

Ch 04. Data Type

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🏷 태그	

▼ Index

- 01. PDT; Primitive Data Type
- 02. 수의 표현 (진법)
- 03. Casting (형 변환)
- 04. 문자 자료형 (char, 수치 자료형)

01. PDT; Primitive Data Type

≠ UDDT; User Defined Data Type

1bit
☐ 0,1 을 저장하는 최소의 단위

8bit = 1byte
☐☐☐☐☐☐☐☐ $2^8=256$

크기	1byte	2byte	4byte	8byte
논리형	boolean			
문자형		char		
정수형	byte	short	int	long
실수형			float	double

byte: $-2^7(-128) \sim 2^7-1(127)$
S 7bit
MSB: 0(양수), 1(음수)

short: $-2^{15}(-32,768) \sim 2^{15}-1(32,767)$
S 15bit

char: $0 \sim 2^{16}-1(0 \sim 65,535)$
16bit

int: $-2^{31}(-2,147,483,648) \sim 2^{31}-1(2,147,483,647)$
S 31bit

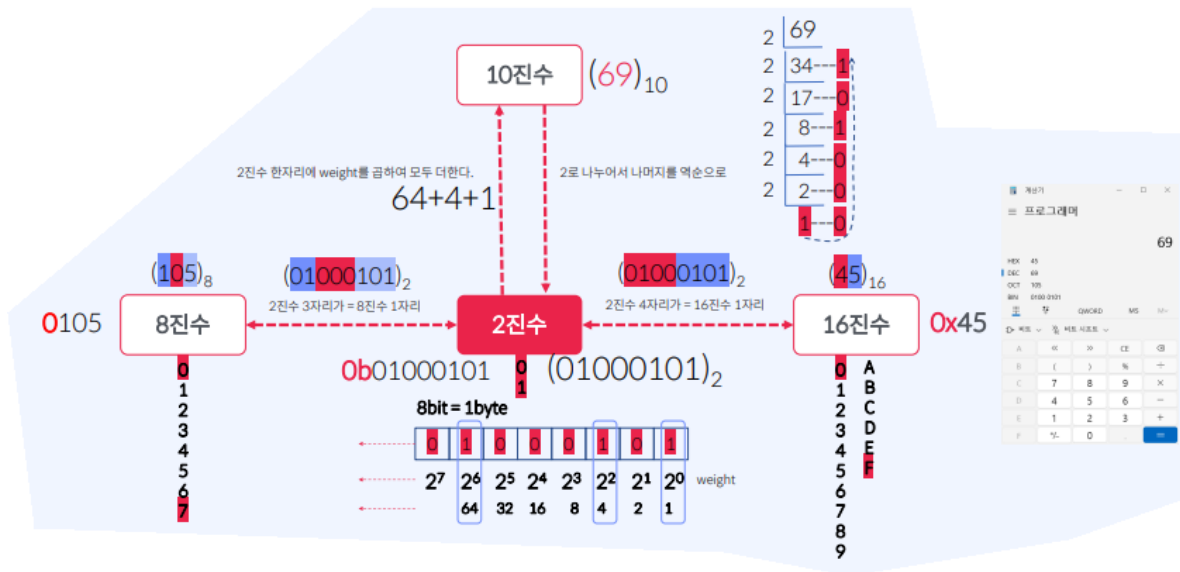
long: $-2^{63}(-9,223,372,036,854,775,808) \sim 2^{63}-1(9,223,372,036,854,775,807)$
S 63bit

* 부동소수점(浮動小數點, floating point)

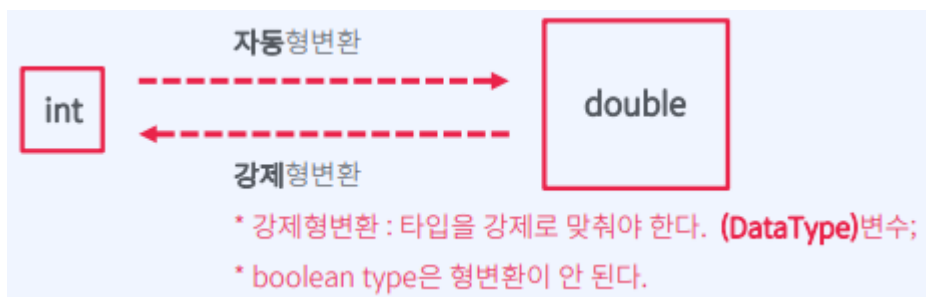
float: 4byte
S e(8) m(23)
지수(exponent) 가수(fraction/mantissa)
예) $21.8125 = 0.218125(\text{지수}) \times 10^2(\text{가수})$

double: 8byte
S e(11) m(52)

02. 수의 표현 (진법)



03. Casting (형 변환)



- 묵시적 형 변환 (자동 형 변환)
 - Small Type → Big Type
 - Ex) byte → int
- 명시적 형 변환 (강제 형 변환)
 - Big Type → Small type
 - Ex) int → byte
 - 데이터 손실 발생 가능성 있음

04. 문자 자료형 (char, 수치 자료형)

아스키코드(ASCII, 27bit=128)

DEC	HEX	OCT	Char	DEC	HEX	OCT	Char	DEC	HEX	OCT	Char
0	00	000	Ctrl-G NUL	43	2B	053	.	86	56	126	V
1	01	001	Ctrl-A SOH	44	2C	054	,	87	57	127	W
2	02	002	Ctrl-B STX	45	2D	055	-	88	58	130	X
3	03	003	Ctrl-C ETX	46	2E	056	-	89	59	131	Y
4	04	004	Ctrl-D EOT	47	2F	057	/	90	5A	132	Z
5	05	005	Ctrl-E ENQ	48	30	060	[	91	5B	133	{
6	06	006	Ctrl-F ACK	49	31	061	\	92	5C	134	|
7	07	007	Ctrl-G BEL	50	32	062	]	93	5D	135	}
8	08	010	Ctrl-H BS	51	33	063	^	94	5E	136	~
9	09	011	Ctrl-I HT	52	34	064	_	95	5F	137	-
10	0A	012	Ctrl-J LF	53	35	065	`	96	60	140	~
11	0B	013	Ctrl-K VT	54	36	066	a	97	61	141	~
12	0C	014	Ctrl-L FF	55	37	067	b	98	62	142	~
13	0D	015	Ctrl-M CR	56	38	070	c	99	63	143	~
14	0E	016	Ctrl-N SO	57	39	071	d	100	64	144	~
15	0F	017	Ctrl-O SI	58	3A	072	e	101	65	145	~
16	10	020	Ctrl-P DLE	59	3B	073	f	102	66	146	~
17	11	021	Ctrl-Q DC1	60	3C	074	g	103	67	147	~
18	12	022	Ctrl-R DC2	61	3D	075	h	104	68	150	~
19	13	023	Ctrl-S DC3	62	3E	076	i	105	69	151	~
20	14	024	Ctrl-T DC4	63	3F	077	j	106	6A	152	~
21	15	025	Ctrl-U NAK	64	40	100	k	107	6B	153	~
22	16	026	Ctrl-V SYN	65	41	101	l	108	6C	154	~
23	17	027	Ctrl-W ETB	66	42	102	m	109	6D	155	~
24	18	030	Ctrl-X CAN	67	43	103	n	110	6E	156	~
25	19	031	Ctrl-Y EM	68	44	104	o	111	6F	157	~
26	1A	032	Ctrl-Z SUB	69	45	105	p	112	70	160	~
27	1B	033	Ctrl-ESC	70	46	106	q	113	71	161	~
28	1C	034	Ctrl-WS FS	71	47	107	r	114	72	162	~
29	1D	035	Ctrl-L GS	72	48	110	s	115	73	163	~
30	1E	036	Ctrl-R RS	73	49	111	t	116	74	164	~
31	1F	037	Ctrl-UB	74	4A	112	u	117	75	165	~
32	20	040	Space	75	4B	113	v	118	76	166	~
33	21	041	!	76	4C	114	w	119	77	167	~
34	22	042	"	77	4D	115	x	120	78	170	~
35	23	043	#	78	4E	116	y	121	79	171	~
36	24	044	\$	79	4F	117	z	122	7A	172	~
37	25	045	%	80	50	120	[	123	7B	173	~
38	26	046	&	81	51	121	\	124	7C	174	~
39	27	047	'	82	52	122	]	125	7D	175	~
40	28	050	(	83	53	123	^	126	7E	176	~
41	29	051	)	84	54	124	_	127	7F	177	DEL
42	2A	052	*	85	55	125	~				

'A' 65
'a' 97

유니코드(Unicode, UTF-8, 2byte, 216bit=65,536)

UNICODE HANGUL SYLLABLES

44032: ㄱㅏ ㄱㅑ ㄱㅓ ㄱㅕ ㄱㅗ ㄱㅛ ㄱㅜ ㄱㅠ ㄱㅡ ㄱㅣ 44039
44060: ㄴㅏ ㄴㅑ ㄴㅓ ㄴㅕ ㄴㅗ ㄴㅛ ㄴㅜ ㄴㅠ ㄴㅡ ㄴㅣ 44067
44088: ㄷㅏ ㄷㅑ ㄷㅓ ㄷㅕ ㄷㅗ ㄷㅛ ㄷㅜ ㄷㅠ ㄷㅡ ㄷㅣ 44115
44116: ㄹㅏ ㄹㅑ ㄹㅓ ㄹㅕ ㄹㅗ ㄹㅛ ㄹㅜ ㄹㅠ ㄹㅡ ㄹㅣ 44143
44144: ㅊㅏ ㅊㅑ ㅊㅓ ㅊㅕ ㅊㅗ ㅊㅛ ㅊㅜ ㅊㅠ ㅊㅡ ㅊㅣ 44171
44172: ㅋㅏ ㅋㅑ ㅋㅓ ㅋㅕ ㅋㅗ ㅋㅛ ㅋㅜ ㅋㅠ ㅋㅡ ㅋㅣ 44199
44200: ㆁㅏ ㆁㅑ ㆁㅓ ㆁㅕ ㆁㅗ ㆁㅛ ㆁㅜ ㆁㅠ ㆁㅡ ㆁㅣ 44227
44228: ㅅㅏ ㅅㅑ ㅅㅓ ㅅㅕ ㅅㅗ ㅅㅛ ㅅㅜ ㅅㅠ ㅅㅡ ㅅㅣ 44255
44256: ㅇㅏ ㅇㅑ ㅇㅓ ㅇㅕ ㅇㅗ ㅇㅛ ㅇㅜ ㅇㅠ ㅇㅡ ㅇㅣ 44283
44284: ㅈㅏ ㅈㅑ ㅈㅓ ㅈㅕ ㅈㅗ ㅈㅛ ㅈㅜ ㅈㅠ ㅈㅡ ㅈㅣ 44311
44312: ㅊㅏ ㅊㅑ ㅊㅓ ㅊㅕ ㅊㅗ ㅊㅛ ㅊㅜ ㅊㅠ ㅊㅡ ㅊㅣ 44339
44340: ㅋㅏ ㅋㅑ ㅋㅓ ㅋㅕ ㅋㅗ ㅋㅛ ㅋㅜ ㅋㅠ ㅋㅡ ㅋㅣ 44367
44368: ㆁㅏ ㆁㅑ ㆁㅓ ㆁㅕ ㆁㅗ ㆁㅛ ㆁㅜ ㆁㅠ ㆁㅡ ㆁㅣ 44395
44868: ㅅㅏ ㅅㅑ ㅅㅓ ㅅㅕ ㅅㅗ ㅅㅛ ㅅㅜ ㅅㅠ ㅅㅡ ㅅㅣ 54895
54896: ㅈㅏ ㅈㅑ ㅈㅓ ㅈㅕ ㅈㅗ ㅈㅛ ㅈㅜ ㅈㅠ ㅈㅡ ㅈㅣ 54923
54924: ㅊㅏ ㅊㅑ ㅊㅓ ㅊㅕ ㅊㅗ ㅊㅛ ㅊㅜ ㅊㅠ ㅊㅡ ㅊㅣ 54951
54952: ㅋㅏ ㅋㅑ ㅋㅓ ㅋㅕ ㅋㅗ ㅋㅛ ㅋㅜ ㅋㅠ ㅋㅡ ㅋㅣ 54979
54980: ㆁㅏ ㆁㅑ ㆁㅓ ㆁㅕ ㆁㅗ ㆁㅛ ㆁㅜ ㆁㅠ ㆁㅡ ㆁㅣ 55007
55008: ㅅㅏ ㅅㅑ ㅅㅓ ㅅㅕ ㅅㅗ ㅅㅛ ㅅㅜ ㅅㅠ ㅅㅡ ㅅㅣ 55035
55036: ㅈㅏ ㅈㅑ ㅈㅓ ㅈㅕ ㅈㅗ ㅈㅛ ㅈㅜ ㅈㅠ ㅈㅡ ㅈㅣ 55063
55064: ㅊㅏ ㅊㅑ ㅊㅓ ㅊㅕ ㅊㅗ ㅊㅛ ㅊㅜ ㅊㅠ ㅊㅡ ㅊㅣ 55091
55092: ㅋㅏ ㅋㅑ ㅋㅓ ㅋㅕ ㅋㅗ ㅋㅛ ㅋㅜ ㅋㅠ ㅋㅡ ㅋㅣ 55119
55120: ㆁㅏ ㆁㅑ ㆁㅓ ㆁㅕ ㆁㅗ ㆁㅛ ㆁㅜ ㆁㅠ ㆁㅡ ㆁㅣ 55147
55148: ㅅㅏ ㅅㅑ ㅅㅓ ㅅㅕ ㅅㅗ ㅅㅛ ㅅㅜ ㅅㅠ ㅅㅡ ㅅㅣ 55175
55176: ㅈㅏ ㅈㅑ ㅈㅓ ㅈㅕ ㅈㅗ ㅈㅛ ㅈㅜ ㅈㅠ ㅈㅡ ㅈㅣ 55203

'가' 44032
'ㄱAC00'(유니코드)

대문자와 소문자의 차이 값 65 97 32