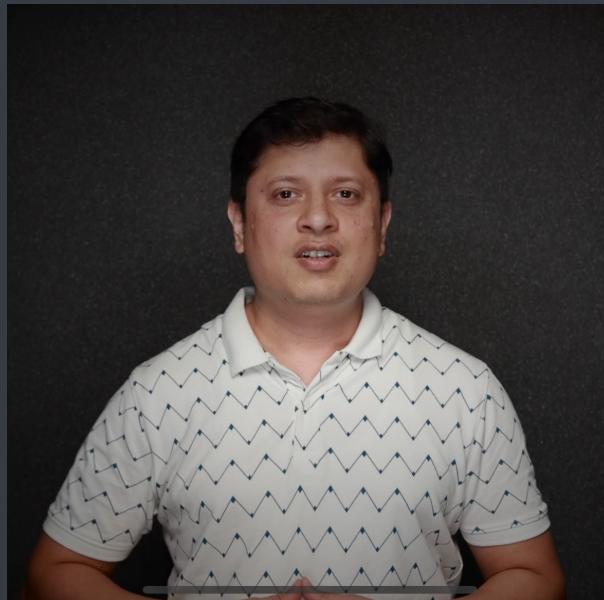


Full stack web development using python

Type conversion and number system



Saurabh Shukla (MySirG)

Agenda

- ① Type conversion
- ② Number System
- ③ Conversion of number system
- ④ Unicode
- ⑤ Taking input from user.

Type Conversion

$a=5 \rightarrow \text{int}$

$b="5" \rightarrow \text{str}$

$a+b$ int + str Error

$a+\text{int}(b)$ int + int No error

10 $\rightarrow \text{int}$

$\text{str}(a)+b$ str + str No error

"55" $\rightarrow \text{str}$

Type Conversion functions

int()

float()

complex()

bool()

str()

Number System

Binary Number System - 0, 1

Octal Number System - 0, 1, 2, 3, 4, 5, 6, 7

Decimal Number System - 0, 1, 2, 3, 4, 5, 6, 7, 8, 9

Hexadecimal Number System - 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C
D, E, F

$(213)_8$

$$2 \times 8^2 + 1 \times 8^1 + 3 \times 8^0 = (139)_{10}$$

$$\begin{aligned}(356)_{10} &= 3 \times 10^2 + 5 \times 10^1 + 6 \times 10^0 \\ &= 300 + 50 + 6 \\ &= (356)_{10}\end{aligned}$$

Counting

Dec	Oct	Hex	Bin	Dec	Oct	Hex	Bin
0	0	0	0	16	20	10	10000
1	1	1	1	17	21	11	10001
2	2	2	10	18	22	12	10010
3	3	3	11	19	23	13	10011
4	4	4	100	20	24	14	10100
5	5	5	101	21	25	15	10101
6	6	6	110	22	26	16	10110
7	7	7	111	23	27	17	10111
8	10	8	1000	24	30	18	11000
9	11	9	1001	25	31	19	11001
10	12	A	1010	26	32	1A	11010
11	13	B	1011	27	33	1B	11011
12	14	C	1100	28	34	1C	11100
13	15	D	1101	29	35	1D	11101
14	16	E	1110	30	36	1E	11110
15	17	F	1111				

Conversion of Number System

	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0	8^2	8^1	8^0	
	128	64	32	16	8	4	2	1	64	8	1	
25 \rightarrow				1	1	0	0	1		3	1	
72 \rightarrow			1	0	0	1	0	0	0	1	1	0
112 \rightarrow		1	1	1	0	0	0	0		1	6	0
44 \leftarrow			1	0	1	1	0	0		5	4	

$x = 25$

$\text{bin}(x) \rightarrow '0b11001'$

$\text{oct}(x) \rightarrow '0o31'$

$\text{hex}(x) \rightarrow '0x19'$

$x = 0b11001$

$x = 0o31$

$x = 0x19$

Unicode

The unicode is character encoding, and its goal is to replace the existing character sets with its standard UTF.

UTF - Unicode Transformation Format

UTF-8 is the most commonly used character encoding.

It is also backward compatible with ASCII

character to unicode

$x = 'A'$

$\text{ord}(x) \rightarrow 65$

unicode to character

$x = 65$

$\text{chr}(x) \rightarrow 'A'$

Taking Input from User

input()

- input() can take at most one argument of str type
- input() always return str type value