

# KNOWLEDGE ORGANISER :: FLOW CHARTS

Anything can be represented in Binary Code – words, numbers, images, sound

## REPRESENTING CHARACTERS

Alphabetical characters are used to make up words  
 A single letter, number or punctuation is called a **character**  
 Characters can be joined together to form a **string**

Computers cannot process characters directly  
 They can only process binary  
 So each character on the keyboard needs to be converted into binary – called a **Character Set**

## CHARACTER SETS

A **Character Set** is a collection of characters that a computer can recognise from their binary values  
 There are three character sets – **ASCII**, **Extended ASCII** and **Unicode**

## ASCII

**ASCII** is the most common character set for English  
 Any English language character, single digit number, punctuation, space or return can be represented using **7 bits**  
 The eighth bit – a 0 – is added at the start of the binary string  
 ASCII can represent **128 characters**

## Extended ASCII

Extended ASCII is a character set that uses the final eighth bit from ASCII – giving 256 characters  
 The first 128 characters are the same as ASCII  
 Extended ASCII covers most European Languages

## MODEL ANSWER

In ASCII the letter A is represented as 01000001, the letter B as 01000010 and the letter C as 01000011  
 How would the letter D be represented?

*01000100*

## UNICODE

Unicode is a character set that covers every language in the world  
 It uses 16 bits for each character  
 Extended Unicode uses 32 bits for each character

ASCII control characters			
DEC HEX	Simbolo ASCII	(carácter nulo)	(inicio encabezado)
00	00h	NULL	(carácter nulo)
01	01h	SOH	(inicio encabezado)
02	02h	STX	(fin de texto)
03	03h	ETX	(fin de texto)
04	04h	EOT	(fin transmisión)
05	05h	ENQ	(interrogatorio)
06	06h	ACK	(reconocimiento)
07	07h	BEL	(timbre)
08	08h	BS	(retroceso)
09	09h	HT	(tabulador horizontal)
10	0Ah	LF	(salto de línea)
11	0Bh	VT	(tabulador vertical)
12	0Ch	FF	(fin de archivo)
13	0Dh	CR	(retorno de carro)
14	0Eh	SO	(salto de línea)
15	0Fh	SI	(salto de línea)
16	10h	DLE	(datos de escape)
17	11h	DC1	(control de dispositivo 1)
18	12h	DC2	(control de dispositivo 2)
19	13h	DC3	(control de dispositivo 3)
20	14h	DC4	(control de dispositivo 4)
21	15h	NAK	(negativa de recepción)
22	16h	SYN	(sincronización)
23	17h	ETB	(fin de transmisión)
24	18h	CAN	(cancelación)
25	19h	EM	(fin de medio)
26	1Ah	SUB	(sustitución)
27	1Bh	ESC	(escape)
28	1Ch	FS	(separador de archivos)
29	1Dh	GS	(separador de grupo)
30	1Eh	RS	(registro de separador)
31	1Fh	US	(fin de línea)
127	7Fh	DEL	(borrar)

  

ASCII printable characters					
DEC HEX	Simbolo ASCII	DEC HEX	Simbolo ASCII		
32	20h	espacio	33	21h	!
33	21h	!	34	22h	"
34	22h	"	35	23h	#
35	23h	#	36	24h	\$
36	24h	\$	37	25h	%
37	25h	%	38	26h	&
38	26h	&	39	27h	'
39	27h	'	40	28h	(
40	28h	(	41	29h	)
41	29h	)	42	2Ah	*
42	2Ah	*	43	2Bh	+
43	2Bh	+	44	2Ch	,
44	2Ch	,	45	2Dh	-
45	2Dh	-	46	2Eh	.
46	2Eh	.	47	2Fh	/
47	2Fh	/	48	30h	0
48	30h	0	49	31h	1
49	31h	1	50	32h	2
50	32h	2	51	33h	3
51	33h	3	52	34h	4
52	34h	4	53	35h	5
53	35h	5	54	36h	6
54	36h	6	55	37h	7
55	37h	7	56	38h	8
56	38h	8	57	39h	9
57	39h	9	58	3Ah	:
58	3Ah	:	59	3Bh	;
59	3Bh	;	60	3Ch	<
60	3Ch	<	61	3Dh	=
61	3Dh	=	62	3Eh	>
62	3Eh	>	63	3Fh	?
63	3Fh	?			

  

Extended ASCII characters					
DEC HEX	Simbolo	DEC HEX	Simbolo		
128	80h	Ç	129	81h	è
129	81h	è	130	82h	é
130	82h	é	131	83h	ê
131	83h	ê	132	84h	ë
132	84h	ë	133	85h	ä
133	85h	ä	134	86h	å
134	86h	å	135	87h	ç
135	87h	ç	136	88h	è
136	88h	è	137	89h	é
137	89h	é	138	8Ah	ê
138	8Ah	ê	139	8Bh	ë
139	8Bh	ë	140	8Ch	ì
140	8Ch	ì	141	8Dh	í
141	8Dh	í	142	8Eh	î
142	8Eh	î	143	8Fh	ï
143	8Fh	ï	144	90h	ä
144	90h	ä	145	91h	å
145	91h	å	146	92h	æ
146	92h	æ	147	93h	ö
147	93h	ö	148	94h	ø
148	94h	ø	149	95h	ù
149	95h	ù	150	96h	ú
150	96h	ú	151	97h	û
151	97h	û	152	98h	ü
152	98h	ü	153	99h	ý
153	99h	ý	154	9Ah	ÿ
154	9Ah	ÿ	155	9Bh	ÿ
155	9Bh	ÿ	156	9Ch	ÿ
156	9Ch	ÿ	157	9Dh	ÿ
157	9Dh	ÿ	158	9Eh	ÿ
158	9Eh	ÿ	159	9Fh	ÿ

  

Extended ASCII characters					
DEC HEX	Simbolo	DEC HEX	Simbolo		
160	A0h	à	161	A1h	á
161	A1h	á	162	A2h	â
162	A2h	â	163	A3h	ã
163	A3h	ã	164	A4h	ä
164	A4h	ä	165	A5h	å
165	A5h	å	166	A6h	æ
166	A6h	æ	167	A7h	ç
167	A7h	ç	168	A8h	è
168	A8h	è	169	A9h	é
169	A9h	é	170	AAh	ê
170	AAh	ê	171	A Bh	ë
171	A Bh	ë	172	AC h	ì
172	AC h	ì	173	AD h	í
173	AD h	í	174	AE h	î
174	AE h	î	175	AF h	ï
175	AF h	ï	176	B0 h	ä
176	B0 h	ä	177	B1 h	å
177	B1 h	å	178	B2 h	æ
178	B2 h	æ	179	B3 h	ö
179	B3 h	ö	180	B4 h	ø
180	B4 h	ø	181	B5 h	ù
181	B5 h	ù	182	B6 h	ú
182	B6 h	ú	183	B7 h	û
183	B7 h	û	184	B8 h	ü
184	B8 h	ü	185	B9 h	ý
185	B9 h	ý	186	BA h	ÿ
186	BA h	ÿ	187	BB h	ÿ
187	BB h	ÿ	188	BC h	ÿ
188	BC h	ÿ	189	BD h	ÿ
189	BD h	ÿ	190	BE h	ÿ
190	BE h	ÿ	191	BF h	ÿ