Character Data (ASCII)

Most computers use 8-bit codes to represent each character. Eight bits together are known as one **byte.** This is sufficient to allow a unique code for all the usual characters, with one bit the leftmost bit, spare. The spare bit may be used either as a **parity bit** or to give an extra 128 characters. In the latter case, if the spare bit is 0, the code represents a normal character; if it is 1, the code represents a character from the **extended character** set.

When you press a key on the keyboard, the corresponding 8-bit code is generated and sent to the computer. When a code is sent to the printer, the corresponding character is printed. **One byte holds** one **character.**

The ASCII code

Over the years, different computer designers have used different sets of codes for representing characters, which led to great difficulty in transferring information from one computer to another. Most personal computers (PCs) nowadays use the ASCII code (American Standard Code for Information Interchange), but many mainframe computers use a code called EBCDIC (Extended Binary Coded Decimal Interchange Code). Most of the ASCII codes are shown below. This table shows the **printable** ASCII codes. There are 32 other, unprintable **control** codes.

Character	ASCII	Char	ASCII	Char	ASCII	Char	ASCII
space	0100000	8	0111000	P	1010000	h	1101000
!	0100001	9	0111001	Q	1010001	i	1101001
“	0100010	:	0111010	R	1010010	i	1101010
£	0100011	;	0111011	S	1010011	k	1101011
$	0100100	<	0111100	T	1010100	l	1101100
%	0100101	=	0111101	U	1010101	m	1101101
&	0100110	>	0111110	V	1010110	n	1101110
`	0100111	?	0111111	W	1010111	o	1101111
(	0101000	@	1000000	X	1011000	p	1110000
)	0101001	A	1000001	Y	1011001	q	1110001
*	0101010	B	1000010	Z	1011010	r	1110010
+	0101011	C	1000011	[	1011011	s	1110011
‘	0101100	D	1000100	\	1011100	t	1110100
-	0101101	E	1000101	]	1011101	u	1110101
.	0101110	F	1000110	^	1011110	v	1110110
/	0101111	G	1000111	_	1011111	w	1110111
0	0110000	H	1001000	‘	1100000	x	1111000
1	0110001	I	1001001	a	1100001	y	1111001
2	0110010	J	1001010	b	1100010	z	1111010
3	0110011	K	1001011	c	1100011	{	1111011
4	0110100	L	1001100	d	1100100	|	1111100
5	0110101	M	1001101	e	1100101	}	1111101
6	0110110	N	1001110	f	1100110	~	1111110
7	0110111	O	1001111	g	1100111	del	1111111