Ds

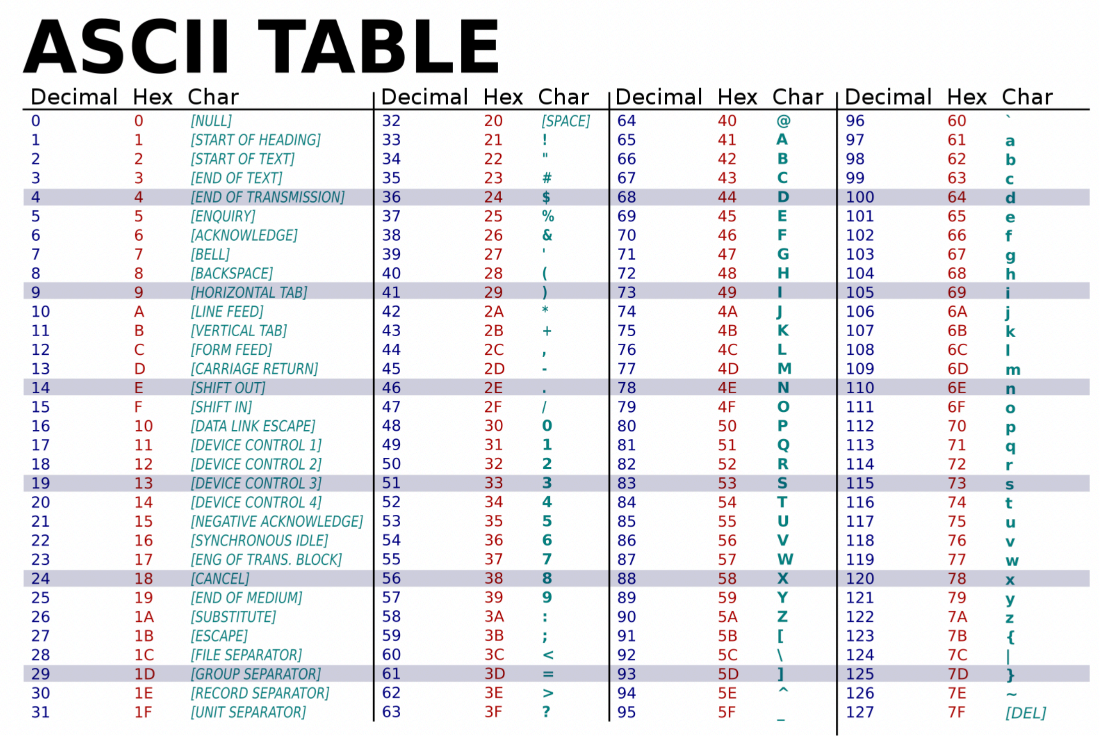
Strings

Ascii codes / character set

- Characters set are set of characters that are supported by a programming language

- As computer only understand binary , we need to first convert the characters into binary format which can then be used by the computers , every character is associated with a number code/ ASCII code which in turn helps the computer to understand our program

- The ASCII table for all characters in the is given below



ASCII TABLE

Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char
0	0	[NULL]	32	20	[SPACE]	64	40	@	96	60	`
1	1	[START OF HEADING]	33	21	!	65	41	A	97	61	a
2	2	[START OF TEXT]	34	22	"	66	42	B	98	62	b
3	3	[END OF TEXT]	35	23	#	67	43	C	99	63	c
4	4	[END OF TRANSMISSION]	36	24	$	68	44	D	100	64	d
5	5	[ENQUIRY]	37	25	%	69	45	E	101	65	e
6	6	[ACKNOWLEDGE]	38	26	&	70	46	F	102	66	f
7	7	[BELL]	39	27	'	71	47	G	103	67	g
8	8	[BACKSPACE]	40	28	(	72	48	H	104	68	h
9	9	[HORIZONTAL TAB]	41	29	)	73	49	I	105	69	i
10	A	[LINE FEED]	42	2A	*	74	4A	J	106	6A	j
11	B	[VERTICAL TAB]	43	2B	+	75	4B	K	107	6B	k
12	C	[FORM FEED]	44	2C	,	76	4C	L	108	6C	l
13	D	[CARRIAGE RETURN]	45	2D	-	77	4D	M	109	6D	m
14	E	[SHIFT OUT]	46	2E	.	78	4E	N	110	6E	n
15	F	[SHIFT IN]	47	2F	/	79	4F	O	111	6F	o
16	10	[DATA LINK ESCAPE]	48	30	0	80	50	P	112	70	p
17	11	[DEVICE CONTROL 1]	49	31	1	81	51	Q	113	71	q
18	12	[DEVICE CONTROL 2]	50	32	2	82	52	R	114	72	r
19	13	[DEVICE CONTROL 3]	51	33	3	83	53	S	115	73	s
20	14	[DEVICE CONTROL 4]	52	34	4	84	54	T	116	74	t
21	15	[NEGATIVE ACKNOWLEDGE]	53	35	5	85	55	U	117	75	u
22	16	[SYNCHRONOUS IDLE]	54	36	6	86	56	V	118	76	v
23	17	[ENG OF TRANS. BLOCK]	55	37	7	87	57	W	119	77	w
24	18	[CANCEL]	56	38	8	88	58	X	120	78	x
25	19	[END OF MEDIUM]	57	39	9	89	59	Y	121	79	y
26	1A	[SUBSTITUTE]	58	3A	:	90	5A	Z	122	7A	z
27	1B	[ESCAPE]	59	3B	;	91	5B	[	123	7B	{
28	1C	[FILE SEPARATOR]	60	3C	<	92	5C	\	124	7C	|
29	1D	[GROUP SEPARATOR]	61	3D	=	93	5D	]	125	7D	}
30	1E	[RECORD SEPARATOR]	62	3E	>	94	5E	^	126	7E	~
31	1F	[UNIT SEPARATOR]	63	3F	?	95	5F	_	127	7F	[DEL]

- ASCII character is stored in 1 byte in the memory
- UNICODE is for all the languages , so ASCII codes are the sub codes of UNICODE
- Unicode takes 2 bytes of memory (16 bits)
- Unicodes codes are represented in hexadecimal format
- A character is define and initialise as follows

```
Char temp;

temp = ‘A’;        ✓

temp =  “A”;       ✗

temp = ‘AB’;       ✗

temp = A;          ✗

printf( “%c” , temp );        // in C language

Cout<<temp;                   // in c++ langage
```

- A character Array can be define and initialise as follows

char x[5] ; ✓

char x[5] = {‘A’, ‘B’, ‘C’, ‘D’, ‘E’}; ✓

char x[ ] = {‘A’, ‘B’, ‘C’, ‘D’, ‘E’}; ✓

char x[5] = { 65,66,67,68,69}; ✓

char x[5] = {‘A’ , ‘B’}; ✓

- An array of characters are nothing but strings

- \0 is used to define the end of string or end of character , it is also know as string delimiter, end of string char , NULL char or string terminator

- Creating and initialising of string can be done as follows

char name[10] = {‘J’, ‘O’, ‘H’, ‘N’, ‘\0’}; ✓

char name[ ] = {‘J’, ‘O’, ‘H’, ‘N’, ‘\0’}; ✓

char name[ ] = {‘’John”}; ✓