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We dedicate this book to John Southall.

John was a member of the BCS staff and Registrar. He was instrumental in forming the Working Party of BCS Schools Committee members in the 1970s that started the small Glossary, which has evolved over the years into the current edition. John’s wit, wide knowledge of computer terminology and of BCS, and his attention to detail, made him a strong support for those who follow on. He was working on the thirteenth edition when he died.

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<table>
<thead>
<tr>
<th>CONTENTS</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gathering information online</td>
<td>68</td>
</tr>
<tr>
<td>Online security</td>
<td>69</td>
</tr>
<tr>
<td><strong>B2</strong> THE INTERNET</td>
<td>72</td>
</tr>
<tr>
<td>Accessing the internet</td>
<td>73</td>
</tr>
<tr>
<td>Organising the internet</td>
<td>78</td>
</tr>
<tr>
<td>The world wide web</td>
<td>79</td>
</tr>
<tr>
<td>Other internet applications</td>
<td>88</td>
</tr>
<tr>
<td>Internet problems</td>
<td>92</td>
</tr>
<tr>
<td><strong>B3</strong> DATA HANDLING AND INFORMATION RETRIEVAL</td>
<td>93</td>
</tr>
<tr>
<td><strong>B4</strong> COMMERCIAL DATA PROCESSING (DP)</td>
<td>108</td>
</tr>
<tr>
<td><strong>B5</strong> CONTROL AND MONITORING</td>
<td>117</td>
</tr>
<tr>
<td>Control</td>
<td>118</td>
</tr>
<tr>
<td>Virtual reality</td>
<td>120</td>
</tr>
<tr>
<td><strong>B6</strong> MODELLING AND SIMULATION</td>
<td>122</td>
</tr>
<tr>
<td><strong>B7</strong> NETWORKING</td>
<td>127</td>
</tr>
<tr>
<td><strong>B8</strong> ARTIFICIAL OR MACHINE INTELLIGENCE</td>
<td>141</td>
</tr>
<tr>
<td><strong>B9</strong> COMPUTER PERSONNEL</td>
<td>147</td>
</tr>
<tr>
<td><strong>B10</strong> PROFESSIONALISM AND ETHICS</td>
<td>152</td>
</tr>
<tr>
<td><strong>B11</strong> COMPUTER SECURITY, ABUSE AND RELATED LAW</td>
<td>155</td>
</tr>
<tr>
<td>Data security</td>
<td>156</td>
</tr>
<tr>
<td>Viruses and malicious code</td>
<td>166</td>
</tr>
<tr>
<td>Copyright</td>
<td>167</td>
</tr>
<tr>
<td><strong>B12</strong> SYSTEMS SOFTWARE</td>
<td>170</td>
</tr>
<tr>
<td>Concepts</td>
<td>171</td>
</tr>
<tr>
<td>Development</td>
<td>174</td>
</tr>
<tr>
<td>Operations</td>
<td>179</td>
</tr>
<tr>
<td>PART C: PROGRAMMING</td>
<td>185</td>
</tr>
<tr>
<td><strong>C1</strong> PROGRAMMING CONCEPTS</td>
<td>187</td>
</tr>
<tr>
<td>Object-oriented techniques</td>
<td>188</td>
</tr>
<tr>
<td>Traditional programming techniques</td>
<td>190</td>
</tr>
<tr>
<td><strong>C2</strong> PROGRAMMING (FLOW OF EXECUTION)</td>
<td>200</td>
</tr>
<tr>
<td><strong>C3</strong> PROGRAMMING (SUBPROGRAMS)</td>
<td>206</td>
</tr>
<tr>
<td><strong>C4</strong> PROGRAM SYNTAX</td>
<td>212</td>
</tr>
<tr>
<td><strong>C5</strong> DESCRIBING PROGRAMS</td>
<td>219</td>
</tr>
<tr>
<td>viii</td>
<td></td>
</tr>
</tbody>
</table>

Buy the complete book: www.bcs.org/books/glossary
## CONTENTS

**C6** **TESTING AND RUNNING PROGRAMS** 227

**C7** **PROGRAMMING LANGUAGES** 236
- Levels of language 238
- Types of language 243
- Miscellaneous specialised languages 245

**PART D: DATA** 253

**D1** **DATA REPRESENTATION** 255
- Concepts 255
- Structures 257
- Elements 261

**D2** **NUMERIC DATA REPRESENTATION** 264

**D3** **MANAGING DATA FILES** 271
- Files 272
- Operations 276
- General 281

**PART E: HARDWARE** 285

**E1** **TYPES OF COMPUTER** 287

**E2** **INPUT** 292
- Manual input 293
- Automated input 295

**E3** **MEMORY** 297
- General concepts 299
- Disk 300
- Miscellaneous forms of memory 304
- General 306

**E4** **OUTPUT** 308
- Colour 310
- Quality 312
- Display 314
- Printing 317

**E5** **MACHINE ARCHITECTURE** 323
- The processor 324
- Memory 327
- General concepts 328
- Interfaces 334
- Physical components 335

**E6** **COMMUNICATION COMPONENTS** 340

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## CONTENTS

### E7  COMMUNICATION TECHNOLOGY 345
- Transmission 346
- Protocols 348
- Signals 351

### E8  TRUTH TABLES AND LOGIC GATES 356
- Binary logic 356
- Gates 359

### PART F: EFFECTIVE USE OF COMPUTER APPLICATIONS 365

#### F1  WORD PROCESSING AND TEXT MANIPULATION 367
- Software 367
- Processes 370
- Elements of print 373
- Layout 375
- Styles 379

#### F2  SPREADSHEETS 382

#### F3  GRAPHICS, DESIGN AND DIGITAL IMAGING 389
- Image data formats 389
- Graphic design applications 392
- Digital still imaging 397
- Digital video 398

#### F4  SOUND 402
- Characteristics of sound 403
- Sound processing 406
- Devices 411

#### F5  USER INTERFACE AND DOCUMENTATION 415
- Interfaces 416
- Interface concepts 419
- Documentation 425

#### F6  SPECIALISED COMPUTER APPLICATIONS 427

### PART G: REFERENCE 433

#### G1  ACRONYMNS AND ABBREVIATIONS 435

#### G2  UNITS 453

#### G3  FILENAMES AND FILENAME EXTENSIONS 456

#### G4  GEOGRAPHICAL DOMAIN EXTENSIONS 460

#### G5  ASCII CODE 463
- Index 466

---

Buy the complete book: www.bcs.org/books/glossary
## FIGURES AND TABLES

<p>| Figure A2.1 | Filters | 10 |
| Figure A2.2 | Two examples of customising | 15 |
| Figure A2.3 | Default options | 16 |
| Figure A2.4 | Horizontal scroll bar | 20 |
| Figure A4.1 | Relationship between the three cycles | 33 |
| Figure A4.2 | An example Gantt chart | 38 |
| Figure A4.3 | An example of Critical Path Analysis | 39 |
| Figure A5.1 | An example of a block diagram (courtesy Acorn Computers) | 48 |
| Figure A5.2 | Information flow diagram symbols | 49 |
| Figure A5.3 | An example of an information flow diagram | 49 |
| Figure A5.4 | Data flow symbols | 50 |
| Figure A5.5 | Level 1 Data flow diagram of the payroll process | 50 |
| Figure A5.6 | Entity-relationship diagram used in designing a database | 51 |
| Figure A5.7 | System flowchart symbols | 52 |
| Figure A5.8 | An example of system flowchart using alternative symbols | 53 |
| Figure A5.9 | A structure diagram for the payroll process | 54 |
| Figure A5.10 | Expansion of process 3.20 in Figure C5.9 | 55 |
| Figure A5.11 | Flowchart symbols | 55 |
| Figure A5.12 | An example of a flowchart | 56 |
| Figure A5.13 | An example use case diagram | 57 |
| Figure A5.14 | An example sequence diagram | 58 |
| Figure A5.15 | An example activity diagram | 59 |
| Figure A5.16 | An example class diagram | 60 |
| Figure A5.17 | An example statechart diagram | 60 |
| Figure B2.1 | Anatomy of a website | 81 |
| Figure B2.2 | Hyperlink | 82 |
| Figure B2.3 | Search engine | 84 |
| Figure B3.1 | How a database management system works | 95 |
| Figure B3.2 | A flat file or two-dimensional table | 96 |
| Figure B3.3 | Hierarchical database | 96 |
| Figure B3.4 | Sample metadata listing for a digital camera image | 98 |
| Figure B3.5 | A typical report | 104 |
| Figure B4.1 | An example of a QR code and a Microsoft® tag | 113 |
| Figure B4.2 | Clock track on a machine-readable document | 113 |
| Figure B7.1 | A bus network with spurs | 129 |
| Figure B7.2 | A bus network | 130 |
| Figure B7.3 | A ring network with spurs | 130 |
| Figure B7.4 | A ring network | 131 |
| Figure B7.5 | A star network | 132 |</p>
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>B7.6</td>
<td>A backbone with three subnetworks</td>
<td>132</td>
</tr>
<tr>
<td>B7.7</td>
<td>An example of a modern computer network</td>
<td>139</td>
</tr>
<tr>
<td>B8.1</td>
<td>An expert system structure</td>
<td>145</td>
</tr>
<tr>
<td>B11.1</td>
<td>Firewalls and proxy servers</td>
<td>161</td>
</tr>
<tr>
<td>B11.2</td>
<td>How a public key cryptosystem works</td>
<td>165</td>
</tr>
<tr>
<td>C1.1</td>
<td>An example of an algorithm in pseudo-code</td>
<td>192</td>
</tr>
<tr>
<td>C1.2</td>
<td>An example of an assignment statement</td>
<td>192</td>
</tr>
<tr>
<td>C1.3</td>
<td>Logical operation on a bit pattern</td>
<td>195</td>
</tr>
<tr>
<td>C1.4</td>
<td>Examples of display and print format statements</td>
<td>197</td>
</tr>
<tr>
<td>C2.1</td>
<td>Examples of count-controlled loops</td>
<td>201</td>
</tr>
<tr>
<td>C2.2</td>
<td>Examples of condition-controlled loops</td>
<td>202</td>
</tr>
<tr>
<td>C2.3</td>
<td>Examples of selection statements</td>
<td>203</td>
</tr>
<tr>
<td>C2.4</td>
<td>Examples of multiple selection</td>
<td>205</td>
</tr>
<tr>
<td>C3.1</td>
<td>An example of a function</td>
<td>207</td>
</tr>
<tr>
<td>C3.2</td>
<td>Examples of a recursive subprogram</td>
<td>209</td>
</tr>
<tr>
<td>C3.3</td>
<td>Examples of parameters</td>
<td>210</td>
</tr>
<tr>
<td>C3.4</td>
<td>Examples of parameter passing to a function</td>
<td>211</td>
</tr>
<tr>
<td>C4.1</td>
<td>Examples of block structure</td>
<td>213</td>
</tr>
<tr>
<td>C4.2</td>
<td>An example of the use of a dummy variable</td>
<td>215</td>
</tr>
<tr>
<td>C4.3</td>
<td>An example of ‘+’ operator</td>
<td>215</td>
</tr>
<tr>
<td>C4.4</td>
<td>Examples of unary and binary operators</td>
<td>216</td>
</tr>
<tr>
<td>C4.5</td>
<td>Examples of relational operators in pseudo-code</td>
<td>216</td>
</tr>
<tr>
<td>C5.1</td>
<td>A decision table</td>
<td>221</td>
</tr>
<tr>
<td>C5.2</td>
<td>Connector or continuation symbol</td>
<td>221</td>
</tr>
<tr>
<td>C5.3</td>
<td>Input/output symbol</td>
<td>222</td>
</tr>
<tr>
<td>C5.4</td>
<td>Alternative forms of decision box</td>
<td>222</td>
</tr>
<tr>
<td>C5.5</td>
<td>Process symbol or box</td>
<td>223</td>
</tr>
<tr>
<td>C5.6</td>
<td>Start/stop symbol or box</td>
<td>223</td>
</tr>
<tr>
<td>C5.7</td>
<td>Subroutine symbol or box</td>
<td>223</td>
</tr>
<tr>
<td>C5.8</td>
<td>An example of program module flowchart in traditional form</td>
<td>224</td>
</tr>
<tr>
<td>C5.9</td>
<td>An example of program module flowchart (continuation)</td>
<td>225</td>
</tr>
<tr>
<td>C5.10</td>
<td>Program module in pseudo-code</td>
<td>225</td>
</tr>
<tr>
<td>C5.11</td>
<td>An example of program module flowchart (using very simple boxes)</td>
<td>226</td>
</tr>
<tr>
<td>C6.1</td>
<td>Examples of trace tables</td>
<td>231</td>
</tr>
<tr>
<td>C6.2</td>
<td>Program process states</td>
<td>233</td>
</tr>
<tr>
<td>C7.1</td>
<td>Example of use of a logical language</td>
<td>245</td>
</tr>
<tr>
<td>C7.2</td>
<td>Example of Backus–Naur form</td>
<td>247</td>
</tr>
<tr>
<td>D1.1</td>
<td>A typical tree structure</td>
<td>257</td>
</tr>
<tr>
<td>D1.2</td>
<td>A one-dimensional array</td>
<td>258</td>
</tr>
<tr>
<td>D1.3</td>
<td>A two-dimensional array</td>
<td>259</td>
</tr>
<tr>
<td>D1.4</td>
<td>Declaring array dimensions</td>
<td>259</td>
</tr>
<tr>
<td>D1.5</td>
<td>Fields and records in a data file</td>
<td>262</td>
</tr>
<tr>
<td>D1.6</td>
<td>Key fields in a data file</td>
<td>262</td>
</tr>
<tr>
<td>D2.1</td>
<td>Number ranges for different number forms</td>
<td>265</td>
</tr>
<tr>
<td>D2.2</td>
<td>Fixed-point and floating-point representation</td>
<td>267</td>
</tr>
<tr>
<td>D2.3</td>
<td>Denary to BCD conversion</td>
<td>268</td>
</tr>
<tr>
<td>D2.4</td>
<td>Binary to octal conversion</td>
<td>269</td>
</tr>
<tr>
<td>D2.5</td>
<td>Binary to hexadecimal conversion</td>
<td>269</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>D3.1</td>
<td>An example of two data sets being merged using 'Name' as the key field</td>
<td>278</td>
</tr>
<tr>
<td>D3.2</td>
<td>An example of two data sets being merged using 'ID' as the key field</td>
<td>278</td>
</tr>
<tr>
<td>D3.3</td>
<td>Two examples of a data set being sorted, one using 'ID' and the other 'Surname' as the key fields respectively</td>
<td>279</td>
</tr>
<tr>
<td>D3.4</td>
<td>Comparing the two methods of searching for the key 'Singh'</td>
<td>280</td>
</tr>
<tr>
<td>D3.5</td>
<td>A simple example of data compression</td>
<td>282</td>
</tr>
<tr>
<td>E3.1</td>
<td>Tracks on a disk and a cylinder</td>
<td>300</td>
</tr>
<tr>
<td>E3.2</td>
<td>Cache memory</td>
<td>306</td>
</tr>
<tr>
<td>E4.1</td>
<td>A character formed by a pattern of dots</td>
<td>309</td>
</tr>
<tr>
<td>E4.2</td>
<td>Dithering</td>
<td>311</td>
</tr>
<tr>
<td>E4.3</td>
<td>Data flow in a colour management system</td>
<td>312</td>
</tr>
<tr>
<td>E5.1</td>
<td>Arithmetic shifts</td>
<td>332</td>
</tr>
<tr>
<td>E5.2</td>
<td>Logical shifts</td>
<td>332</td>
</tr>
<tr>
<td>E5.3</td>
<td>Cyclic shifts</td>
<td>333</td>
</tr>
<tr>
<td>E5.4</td>
<td>DIP switches</td>
<td>339</td>
</tr>
<tr>
<td>E6.1</td>
<td>Multiplexors connecting remote workstations to a computer</td>
<td>341</td>
</tr>
<tr>
<td>E6.2</td>
<td>Section of coaxial cable</td>
<td>343</td>
</tr>
<tr>
<td>E7.1</td>
<td>Unmodulated carrier wave</td>
<td>351</td>
</tr>
<tr>
<td>E7.2</td>
<td>Modulation by switching the wave off</td>
<td>352</td>
</tr>
<tr>
<td>E7.3</td>
<td>Modulation by changing the amplitude</td>
<td>352</td>
</tr>
<tr>
<td>E7.4</td>
<td>Modulation by changing the frequency</td>
<td>352</td>
</tr>
<tr>
<td>E7.5</td>
<td>Phase modulation</td>
<td>353</td>
</tr>
<tr>
<td>E8.1</td>
<td>Karnaugh map</td>
<td>357</td>
</tr>
<tr>
<td>E8.2</td>
<td>Venn diagrams</td>
<td>358</td>
</tr>
<tr>
<td>E8.3</td>
<td>NOT gate</td>
<td>359</td>
</tr>
<tr>
<td>E8.4</td>
<td>OR gate</td>
<td>360</td>
</tr>
<tr>
<td>E8.5</td>
<td>AND gate</td>
<td>360</td>
</tr>
<tr>
<td>E8.6</td>
<td>NOR gate</td>
<td>361</td>
</tr>
<tr>
<td>E8.7</td>
<td>NAND gate</td>
<td>362</td>
</tr>
<tr>
<td>E8.8</td>
<td>XOR or NEQ gate</td>
<td>362</td>
</tr>
<tr>
<td>E8.9</td>
<td>XNOR or EQ gate</td>
<td>363</td>
</tr>
<tr>
<td>F1.1</td>
<td>A word processor (top) and a desktop publishing package (bottom)</td>
<td>368</td>
</tr>
<tr>
<td>F1.2</td>
<td>Web editor</td>
<td>369</td>
</tr>
<tr>
<td>F1.3</td>
<td>Checking a document</td>
<td>371</td>
</tr>
<tr>
<td>F1.4</td>
<td>Mailmerge</td>
<td>372</td>
</tr>
<tr>
<td>F1.5</td>
<td>Italic fonts</td>
<td>374</td>
</tr>
<tr>
<td>F1.6</td>
<td>Tab stops</td>
<td>377</td>
</tr>
<tr>
<td>F1.7</td>
<td>Use of tabs</td>
<td>377</td>
</tr>
<tr>
<td>F1.8</td>
<td>Use of tables</td>
<td>378</td>
</tr>
<tr>
<td>F1.9</td>
<td>Justification of text</td>
<td>378</td>
</tr>
<tr>
<td>F1.10</td>
<td>Style definition dialogue box</td>
<td>380</td>
</tr>
<tr>
<td>F2.1</td>
<td>A typical spreadsheet</td>
<td>382</td>
</tr>
<tr>
<td>F2.2</td>
<td>Cell contents</td>
<td>383</td>
</tr>
<tr>
<td>F2.3</td>
<td>'What if?'</td>
<td>384</td>
</tr>
<tr>
<td>F2.4</td>
<td>Chart options</td>
<td>384</td>
</tr>
<tr>
<td>F2.5</td>
<td>A cell block</td>
<td>385</td>
</tr>
<tr>
<td>F2.6</td>
<td>Replication</td>
<td>386</td>
</tr>
</tbody>
</table>
FIGURES AND TABLES

Figure F2.7  Spreadsheet for a single shop  388
Figure F2.8  Two views of data from several shops  388
Figure F3.1  Vector graphics at two scalings  393
Figure F3.2  A graphics tablet and stylus  394
Figure F3.3  A typical bitmapped graphic  394
Figure F3.4  Examples of photo editing  395
Figure F3.5  An example of image enhancement  396
Figure F3.6  Typical clip art  397
Figure F3.7  Typical semi-professional video-editing system  401
Figure F4.1  A waveform (the opening of a Strauss waltz)  403
Figure F4.2  Characteristics of a (sound) wave  404
Figure F4.3  Harmonics and timbre (1)  405
Figure F4.4  Harmonics and timbre (2)  405
Figure F4.5  Stereophonic sound  406
Figure F4.6  Volume envelope  407
Figure F4.7  Two pitch envelopes  407
Figure F4.8  Sampling  409
Figure F4.9  The effect of sampling rates  409
Figure F4.10 A typical computer sound-processing package  413
Figure F5.1  Conversational dialogue screen  418
Figure F5.2  Forms dialogue screen  419
Figure F5.3  Graphical user interface elements  421
Figure F5.4  Dialogue box  422
Figure F5.5  Directory tree  423

Table A2.1  Common filename extensions  12
Table A4.1  System life cycle  31
Table A4.2  Software development cycle  32
Table C1.1  Examples of different algebraic notations  191
Table C1.2  Examples of formatting numeric and date data  198
Table C7.1  Early programming languages  239
Table C7.2  Programming languages  241
Table C7.3  A small selection of common HTML tags  249
Table D2.1  Number of patterns provided by different numbers of bits  264
Table D3.1  Suitability of file access methods  273
Table E3.1  Optical storage  303
Table E4.1  Printers  318
Table E5.1  Common interfaces  336
Table E7.1  Seven-layer network organisation model (ISO 7)  348
Table E7.2  Relationship between OSI and TCP/IP protocols  349
Table F3.1  Image compression formats  391
Table F4.1  Audio storage and compression schemes  410
Table F4.2  The effect of sampling and format on file sizes  411

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This Glossary, which contains over 3400 terms, provides not only a comprehensive definition of each term, but also sufficient additional material to enable the reader to understand the importance of the term, how to use it appropriately and its relation to other terms used in the same area of computing. To this end, terms are gathered into six parts, describing how computer systems are used, what they are made of, how they are developed and how computers work. A seventh part consists of reference material.

Who is the Glossary aimed at?

One of the principal aims of the Glossary is meeting the needs of pupils and students who follow courses leading to examinations in schools and colleges at a variety of levels. The authors attempt to ensure that the Glossary reflects developments in the National Curriculum for England and Wales, GCSE and A-level specifications, the Scottish Curriculum, the Northern Ireland system and related vocational qualifications.

It is a definitive reference source, mentioned in examination syllabuses. The content has increasingly found wide acceptance in universities and colleges for foundation courses and ESL students, as well as induction sessions and training courses. It is used in support of the European Computer Driving Licence (ECDL) and other training courses, within government departments and industry generally. The Glossary has also proved popular with home-based computer users.

How are the individual terms decided on?

BCS Glossary Working Party members continuously monitor relevant new terms and changes in usage. These are added when it is felt that they have become sufficiently established and widespread. Some terms that are no longer in common use are omitted.

The Glossary provides definitions that cover the use of terms in the context of very large computer systems as well as PCs and mobile devices. Although large computer systems may be outside the experience of many users, they are likely to encounter consequences of the use of such systems. It should be noted that some terms are included that have a different meaning in a computing environment to that in use in other subjects.
What are the origins of the Glossary?

The Glossary was first published over 40 years ago and has developed from a tiny listing to its current content. In 1974, the British Computer Society was invited by the Regional Examining Boards for the Certificate of Secondary Education to produce a standardised list of terms for use in computer studies courses, examination syllabuses and for their own reference. The Schools Committee of BCS set up a Working Party with a remit to produce a ‘one-off’ document containing about 100 terms. At the time, there was only one A-level computing examination and a small number of examinations for 16 year olds. Schools involved in computer studies relied on batch processing, preparing and sending their punched cards to university computing centres. Very few had access to an online terminal connecting to the local authority computer. Microcomputers were virtually unknown in schools. At this time almost all sources of computing expertise were inventing their own vocabulary.

Teachers soon requested that the Glossary be made available to pupils. At the end of 1974 work began on the first ‘public’ edition. This edition appeared in 1977, containing approximately 430 terms of which 260 were defined. Given that the target audience was the 14–16-year-old pupil, it was decided that, as far as possible without compromising technical accuracy, simple English should be used in the explanation of the term – an objective still retained wherever possible.

The popularity of the first BCS Glossary resulted in several reprints and the demand for further editions. These latter editions included new terms that were appearing almost daily. The publication was required to keep pace with the rapid development of technology and with the increasing use of computers in education. It has been the practice of BCS, The Chartered Institute for IT, to update the Glossary approximately every three years.

The Working Party has a changing membership drawing on a wide range of expertise from the computing community.

Development

Early editions of the Glossary were lists of defined terms and hence resembled a dictionary. Over many editions the Working Party steered the Glossary to its present themed and structured layout.

ACKNOWLEDGEMENTS

The Working Party has appreciated the help it has received from members of BCS and, in particular, Computing At School (part of the BCS Academy), for their comments and suggestions about material to include in this edition.

The Working Party also welcomes offers from teachers willing to involve their pupils in a review of this edition and would like to express its thanks to those who have already commented, criticised and made helpful suggestions.

xvi

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Alternatively contact any member of the Working Party through BCS.

DISCLAIMER

Neither BCS, The Chartered Institute for IT, nor contributors to the Glossary shall have any responsibility for loss suffered as a result of reliance on the Glossary, and readers should take legal advice on the application of the terms covered particularly in Section B11, which is intended as an aid to understanding computer security. The Glossary is not a definitive statement of the meaning of terms.
HOW TO USE THIS GLOSSARY

The only place you will find a full alphabetical list of all the terms covered in the Glossary is in the index at the back of the book. The Glossary is not a dictionary and the definitions are not in general arranged alphabetically, even within the sections. Knowing how to use the index is crucial to deriving the maximum value from the Glossary.

For example, looking up ‘virus checking’ in the index leads you to page 166. ‘Virus checking’ is not one of the main definitions on this page, but you will find it under ‘antivirus software’. Your eye should be led to it by the different appearance of the term you are searching for: Virus checking.

**Antivirus software**

*also known as:* vaccine utility  
*including:* antivirus monitor, virus checking, disinfection, quarantine, computer hygiene  

is used to detect and remove viruses.

**Antivirus monitors** are programs loaded permanently in memory continually monitoring the system for the tell-tale patterns indicating the presence of any of the thousands of viruses that have been identified. If any change is detected, the file is prevented from being run and a warning message is given. New data read into the computer is also screened for viruses and appropriate action taken.

**Virus checking** scans the files on a computer system to detect viruses.

**Disinfection** is the removal of viruses that have been detected.

**Quarantine** is the isolation of a file suspected of containing a virus. The file can then be investigated and the operation of the virus can be analysed.

**Computer hygiene** is the term used to describe the prevention and cure of problems caused by viruses.

An alternative way of finding the appropriate entry is to examine the lines immediately after the main entry: *also known as*, *including*. These provide a list of terms covered in that definition.
The Glossary is divided into seven parts as described in the Introduction. Each part is divided into sections defining terms on a particular topic and large sections are further subdivided. It is hoped that readers will take advantage of this structure to browse within sections; to assist in this, each section has a general introduction (see, for example, page 155 to page 156) providing additional information that puts the terms into context.

Within most definitions, you will find references to other terms (for example, ‘virus’) in the first line of the definition. You may wish to read these in conjunction with the definition you are examining.

There are, of course, other ways of using this glossary. Related terms occur together, and you may find it helpful to read through a complete section or subsection.
PART A:  OVERVIEW

A1  General computing terms  3
A2  Using a computer  8
A3  Computing in everyday life  21
A4  Systems design and life cycle  29
A5  Describing systems  47

This section contains general terms that might be met by any computer user. Some sections in Part A are concerned with general issues and others with the design of computer systems. Some sections contain terms that might have been placed in other parts, but they have been kept with other related terms for completeness. Some terms have references to terms in other parts that will provide readers with pointers to other associated terms and concepts.
When you approach computing for the first time you meet a range of terms that people involved in the industry take for granted. These terms are often vague generalisations and may mean different things to different people. They are also applied to a wide range of situations within computing and their precise meaning may vary between contexts.

Most jargon you meet when using a computer is related to the task you are doing. The software used to perform the task is called an application. Examples of applications include word processing, computer art and using a database program. However, there is some jargon that relates to running the computer itself, that is, how you control or operate a computer.

This section provides general definitions of some of the more common computing terms that are either used in a general context or apply across many areas of computing.

**INFORMATION PROCESSING**

**Information processing**

is the organisation, manipulation and distribution of information. As these activities are central to almost every use of computers, the term is in common use to mean almost the same as ‘computing’. See also data and information page 255.

**Information technology (IT)**

*including: ICT (information and communications technology)*

is the application of technology to information processing. The current interest centres on computing, telecommunications and digital electronics.

In the UK schools sector, the preferred term is ICT (information and communications technology).

**Telecommunications**

is a general term describing the communication of information over a distance. The method of communication is normally via a cable, either wire or fibre optic (see page 343) or electromagnetic radiation. See also wireless communication, page 342. Computer data uses the same network as telephone systems.
Computer

is a machine that processes data. It takes data, in digital form, which is processed automatically before being output in some way. It is programmable so that the rules used to process the data can be changed. It is an automatic, programmable, digital data processor. These ideas are expanded in the introduction to Section E1, page 287. The definition excludes the analog computer (page 288).

Computer system

including: configuration

is the complete collection of components (hardware, software, peripherals, power supplies, communications links) making up a single computer installation. The particular choice of components is known as the configuration – different systems may or may not have the same configuration.

Computing

is the use of a computer to manipulate data or control a process. It is also an umbrella term used in higher education to cover the multitude of subjects relating to computers that can be studied.

Embedded system

is the use of a computer system built into a machine of some sort, usually to provide a means of control. The computer system is generally small, often a single microprocessor with very limited functions. The user does not realise that instructions are being carried out by a computer but simply that there are controls to operate the machine. Examples are electronic washing machines, burglar alarms and car engine management systems.

Multimedia

is the presentation of information by a computer system using graphics, animation, sound and text.

Facilities management

also known as: managed services

is the contracting of an organisation’s day-to-day operations to an outside company. The facilities management company employs the staff and runs the operation. Where it is computer operations to be managed, the equipment will usually be sited in the organisation’s own premises, although it may be owned or leased by the facilities management company. The contract for this kind of service will specify what the computer system must provide for the price. This is distinct from outsourcing (see page 5), where a well-defined task will be contracted out.
Outsourcing

is the purchase of services from outside contractors rather than employing staff to
do the tasks. This use of contractors for a well-defined task is distinct from facilities
management (see page 4) where day-to-day operations are involved. Traditionally
large computer organisations have employed many staff such as systems analysts and
developers (see Section B9 Computer personnel). It may be more economic to contract
another organisation to provide these services and not have the expense and complica-
tion of direct employment of staff. With the use of networking, it is possible to outsource
anywhere in the world.

Some of these tasks may be provided by a computer bureau (see below).

Computer bureau

including: data processor

is an organisation that offers a range of computing services for hire (for example, data
preparation, payroll processing). Bureaux usually offer two types of service:

• They provide computing facilities for organisations that do not have any of their
own.

• They also offer specialist services covering vital common operations (for example,
payroll) to organisations that do not have the appropriate piece of applications soft-
ware.

Compare this with facilities management and outsourcing.

Data processor is the name used in the Data Protection Act (1998) (see page 157), for a
computer bureau.

PARTS OF A COMPUTER SYSTEM

Hardware

is the physical part of a computer system – the processor(s), input and output devices,
and storage. This is in contrast to the software (see page 6), which includes application
packages, and the data in the storage.

Storage media

also known as: media

is the collective name for the different types of storage materials (such as compact disc,
solid state, memory card, hard disk and even paper) used to hold data or programs. They
are used either within the computer system or connected to it. See peripherals (see page
6) and Section E3.
Peripheral

also known as: device
including: input device, output device, input/output device (I/O device), storage device
is a piece of equipment (or hardware) that can be connected to the central processing unit. It is used to provide input, output and backing storage for the computer system. No particular peripheral is required by a computer but every computer must have some method of input and output (for example, a washing machine may simply have push buttons for input and actuators, page 118, for output). They are often referred to as follows:

**Input device** is a peripheral unit that can accept data, presented in the appropriate machine-readable form, decode it and transmit it as electrical pulses to the central processing unit.

**Output device** is a peripheral unit that translates signals from the computer into a human-readable form or into a form suitable for reprocessing by the computer at a later stage.

**Input/output device (I/O device)** is a peripheral unit that can be used both as an input device and as an output device. In some instances, 'input/output device' may be two separate devices housed in the same cabinet.

**Storage device** is a peripheral unit that allows the user to store data in an electronic form for a longer period of time and when the computer is switched off. The data can be read only by the computer and is not in human-readable form.

Software

including: applications program, application, applications package, generic software, productivity tool
consists of programs, routines and procedures (together with their associated documentation) that can be run on a computer system.

An **applications program**, frequently abbreviated to **application**, is software designed to carry out a task (such as keeping accounts, editing text) that would need to be carried out even if computers did not exist.

An **applications package** is a complete set of applications programs together with the associated documentation (see user documentation, page 425). Where the application is appropriate to many areas, it is usual to describe it as **generic software** or as a **productivity tool**. For example, **word processing** (see page 367) can be used in personal correspondence, the production of business ‘form letters’, academic research, compilation of glossaries, writing books etc.

See also Section B12 Systems software, **program** on page 212 and Section C4.

Integrated package

also known as: integrated program
is a single piece of software that provides a user with basic information processing functions. It usually includes word processing, spreadsheets and small databases
and may include additional facilities such as charts, a diary and communications. It is designed so that data can be simply moved between the various parts enabling complex tasks to be performed easily.

**Tutorial**

is a program that helps a user to learn about a new application. The tutorial will include a simple explanation of how to use the new system, diagrams and possibly examples the user can try while the tutorial program monitors the user’s progress.
INDEX

1NF (first normal form) 98, 99–100
2NF (second normal form) 100–101, 104
3G 75–76
3GL 238
3NF (third normal form) 101–102, 104
4G 75, 76
4GL 238

A&B signals 406
abbreviations 435–452
abort 234
absolute address 190
absolute code 198
absolute reference 387
abstraction 26
Acceptable Use Policy (AUP) 70
acceptance testing 43
access rights 163
access time 339
  disk access 301
accounting package 427
accumulator 330
ACK (acknowledge) signal 354
ACM (Association of Computing Machinery) 152
acronyms 435–452
action bar 417
active device 120
active system 117
activity diagram 57, 59
actual parameter 210
actuator 118
adaptive maintenance 196
add-on software 173
additive synthesis 410
address 190
  absolute 190
  base 190
  email 87
  IP 79
  relative 190
  in spreadsheet 385
  store 299
address book 87
address bus 329
address calculation 327
address field 195
address modification 327
address register 326
address-generating algorithm 272, 274
addressing
  direct 327
  immediate 327
  indexed 327
  indirect 327
  symbolic 196
ADSL (asymmetric digital subscriber line) 75
ADSR (attack, decay, sustain, release) 407
Advanced Encryption Standard (AES) 164
AES (Advanced Encryption Standard) 164
aggregator 85
Agile development 33
AI (artificial intelligence) 141–142
algebraic notation 190–191
algorithm 191
  address generating 272, 274
  genetic 145
  hashing 272
  LZW 281
  program 191, 192
  RSA 165
  sorting 277
algorithmic thinking 26
Alice 27
alpha channel 392
alpha testing 42
alphanumeric data 263
ALU (arithmetic logic unit) 330
AM (amplitude modulation) 352
American Standard Code for Information Interchange (ASCII) 256, 463–465
amplitude 403, 404
amplitude modulation (AM) 352
analog computer 288
analog signal 343–344
analog synthesizer 412
analog-to-digital (A-to-D) converter 343
analogue sensor 120
AND gate 360
AND operation 106, 194
Android (operating system) 172
animation, computer 398
annotations 370
anonymous FTP 89
anti-virus software 166
anti-virus software 166–167
API (application program interface) 42
app 89

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append 276
application 6
application generation language 238
application program interface (API) 42
application server 135
applications package 6
applications program 6
applications programmer 149
arc 145
archive 111
archive file 275
argument 210
arithmetic logic unit (ALU) 330
arithmetic operator 216
arithmetic register 330
arithmetic shift 331–332
arithmetic unit 330
ARQ (Automatic Repeat Request) 350
array (data structure) 258–260
array (machine-code programming) 190
array bound 260
arrow key 419
article number 112
artificial intelligence (AI) 141–142
ASCII (American Standard Code for Information Interchange) 256, 463–465
assembler 175–176
assembler program 175
assembly language 175, 243
asset manager 151
assignment 192
assistant 425
Association of Computing Machinery (ACM) 152
asymmetric digital subscriber line (ADSL) 75
asynchronous transmission 346
A-to-D (analog-to-digital) converter 343
Atlas 288
ATM (automatic teller machine) 115
attachment 87–88
attack 407
attack, decay, sustain, release (ADSR) 407
attribute 94
audio streaming 392, 411
see also sound
audio controller 412
audit trail 111
AUP (acceptable use policy) 70
authentication 109
authoring language 245–246
authoring tool 245
authorisation 109
authorisation code 163
automated reader 295–296
automatic 287
automatic recalculation 386
Automatic Repeat Request (ARQ) 350
automatic teller machine (ATM) 115
automation 118
auxiliary memory 297
AVCHD 399
AVCIntra 399
backbone 131, 132
backdoor Trojan 167
background job 182
backing store 297, 298, 299
backlit screens 316
backup 115–116
backup file 275
Backus-Naur Form (BNF) 246–247
backward compatible 41
badging 291
bandwidth 349
bank switching 328
code of conduct 153
code of good practice 153
block diagram 48
block structured language 213
blocked 233
blocking factor 261
blog 85
blogger 85
Blu-ray disc (BD) 303
Bluetooth 140
BNF (Backus-Naur Form) 246–247
body text 381
bold 374
bold italic 374
bomb 234
bookmark 83
Boole, George 356
Boolean algebra 356
Boolean data 263
Boolean operator 106, 216
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467
Boolean values 356
boot 171
boot file 171
booting 171
booting up 171
boot script 171
bootstrap 171
bot 83
bottom-up programming 45
bounce 87
bps (bits per second) 344
Bps (bytes per second) 344
branch 204, 257
break
  line 376
  page 376
breaking 202
breakpoint 232
bridge 140
broadband 75, 349
  mobile 75–76
browser 83
bubble jet printer 320
bubble sort 278
bucket 306
buffer 329
  circular 260
    print 329
  buffering 329
bug 230
bulletin board 66
bursting 322
button
  radio 421
  screen 421
bus 324, 329
bus interface 324
bus network 129, 130
business analyst 149
by reference 207, 210
by value 210, 211
byte 11
  status 193
bytes per second (Bps) 344
cache (web pages) 83–84
cache memory 298, 305–306
CAD (computer aided design) 427–428
CAD/CAM (computer aided design/ manufacture) 428
CAL (computer-aided learning) 428
call 208
CAM (computer-assisted manufacturing) 428
camcorder 398
camera
  digital 397
  digital video 398
carbon copy 87
card
  compact flash 398
  credit/debit 115
  expansion 335
  interface 335
  memory 304
  SD 304
  smart 295
  swipe 162, 295
  video capture 399
  video 315
  xD 398
card encoder 295
card reader 295
caret 420
carrier board 335
Carrier Sense Multiple Access/ Collision Detection (CSMA/CD) 354
carrier signal 351
carrier wave 351
carry flag 193
cascading stylesheets (CSS) 251, 379–380
case 374
CASE (computer-aided software engineering) tools 47
case statement 204
cash dispenser 115
cathode ray tube (CRT) 314
CBT (computer-based training) 428
CCITT (Comité Consultatif International Téléphonique et Télégaphique) 79
CD-R (compact disc recordable) 303
CD-ROM (compact disc read-only memory) 303
CD-ROM server 135
CD-RW (compact disc rewritable) 303
cell (memory) 299
cell (spreadsheet) 385
CEng (Chartered Engineer) 154
central node 131
central processing unit (CPU) 323, 324
central processor 324
centred tab 377
centred text 378
certification authority 159
change tracking 370
channel 18
  alpha 392
  colour 392
  music 413
channel number 18
cornerstone 256
character code 256
character data 263
character printer 317, 318–319
character recognition
  magnetic ink 113
  optical 114
character set 256
character styles 379
characters per second (cps) 344
chat 68
chat room 68
check box 421
check digit 110
checksum 111
child nodes 258
chip 338
Chartered Engineer (CEng) 154
Chartered IT Professional (CITP) 154
Chrome 83
cipher 429
circuit switching 347
circular buffer 260
circular queue 260
CISC (Complex Instruction Set Computer) 325
CITP (Chartered IT Professional) 154
class 189
  class diagram 58, 60
Buy the complete book: www.bcs.org/books/glossary
class library 189
class library 189
client side 76
client station 136
client-server network 134
client-server relationship 134
clip art 397
clipboard 19
clock 335
clock mark 113
clock rate 335
clock track 113
closed loop feedback 118
closed subroutine 209
cloud computing 74, 88
cloud storage 67, 299
cluster 131
cluster controller 131
CMI (computer-managed instruction) 428
CML (computer-managed learning) 428
CMOS (complementary metal oxide semiconductor) 304
CMS (colour management system) 311–312
CMYK model 311
CNC (computer numeric control) 119
coaxial cable 342–343
code 191
code breaking 429
code generation 177
code of conduct 153
code of good practice 153
codec 399
coder 149
coding 164
cognitive science 142
cold start 235
collating sequence 256
collision 274
collision detection 354
colour channel 392
colour correction 392
colour management 311–312
colour management system (CMS) 311–312
colour model 310–311
colour palette 310
colour printer 317
colour separation 312
column 385
Comité Consultatif International Téléphonique et Télégraphique (CCITT) 79
command file 178
command line interface 417
command line interpreter 178
command sequence 417
commissioning 41
communications protocol 349–350
compact disc read-only memory (CD-ROM) 303
compact disk recordable (CD-R) 303
compact disk rewritable (CD-RW) 303
compact flash card 398
compatibility 41
compilation 177
compilation error 230
compiler 176–177
complementary metal oxide semiconductor (CMOS) 304
complementation 267–268
completed 234
Complex Instruction Set Computer (CISC) 325
cOMPlex type 270
composite key 262
compress 389
compression
data 281
image 389–390, 391
computational thinking 26
abstraction 26
algorithmic thinking 26
decomposition 26
evaluation 26
generalisation 26
computer 4
analog 288
Complex Instruction Set (CISC) 325
desktop 289
digital 289
fifth-generation 288
first-generation 288
fourth-generation 288
host 137
hybrid 288
laptop 290
mainframe 290
minicomputer 290
notebook 290
personal 289
portable 289
quantum 291
Reduced Instruction Set (RISC) 325
second generation 288
stand-alone 290
supercomputer 290				
tablet 289, 290
third-generation 288
tcomputer abuse 155, 158–159
t computer aided design/ manufacture (CAD/CAM) 428
t computer animation 398
t computer bureau 5
t computer disk 300
t computer engineer 151
t computer engineering 147
t computer generations 287–288
t computer graphics 392
t computer hygiene 167
t computer misuse 159

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469
word length 14
word processing 367
word processor
  computer 291
  software 367–368
word wrap 376
workspace 16
workstation 137
  music 414
World Wide Web Consortium (W3C) 79
World Wide Web (WWW) 79–80
worm 166
WORM (write-once, read-many) 304
write 276
write protection 306–307
write-once, read-many (WORM) 303
WWW (World Wide Web) 79–80
WYSIWYG (what you see is what you get) 19
X.25 350
X.400 350
xD card 398
XDCAM 399
XML 248
XNOR (Exclusive-NOR) gate 363
XOR (Exclusive-OR) gate 362
XOR operation 194
XY plotter 321
YMCK 311
YouTube 67, 68
ZIP files 281
zipping 281
ZMODEM 350
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ABOUT THE AUTHORS
This glossary has been compiled by members of the BCS Academy Glossary Working Party, many of whom are teachers. In creating the glossary, they have drawn heavily upon their many years of experience in the education sector, as well as their detailed knowledge of computing.

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