Glossary

accessibility The degree to which a system is designed to maximise access and use by people with disabilities

address register Holds the address of a block of memory

arithmetic logic unit (ALU) Performs mathematical and logical operations on data

asymmetric cryptography A method of encryption in which two different keys are required consisting of a *public key* and a *private key*. The public key is used to encrypt data that can be decrypted *only* using the private key. Also known as public-key encryption

attribute Variables that can only be accessed by the methods of an object and that are properties of that object

backup Copying and archiving computer data so it may be used to restore original data after corruption or loss

bandwidth In computing, bandwidth is the data bit rate and is measured in bits per second. In wireless communication, bandwidth is the frequency range between highest and lowest frequencies and is measured in Hertz

big data Very large structured or unstructured data sets that can be analysed to reveal patterns or trends, especially relating to human behaviour, such as the set of all Google search terms for one year

Bluetooth A wireless technology standard for exchanging data over short distances from fixed and mobile devices

Cascading Style Sheets (CSS) A language used to define styles in the layout of a web page

cellular network A communication network made up of geographic locations called cells, which each have a cell site or base station providing the network coverage. When a user moves between cells, the transmission will be transferred from cell site to cell site (also known as a mobile network)

central processing unit (CPU) The circuitry (usually a single integrated circuit or 'chip') within a computer that carries out the instructions of a computer program by performing the basic arithmetic, logical, control and input/output (i/o) operations specified by the instructions

class A user-defined template for an object that defines its attributes (class variables and instance variables) and methods in object-oriented programming

codec Software that both codes and decodes digital data (from the two words coder-decoder), often to achieve compression of a file or data stream intended for transmission or storage

compression Process of representing digital information using fewer bits in order to reduce file size by simplifying data or by removing non-critical data

constructor In object-oriented programming, a constructor is the piece of code responsible for creating an object

control unit (CU) Decodes the program instructions and selects arithmetic and logic operations

data analysis The process of transforming and modelling data with the aim of discovering useful information

database An organised collection of related data

data register Holds *data* coming from or going to memory

digital footprint A record of the complete data resulting from a person's use of a digital system

encryption The process of encoding data so that it is incomprehensible to others and can be decoded only by the intended receiver

equity The principle that all people should have equal right of access to information technologies

ethics The moral principles that guide a person's behaviour

fetch-execute cycle The main process performed by the CPU in a computer when it runs a program. Also called the machine cycle or instruction cycle

field A cell in a table that holds a single item of data

file An alternative name for a table in a database

flat file database A stand-alone table or file of data such as can be created in a word processor or spreadsheet

floating-point unit (FPU) Performs operations on numbers expressed in decimal form where the position of the decimal point can shift, in contrast to both fixed point decimals and integers

foreign key A primary key from one table stored in another used to link the tables

form Displays one record at a time on a screen in a database application

hash function A method used to map longer strings of binary data to shorter strings of fixed lengths. Also known as hashing algorithm

Hypertext Markup Language (HTML) A tag based markup language used to structure and display a web page and its content

Gantt chart Horizontal coloured bars that represent planned and actual dates the various tasks in a project are to be completed

instance An object created by a class; a car model that belongs to the class car, for example, is said to be instance of the class car

instruction register (IR) Temporary holding space for data that has just been fetched from memory

key field Holds a primary key (or foreign key) in the data table and used to link data between the tables

LAN (local area network) A network that may comprise wired and/or wireless elements and typically connects devices in a single building or group of buildings within a limited geographical area

lossless compression Algorithm that reduces file size by representing the data more efficiently. One lossless method replaces repeated bit patterns with shorter tokens. This method of compression is important when it is critical for decompressed data to be an exact copy of the original; for example, in text documents, programming source code or archiving. No data is lost and the original file can be perfectly reconstructed

lossy compression Algorithm that reduces file size by permanently discarding redundant or unnecessary information not critical for users. The reconstructed file is an approximation of the original; for example, in audio compression by eliminating frequencies outside the range of human hearing or in image compression by combining or averaging pixels

method A function defined in a class definition

object code Code executable by a computer and often represented in binary or hexadecimal form. Also called machine code

object-oriented programming (OOP) A programming language paradigm in which objects represent a combination of data (the *attributes* of an object) and actions that can be performed on data (the *methods* of the object). Attributes and methods together form a class. An object's attributes or properties are what it knows and its methods are what it can do. These can also be inherited from the definition of another class. Examples of OOP languages include C++, Eiffel, Java, Python and Scala

primary key Data that uniquely identifies each record in a single table

program counter (PC) A register that holds the address of the instruction to be executed next

project An individual or group activity intended to achieve a stated goal or identified need that proceeds in organised stages such as defining, designing, implementing and evaluating

project management Overall oversight and control of planning, monitoring and execution of a project. The critical feature of project management is the successful achievement of the stated outcomes within budget and within time

pulse width modulation (PWM) A system that is used to produce a pulse of a particular width in order to drive a device in a way that simulates an analog output, such as the dimming of an LED or the changing speed of a motor

record A collection of related data concerning one item in a database

redundancy Data unnecessarily repeated in a database

relational database Database with several tables linked by key fields

report Presentation of data for printed output

run length encoding (RLE) A lossless compression technique where recurring patterns in binary sequences are replaced with shorter patterns recorded in a table

secret key A piece of information that is kept hidden from unintended recipients and needed by the recipient to decrypt an encoded message

source code Code written in higher level human-readable programming languages usually using ordinary text

symmetric encryption A method of encryption in which the same key is used for both encryption and decryption

validation A check to see if data is reasonable and lies within a pre-defined set of values

verification A check to see if data is true and correct

versioning A documentation process that records stages in software development so as to distinguish between versions and identify the latest revision

WAN (wide area network) A network that may comprise wired and/or wireless elements covering a large geographic area and often involving leased circuits and used to connect separate LANs. The Internet can be considered a WAN

WiFi A wireless protocol based on the IEEE 802.11 standards used in wireless local area networking (LAN)

wired network A network in which data is transferred between two or more devices by Ethernet cables

wireless network A network in which data is transferred between two or more devices not connected by an electrical conductor