

# IG CS Data Representation Assess 2

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## 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 color 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 time 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:
  - $\text{size} = \text{color depth} * \text{resolution}$
- The quality of the image 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
- $\text{Size} = \text{number of samples} * \text{sample resolution}$
- 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