# Task 1

**Part 1: Responsive Design:**

My development will include the use of the meta value “viewpoint” meaning my web page will automatically resize to the width of the screen of the device in use. I will utilize w3-container elements to give standard formatting to my pages. I will use the w3-mobile class that converts elements to block elements when viewed on a mobile device this ensures that content will only display on the width of the screen and not extend beyond. I will ensure that images are not set to a pixel size but rather to a percentage of the available space to ensure they reseize to the available screen space.

I will check to see this works by resizing the window of my web page to many different sizes to check that content remains correctly aligned and in proportion. I will try on multiple different browsers to confirm the content displays in the same manner across different browsers. I will also conduct a Google mobile friendly test to ensure my site will display correctly on mobile devices.

**Part 2. Usability:**

Usability is about quality and user experience, bearing in mind Jakob Nielsen Usability Heuristics, my development work will adhere to these. Principle 2, outlines there should be a match between the system and the real world. My design will have clear demarcated header and footer sections to navigate the web application, with links displayed in these sections, this common across many websites. This will allow the user to navigate in a familiar way.

My web page will have consistency, which is principle 4. Formatting and style will be the same across all pages and links will appear in the same place, this will help improve learnability and promote ease of navigation of the site.

I will also keep a minimalist design which is principle 8 of Jakob Nielsen Usability Heuristics. I will keep information in sections to a minimum to allow the important information to stand out and not get lost, this enhances will make the web application easier to navigate and improve usability.

Usability is best checked by running a user study. Getting people to use to web application and site with them and take note of the easy of navation and get feedback on user experience.

**Part 3: Accessibility**

My web development will be formatted using elements such has headings, paragraphs, navigation, header, footer etc. This allows for the screen reader to recognise the sections and their functions and read the content out correctly. This also has the bonus of making my html code easier to follow for other developers. My images will include text descriptions to allow those who cannot see them to have a screen reader describe the picture. Any elements that may be ambiguous such as a div element I will include ARIA description to make sure the area can be identified by a user.

I will space content out not overcrowding making content hard to view and pay attention to colour contrast and keep background images to minimum to make text stand out and easy to read.

To test if this has been achieved, I can conduct a user testing session and get user feedback on use of the site. I can run a screen reader over my HTML code and make sure it is presented in the format intended. I can also submit my code to online accessablity checking tools to make sure my code complies with minimum standards and to check colour contrast.

# Task 3

**Part 1. Improving performance**

HTTP caching is where a web browser stores content that can be used again for a webpage whether it is a page refresh, revisit, or visiting withing a same web application. For example, an image that is used on multiple pages could be stored in the cache, when the web browser makes an http request to the server, an image that is already stored in the cache will not need to be sent again to the web browser. Time is not spent downloading the image, instead it is accessed directly from computer memory which is quicker than network retrieval. This assists in improving load time.

Content delivery networks work by having content stored in multiple geographic locations as opposed to one central location. If content is only stored in one central location, for example New Zealand, a user requesting the data from England will have to wait for the data to travel the distance between New Zealand and England. A user requesting the same data based in New Zealand will receive the data quicker, as the data does not have as far to travel. Having a content delivery network minimises the distance data needs to travel, users access the data centre closest to them, this in turn improves load times of web pages.

**Part 2. Adding to your design**