IG CS Data Representation Assess 2

Representing text

- Character Sets:
  - It contains all the characters that are in that character set and the binary value that is assigned to each character
- ASCII
  - Using **8-bit** binary numbers
  - 'a' is 97, 'A' is 65 (not in syllabus)
- Unicode
  - **16-bit** binary numbers

Sample question

1. What is the difference between ASCII and Unicode?

Representing image

- Pixels
  - A very small dot of cloud that is displayed with many others to create an image
  - Abbreviation of 'Picture Elements'
- **Resolution (do not mix up with sample resolution!)**
  - The dimensions of an image (or the number of pixels in rows and columns)
- Metadata
  - Additional data that is stored with an image that can provide information such as the dimensions of the image and the tie and date the image was taken (Not important I think QaQ)
- **Color Depth**
  - The number of bits that are used to create each color in an image
  - To produce an image of 16 colors, 2^4 different numbers need to be used, hence the color depth is 4.
- Calculation of image size:
  - size = color depth * resolution
- The quality of the image is increases through increasing color depth, but it also increases file size

What might be in the test

1. Definition of color depth / resolution
2. Representing image using binary
3. Find out the color depth / resolution of an image
4. How to increase the quality of an image

Representing sound

- Sound Sampling (Sample)
  - A little piece of sound that is recorded at regular time intervals
- **Sample rate**
  - The number of samples recorded each second
- **Sample Resolution**
  - The number of bits that are used to record each sound sample
- Size = number of samples * sample resolution
- To increase the quality of the recording, sample rate and sample resolution have to be enhanced, which will result in increased file size

What might be in the test

1. Convert sound into binary
2. Find out the sample rate and sample resolution of a piece of sound
3. Definition of sample rate and sample resolution
4. How to increase the quality of a recording