This is my introduction for Comp1004, we have been asked to create our own SPA (Single page application) using HTML and other resources we have learnt during our first year. Along with it creating a GDD to explain my methods.

This project is mainly about our computer skills, how good our code is etc, but its also a test of our planning skills, our time management and how we would work in a real-world company. Completing tasks set by either our bosses, or by clients requesting a certain thing. The changes they might make halfway through.

This will be carried out using the SDLC (Software development Cycle), I will explain this, but it's a method used by real programmers to effectively manage time and communicate with other colleagues on the tasks progression and development that is needed.

"If you fail to plan, you are planning to fail" – Benjamin Franklin

As I am going to be doing Games development, I'm going to research into completing a task that is relevant to the course.

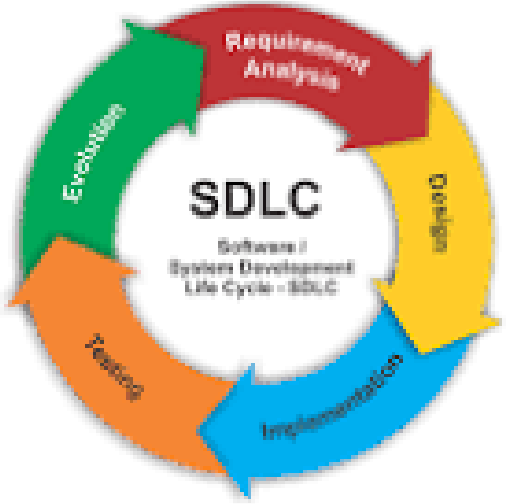
User Stories

I researched what people wanted from a simple game like this, what makes a game boring and what they want from a game to keep them interested. These are the main answers I got from asking friends and family, along with my own experience with gaming.

- As a user I want to play more puzzles.
- As a user I want to be rewarded for guessing a riddle right and punished for getting one wrong.
- As a user I want challenging puzzles, but nothing that is to difficult.
- As a user I want to be able to compete against my friends.

The SDLC

The Software Development Life Cycle (SDLC) for developing a game involves a series of stages aimed at designing, creating, testing, and releasing the game.



The SLDC is a form of management and planning, it involves 5 stages to take an idea, all the way through to the end, testing the current project, evolving it and restarting the cycle over again, this way the product is constantly improved within the time limits.

Throughout the SDLC, communication and collaboration among team members (such as designers, developers, artists, testers, and project managers) are essential for ensuring the success of the game. Additionally, feedback from players and stakeholders helps inform decisions and improve the game throughout its development lifecycle.

Here is a simplified version of the SLDC I will be using:

Requirement Analysis - Figure out what the game needs to do and what it should look like based on what players want and what's technically possible.

Design - Plan out how the game will work, what it will look like, and how players will interact with it. This includes drawing characters, levels, and deciding on things like how fast they move or how high they jump.

Implementation - Actually build the game based on the plans. Write the code to make things happen and create the art and sound to make it all look and sound good.

Testing - Play the game a lot to find mistakes, like things that don't work right or things that make the game crash. Fix those mistakes to make sure the game runs smoothly.

Evolution - After releasing the game, keep improving it based on feedback from players. This might mean fixing more mistakes, adding new stuff, or changing things to make the game better over time.

Sprints (Week 1-Week 16)

Project Task	Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5	Sprint 6	Sprint 7	Sprint 8			
Concept	🟩	🟢	🟨								
Basic Outline (HTML)		🟦	🟩	🟢						Planning	🟩
Riddles and Rooms			🟩	🟨						Analysis/Design	🟢
Log in Screen		🟥	🟥	🟥	🟥	🟥	🟥	🟥		Implementation	🟨
CSS beauty						🟩	🟢	🟨		All Above	🟦
Shortcut/Detour			🟥	🟥	🟥	🟥	🟥	🟥		Cancelled	🟥
Voices					🟦						
Time Limit							🟦				

We have been asked to commence our project using something called sprints, these are two week periods where we run through different stages of the SDLC. In the chart I have recorded all of the sprints I will have before the deadline and colour coded all of the blocks. When I wrote new code for the SPA I always tested it straight after so I have combined these into the yellow boxes. Light blue was a sprint I managed to Plan, design, implement and design all in two weeks so combined these into one colour. Red will be a design I wanted to implement but unfortunately had to cancel this part of the project.

Sprint 1 (Jan 1 – Jan 15)

My first sprint will be the overall design of the project, as this needs to include enough information for me to do a short video presentation I will try and work out the overall design of the project, this will change as we get further into the sprints, but having a goal to aim towards I believe this will help.

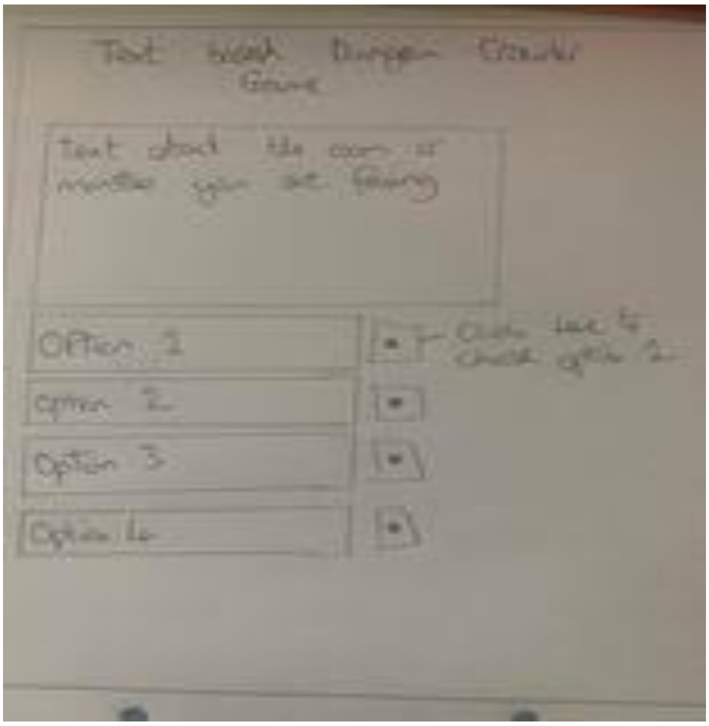
I decided to do a text-based dungeon crawl, multiple rooms that you have to make it through by deciding what actions to take against certain creatures and room obstacles. My skills aren't high enough to create a digital game with graphics so a simple text-based games with a few pictures will be great.

To do this I attended lectures about how to use HTML to create a basic webpage, and I started to draw a basic outline of what I wanted my pages to look like.

It would start with a small description of the room you are in, and any monsters that are in the room. They will have a couple of options as to actions they can take, for example;

- Fleeing the room.
- Using their weapon to attack.
- Trying to bribe the monster.
- Dodging the trap that they have triggered.

I learnt from the lecture we can have clickable options below so this is how the player will choose to proceed, by clicking on 4 options.


Text based Dungeon Crawler Game
text about the room or monster you are facing
Option 1
Click here to choose option 1
Option 2
Option 3
Option 4

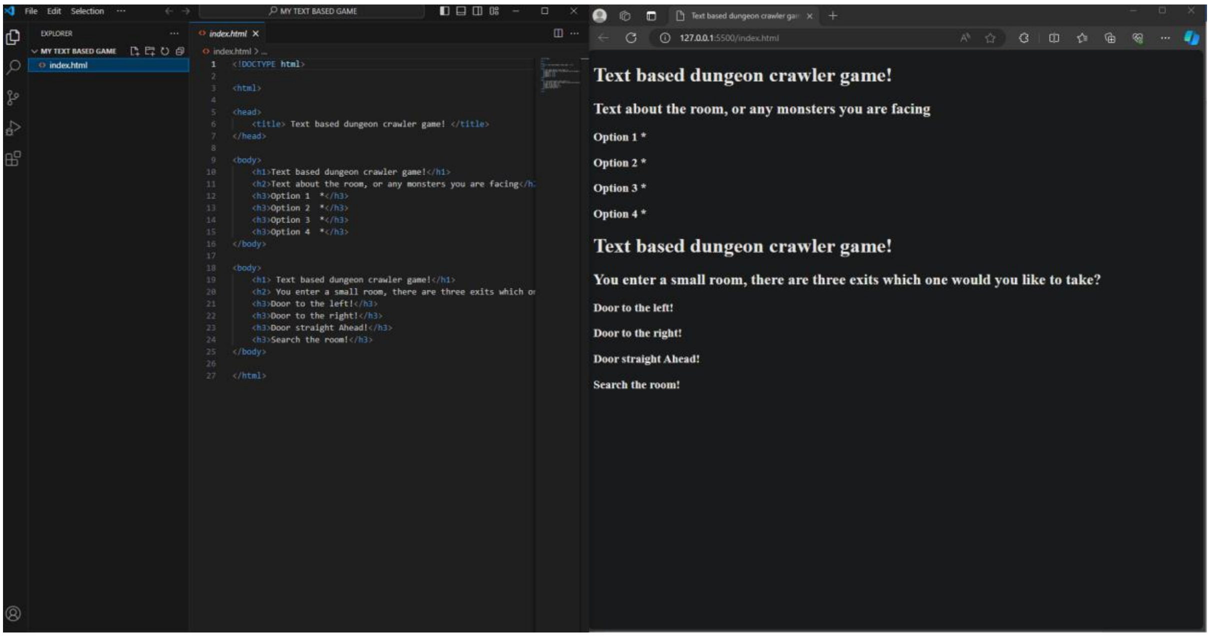
A very rudimentary drawing but this is what I will try and turn into digitally using HTML coding and C++, if the player picks the right choice they will go forward in the dungeon, if they choose incorrectly many things might happen;

- Losing health, they will start with a set amount of health if they lose it all they fail the game.
- They may have to take a longer route through the dungeon, I'm considering setting a time limit on the game, so a penalty of picking the wrong choice might stop them completing the game.
- They might have to go back to the start and try again.
- If they choose correctly they move through to the next dungeon with no penalty.

Sprint 2 (Jan 15-Jan 29)

The next two weeks will be me trying to learn HTML and get the first page up and running, I began using Visual studio, but for some reason after a long time and many only tutorials, my computer at home wouldn't accept the DOCTYPE, couldn't understand why. I chose to move over to visual studio code, as the online help for this is more substantial and my computer at home will run it, making it easier to complete my work.

I decided not to apply the SDLC to this sprint, as the requirements analysis is my personal learning journey, but this was my first attempt at using visual studio in HTML.



```
<!DOCTYPE html>

<html>

<head>
    <title> Text based dungeon crawler game! </title>
</head>

<body>
    <h1>Text based dungeon crawler game!</h1>
    <h2>Text about the room, or any monsters you are facing</h
    <h3>Option 1  *</h3>
    <h3>Option 2  *</h3>
    <h3>Option 3  *</h3>
    <h3>Option 4  *</h3>
</body>

<body>
    <h1> Text based dungeon crawler game!</h1>
    <h2> You enter a small room, there are three exits which or
    <h3>Door to the left!</h3>
    <h3>Door to the right!</h3>
    <h3>Door straight Ahead!</h3>
    <h3>Search the room!</h3>
</body>

</html>
```

```
Text based dungeon crawler game!

Text about the room, or any monsters you are facing

Option 1 *

Option 2 *

Option 3 *

Option 4 *

Text based dungeon crawler game!

You enter a small room, there are three exits which one would you like to take?

Door to the left!

Door to the right!

Door straight Ahead!

Search the room!
```

A very simple first page, but it is what we have learnt in lectures so far, so I will wait for next weeks lecture to begin flushing this out.

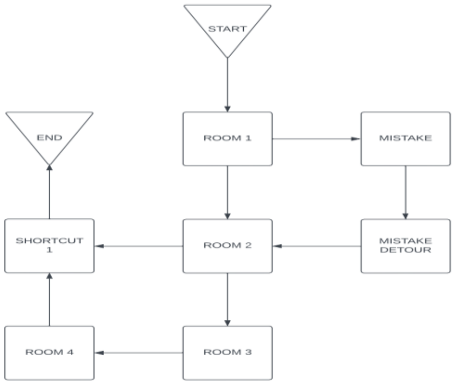
After I had showed a design for a log in screen to start my game, my lecturer told me this would be a bit beyond the scope of what I was meant to be doing if I was designing a game, so had to cancel this part of the project

Sprint 3 (Jan 29 – Feb 5)

This will be a continuation of the last sprint, I will be spending the next two weeks learning to use HTML.

I also decided to start mapping out what I wanted my first level to be, I wanted a very simple map to start with a few elements.

- A normal path going through the dungeon.
- A shortcut, where you could skip a few rooms.
- A detour, where the player has made a mistake and taken a longer path around the dungeon.



The level will have a start point and an end point, where you finish the dungeon.

I decided to base my game of a world I had be making for a long time called “Age” and make the various levels places in my world, luckily, I had various scenarios that would give enough variety to keep the player playing, but will discuss this in a later sprint.

I also decided to make the game a kind of quiz game, where you must solve a riddle to pass onto the next level, making a mistake would take you on a detour or make you lose a life.

Sprint 4 (Feb 5th – Feb 19th)

A very successful sprint, really solidifying my knowledge of HTML by playing around with text, colour, images and even music.

I also started to work on the code of the game:

Requirement Analysis

As I have decided to make this game a text-based game, I need first to create some code either in HTML or C++ so that the player has an area they can type into and code that reads their answer and compares it to the answer I have.

Design

I had a few options for my design, either I could use hyper-links within the HTML that would give you four possible answers to the riddle, if you clicked on the right answer, it would send you to the next room, but felt this wasn’t utilising all the skills I have learnt in my other modules.

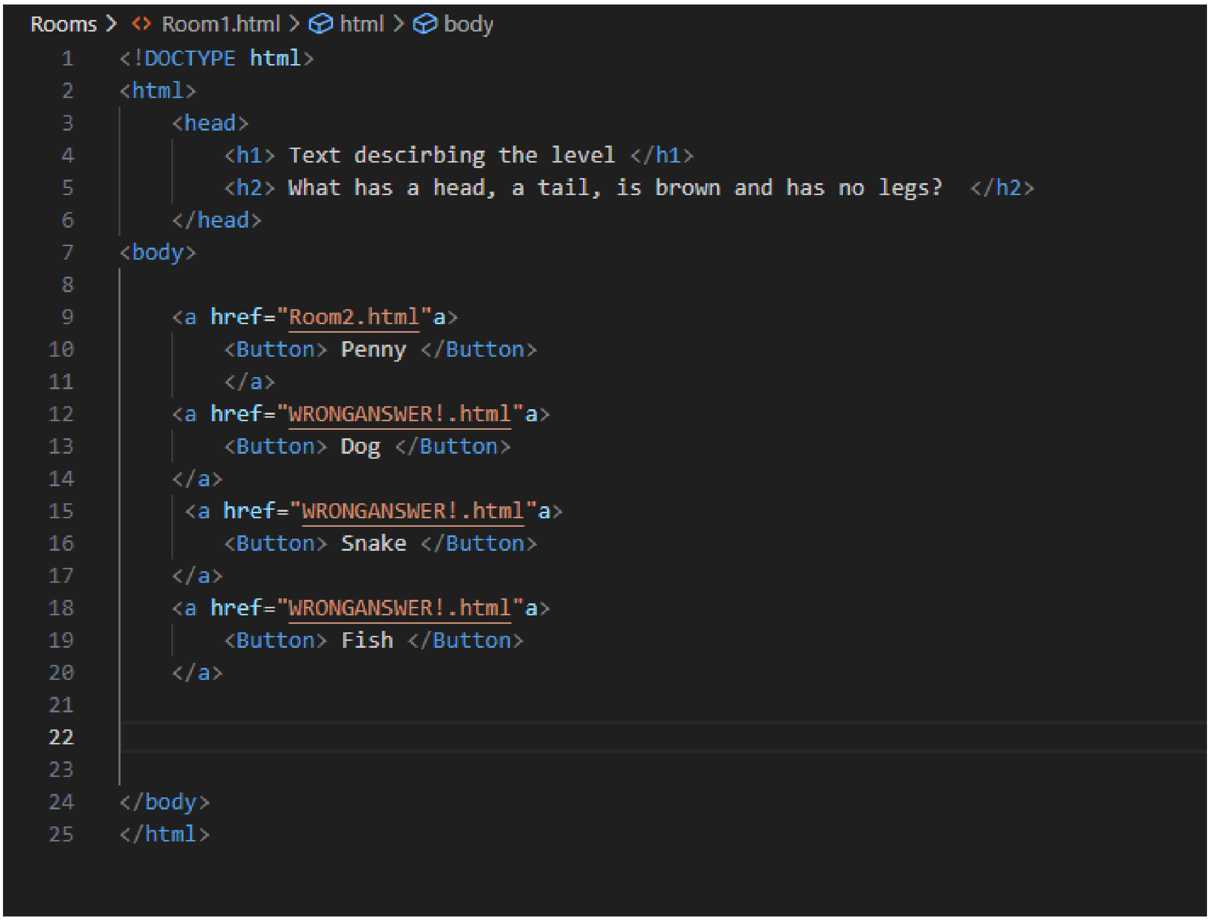
My decision was to build a very short game using HTML, using hyperlinks to jump between the rooms depending on what answer they selected, with further sprints and help from professors, I would use, C++ code or Javascript, using a “cin” input that would read the players answer for the last level.

Implementation

I began with trying to use the hyperlinks to jump between them, this was relatively easy, giving the player four possible choices, if they chose wrong they jumped back to the start and had to answers the questions again, if they chose correctly they moved onto the next level.

Testing

This worked well, it looked simple but worked, here is a small image of the rooms



```
<!DOCTYPE html>
<html>
    <head>
        <h1> Text describing the level </h1>
        <h2> What has a head, a tail, is brown and has no legs?  </h2>
    </head>
<body>

    <a href="Room2.html"a>
        <Button> Penny </Button>
        </a>
    <a href="WRONGANSWER!.html"a>
        <Button> Dog </Button>
    </a>
     <a href="WRONGANSWER!.html"a>
        <Button> Snake </Button>
    </a>
    <a href="WRONGANSWER!.html"a>
        <Button> Fish </Button>
    </a>



</body>
</html>
```

I simply copied this code five times onto the other pages and filled in the riddles, taking you to an end page congratulating you on completing the game.

Evolution

There are many things I would improve including;

- Making the page looks more exciting, adding borders and images.
- Implement my shortcut and detour rooms, I'm hoping to choose some riddles with multiple answers that can be correct, not sending you back but sending you on a detour so you don't have to do all the levels again.
- The biggest thing I wanted to try was voicing the Owl that asks you the questions, my friend is blind and would like him to play.

Sprint 5 (Feb 20th - March 3rd)

With a short break I decided to try out voicing the characters for my game, making the riddles voiced and allowing my blind friend to play, all he must do is give me the answer and I will click the option.

I found free software through my IPhone that could record my voice and I could place into my game. This went perfectly and now one of my rooms has me talking through the riddle, I would like to voice the rest of the rooms but will hold of in case I decide to change the audio, riddles or levels.

Room5.mp3

If I manage to code the riddles, I will try and put in an option to answer the riddles with numbers, allowing my blind friend to play, so if he believes they third riddle is the answer he would put in 3 on the keyboard.

Sprint 6 (March 4th-March 18th)

Realised my files were saving in the wrong place and so weren't being updated on the GitHub.

This sprint started with me learning CSS, which as described to me, HTML is the structure of the page, CSS is the style of the page. This is where I am going to make my SPA look more satisfying and not just plain text and white background. I started by creating a new page, copying and pasting room 5 into it and started playing around.

Sprint 7 (March 19th-April 2nd)

I decided to try out a time limit using HTML, causing the player to have a certain amount of seconds to complete a riddle, if they don't answer in time the rooms will reset and they will be sent back to the start

Sprint 8 (April 3rd – April 17th)

With the deadline approaching, I needed to finalise my project, so the next few weeks were finalising my project, by making it look more enjoyable.

I tried to sort my code out so I didn't have to have so many different files containing the rooms, but the code just wouldn't work.

Reflection

Overall I'm very happy with my project, starting of having no knowledge of coding in HTML and CSS, to being able to code a simple game is very satisfying. I'm content with the type of game I made, as making a small RPG game wouldn't have been satisfying or enjoyable to play, but a simple riddle game can enjoyed by everyone.

Things I would have improved were the time spent on the project, tackling two other modules and a job didn’t allow me the time to fully flesh out the riddle game, I would have liked to have made several areas, as outlined in my interim video.

I would have liked to use my knowledge of C++ to implement code that allows you to type in your own answer to the riddle and doesn’t give you four possible answers, if I looked back I would have managed my time better and attended more of the lab rooms to improve my coding and get advice on how to improve.

I would have liked to style the rooms with more CSS code, I tried several times to have a picture as a backdrop, but no matter what I did the code wouldn’t allow it.

Very happy with my project and looking forward to what I can achieve next year.