knowledge and Understanding Skills: 10, 10		
* Project Man. & Planning: + Evidence of knowledge and skills covering project scope inc. proposed solution, required Technologies/resources to be used, a project timeline schedule & Gantt chart documented. Good. - Resources: Game development software cold be more specific. + ii: Appropriate concepts, methods, practices and tools to develop, deploy, maintain and evolve the practical element of the project is considered and documented.	20	18
3. Cognitive and Intellectual Skills: 5e		
+ Development methodology and Project scope	20	18

assessed and clearly documented. + PEST analysis including relevant professional legal & ethical considerations have been documented. + Project's positive impact on society is clearly described. Good. + Potential risks identified, and contingencies documented. – Could be documented in a risk analysis table to enhance format, presentation, and readability. + Conclusion. Good.		
4. Practical Application Skills: 10, 10		
* Gantt chart: + Gantt chart is clearly structured, easy to read and well presented. – Schedule could also include Project report chapters such as Literature review, Research Methodology and Evaluation chapters. * Project Design: + 2 pieces of design work related to the practical element of the project have been created and documented. Good.	20	18
5. Transferable Skills for Life and Professional Practice: 5, 15		
New skills: + Potential to develop new skills documented. – could be extended. Report: Good structure, format and presentation. - Try to use third person sense and to avoid using 'I' when writing reports.	20	18

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