Website Design & Development – Summary Notes

Analysis

Identify the end-user and functional requirements of a website problem that relates to the design and implementation at this level.

- **End-user** – describes the group of people most likely to use the website. E.g. Children, employees, etc.
- **Functional requirements** – things that the website must be able to do e.g. Search a database.

Design

Describe and exemplify the website structure with a home page, a maximum of four linked multimedia pages, and any necessary external links.

- **Linear** – users move from one page to another in sequence
- **Hierarchical –** pages are accessed dependent upon their position within the hierarchy.

Wireframing is used to design the visual layout of a web page. Wireframing should clearly show:

- **navigational links**
  - ***Internal*** links take the user to another page within site,
    External links take the user to a different site.
  - ***Absolute*** address gives the full URL,
    Relative address give URL based on current location.

- **consistency across multiple pages:**
  All pages of website should follow the same design rules, so that the user knows what to expect.

- **relative vertical positioning of the media displayed** – where text, graphics audio & video will be placed.

- **file formats of the media (text, graphics, video, and audio)** – see next page

Describe & identify the implications for individuals and businesses of the Copyright, Designs and Patents Act

- The text, graphics, video and audio contained within this website are protected.
- The user is prevented from making, using or distributing copies without the owner's permission.

Design *(cont.)*

Compare a range of standard file formats:

- **Audio:**
  - **wav** – uncompressed, high quality, large file size.
  - **mp3** – lossy compression, good quality, smaller file size.
- **Graphics**
  - **jpeg** – lossy compression, transparency & animation not supported
  - **gif** – lossless compression, animation & transparency supported, 8-bit colour.
  - **png** – lossless compression, animation & transparency supported, 48-bit colour

Describe the factors affecting file size and quality:

- **Graphic Resolution** – the more pixels per inch, the better the quality, but the larger the file size.
- **Colour Bit Depth** – more bits per colour, more colours, but a larger file size.
- **Sampling Rate** - the more samples taken per second, more realistic the audio, but the larger the file size

Describe the need for compression.

- Compression is the process of reducing the size of a file. Compression is needed to save backing storage, or the time used to send the file between two computers i.e. over the internet.

Describe, exemplify and implement prototyping (low-fidelity) from wireframe design at this level.

- A prototype is a draft of the interface that is produced early in the development process. It should closely resemble the intended look and feel of the final product so user of it get a good idea of the finished product.

Implementation (CSS)

Describe, exemplify and implement Cascading Style Sheets (CSS):
CSS is used to define the colours, fonts and layout of web page content.

Internal & External CSS

- **Internal Stylesheet** holds the CSS code for the webpage in the <head> section of an HTML file.
- **External Stylesheet** holds the CSS code in a separate CSS file, which is liked to an HTML document.

- **Selectors** – the html elements that you want to style. In the example below H1

```
H1 {color: blue; font-size: 12px;}
```

- **ID** – when writing HTML it is possible to give an element its own unique ID, CSS can then be applied to it. An ID can only be used once in an HTML document.
    - HTML - `<p id= "intro"> Introduction Paragraph </p>`
    - CSS - `#intro {color: black; font-family: verdana;}`

- **Class** – worked similar to an ID, but can be applied to multiple HTML tags.
    - HTML - `<p class = "important"> This is important </p>`
    - CSS - `.important {background-color: yellow; text-align: center;}`

Implementation (JavaScript)

Describe and identify Javascript coding related to mouse events:
Using JavaScript, functions are created that will change what appears on screen dependant on what the user does with the mouse.

```
Line 1: <script>
Line 2: function mouseOver() {
Line 3: document.getElementById("demo").style.color = "red";
Line 4: }
Line 5: function mouseOut() {
Line 6: document.getElementById("demo").style.color = "black";
Line 7: }
Line 8: </script>
```

Line 2-4 – when the mouse it over and element with the ID "demo" the colour will change to red.
Lines 5-6 – when the mouse it moved away from the above element the colour will change to black.

Implementation (HTML)

Describe, exemplify and implement HTML code:

- **<html> … </html>** - tells the browser the rest of the document contains HTML
- **<head> … </head>** - contains information about the page itself – including CSS
- **<title> … </title>** - title of the webpage, appears on browser tabs.
- **<body> … </body>** - page content is placed between these tags.
- **<h1> … </h1>** - creates a heading, there are six different sizes (h1 to h6)
- ** … ** - defines a paragraph
- ** … ** - used so CSS can be applied to a group of elements
- ** link text ** - creates a hyperlink – can take user to different page/ website
- **<img src = "image url">** - inserts an image.
- **<audio> <source src = "audio url"> </audio>** - inserts an audio file
- **<video> <source src = "video url"> </video>** - inserts a video file
- **lists**
    - ** … ** - creates an ordered list - numbered
    - ** … ** - created an un-ordered list – bulleted
    - ** … ** - adds a list item

Describe and implement hyperlinks (internal and external), relative and absolute addressing.
See above

Read and explain code that makes use of the above HTML.

Testing	**Describe and exemplify testing:** • **matches user-interface design** – does it match the wireframe design and prototype. • **links and navigation work correctly** – when links are clicked do they take you to the correct location • **media (such as text, graphics, and video) display correctly** – are they in the correct place, do they work • **consistency** – do all pages follow a similar design. External CSS may mitigate this.

Evaluation	**Evaluate solution in terms of fitness for purpose**
	• Does the website meet the end-user and functional requirements?
	  ○ Yes – then website is fit for purpose
	  ○ No – revisit previous phases in the development process