Data representation

IGCSE Computer Science · Vocabulary in context

Word	Example
digit /ˈdɪdʒɪt/	Each **digit** in 405 has its own place value. 405
binary /ˈbaɪnəri/	In **binary**, the number 5 is written 101. 5 101
data /ˈdeɪtə/	Computers store **data** as binary numbers.
logic gate /ˈlɒdʒɪk geɪt/	An AND gate is a **logic gate**. AND
processor /ˈprəʊsesə/	The **processor** runs the program's instructions.
register /ˈredʒɪstə/	The processor keeps the number it is using in a **register**.
number system /ˈnʌmbə ˈsɪstəm/	Binary and denary are two kinds of **number system**.
denary /ˈdiːnəri/	We count in **denary**, using the digits 0 to 9. 0 9
hexadecimal /ˌheksəˈdesɪml/	In **hexadecimal**, the number 255 is written FF. 255 FF
base /beɪs/	Binary is **base** 2. 2
place value /pleɪs ˈvæljuː/	In 352, the **place value** of the 5 is ten. 352 5
bit /bɪt/	A **bit** is a single 0 or 1. 0 1
byte /baɪt/	One **byte** can store one letter, such as A. A
nibble /ˈnɪbl/	A **nibble** is half a byte, or four bits.
memory address /ˈmeməri əˈdres/	Each byte in memory has its own **memory address**.

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overflow /ˌəʊvəˈfləʊ/	Adding 200 and 100 in one byte causes **overflow**. 200 100
logical binary shift /ˈlɒdʒɪkl ˈbaɪnəri ʃɪft/	A **logical binary shift** moves bits left or right and fills the gap with zeros.
least significant bit /liːst sɪgˈnɪfɪkənt bɪt/	The **least significant bit** is the rightmost bit.
two's complement /tuːz ˈkɒmplɪmənt/	In **two's complement**, 11111111 means −1. 11111111 −1
most significant bit /məʊst sɪgˈnɪfɪkənt bɪt/	The **most significant bit** is the leftmost bit.
character set /ˈkærɪktə set/	ASCII is a **character set** for English letters. ASCII
emoji /ɪˈməʊdʒi/	Each **emoji** has its own Unicode number. Unicode
storage /ˈstɔːrɪdʒ/	A hard drive gives long-term **storage**.
sound wave /saʊnd weɪv/	A microphone turns a **sound wave** into an electrical signal.
sampling /ˈsæmplɪŋ/	**Sampling** measures the sound many times every second.
sample rate /ˈsæmpl reɪt/	The **sample rate** is how many sound samples are taken each second.
sample resolution /ˈsæmpl ˌrezəˈluːʃn/	A **sample resolution** of 16 bits gives 65 536 levels. 16 65 536
amplitude /ˈæmplɪtjuːd/	Loud sounds have a large **amplitude**.

Word	Example
pixel /ˈpɪksl/	Each **pixel** is one small dot of colour.
resolution /ˌrezəˈluːʃn/	High **resolution** shows small details.
colour depth /ˈkʌlə depθ/	A **colour depth** of 8 bits gives 256 colours. 8 256
compression /kəmˈpreʃn/	**Compression** makes the file smaller.
bandwidth /ˈbændwɪdθ/	A fast connection has a high **bandwidth**.
transmission /trænˈsmɪʃn/	The **transmission** of a file means sending it from one device to another.
lossless /ˈlɒsləs/	**Lossless** compression keeps every bit of the original file.
run-length encoding /rʌn leŋθ enˈkəʊdɪŋ/	**Run-length encoding** stores AAAAA as 5A. AAAAA 5A
lossy /ˈlɒsi/	**Lossy** compression removes some detail to save space.

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