Digital Technologies: Glossary of Terms

Array

A data structure that contains a group of elements (values or variables), typically all the same data type (e.g., integers). Arrays are commonly used in computer programs to organise a related set of values so that it can be easily sorted or searched.

Block-based programming

An interface for program building that allows users to drag and drop blocks representing programming commands. This alternative to text-based programming is a way of teaching children how to program using blocks of instructions with a focus on the logic of programming rather than details of syntax.

CamelCase convention

A way of naming in which a compound word uses an initial capital letter for each of its word parts. In some systems, the first letter of the compound word is capitalised (e.g., 'CamelCase'); in others, it is in lower case (e.g., 'camelCase'). The convention was adopted in the 1970s and 1980s as a standard for multi-word identifiers in a number of programming languages.

Commenting code

Adding comments to explain how the code in a program works or what it does.

Commenting out

Disabling a block of source code by changing it into a comment. This technique is used for debugging or for testing the functionality of alternative versions of code.

Compound logical operator

A word or symbol (e.g., AND, NOT, OR, &&) used to link conditions when creating a constraint, with each condition able to be evaluated as true or false. This supports a program to make a decision based on a number of such conditions.

Compression coding

Coding information using fewer bits than the original to reduce the amount of memory required to store files:

- lossy compression compresses a file by removing some of the original data

- lossless compression compresses a file without removing any data by storing a map of repeating patterns of data

- ZIP is an archive file format that supports lossless data compression. A ZIP file may contain several files or directories, each of which may have been compressed using a particular algorithm.

Control structure

A block of programming that analyses variables in order to select a direction in which to go, based on given parameter or conditions. In an 'iterative control structure', a set of instructions are repeated a specified number of times or until a condition is met.

Countif function

A function in a spreadsheet that counts the number of cells that meet a single or multiple criteria (e.g., the number of cells in the range C2:C11 whose value is greater than 3 and less than 12).

CSV data

Data found in simple file formats used for storing tabular data. CSV is an abbreviation for 'comma-separated values'.

Dynamic IP address

An IP address that is assigned by a network to a device when it connects to the network and that changes over time. A static IP address does not change like this. Dynamic IP addressing is more efficient for configuring multiple network devices, as each device does not have to be manually assigned its network address.

Function

A named section of a computer program that performs a specific task. Functions help make code more efficient and reusable. They may take input parameters and produce output.

Graphical user interface (GUI)

An interface that supports users to work with electronic devices via icons and visual indicators rather than through text commands. The icons and visual indicators are generally manipulated by a mouse or via touch screen technology.

Hard coding

Assigning a value directly into the source code of a program so that it cannot be changed unless the source code itself is altered.

Heuristic

A technique for solving a problem more quickly when classic methods are too slow, or for finding an approximate solution when classic methods cannot provide an exact solution.

Join table

A table formed by combining columns from one or more tables in a relational database.

Loop

A sequence of instructions in a program repeated until a certain condition is reached:

– with a 'for loop', the instructions are repeated a certain number of times

– with a 'while' loop, the instructions are repeated until a given condition becomes false

– with a 'forever loop' (also known as an 'infinite' or 'endless' loop), the instructions are repeated endlessly.

Parity bit

A bit added to a string of binary code to detect errors. A parity bit (also known as a 'check bit') gives data either an odd or even parity, which is used to validate the integrity of the data.

Ping

A network software utility used to test if a computer is operating and its network connections are intact.

Pseudocode

A detailed but readable description of what a computer program or algorithm must do. It uses the structural conventions of a normal programming language, but is intended to be read by humans rather than machines.

Query

A search in a database to retrieve data that matches certain parameters.

Remote data packet exchange

The process of a device sending or receiving data packets to or from a location outside the home network. This can involve using a protocol such as TCP or UDP and resolving the DNS.

Source code

The code of a computer program written so it's readable by a person and using the particular syntax of a programming language (e.g., C, Python, Java). Source code is compiled or interpreted into machine code able to be run by a computer.

Sprite

A character or visual representation of an object in a computer game, simulation or application.

String concatenation

The joining together of two or more strings of characters.

Switch statement

A control mechanism in which the value of a variable or expression changes the execution of a program and which usually involves multiple branches.

Text-based programming

A traditional programming method in which letters, numbers and symbols are typed to determine inputs and outputs. Text-based programming languages such as Python, C, and Java require programmers to follow a formal, text-based syntax.

Variables
'Containers' used to label and store data in memory. The data can then be used throughout a program:
− integer variables use only numbers and so can be used for calculations
– string variables are sequences of code that may contain numbers, letters and other characters, and so cannot be used for calculations.