

## \* number system

- ↳ decimal  $\rightarrow 10 - [0, 9]$
- ↳ Binary  $\rightarrow 2 - [0, 1]$
- ↳ Octal  $\rightarrow 8 - [0, 7]$

39  $\rightarrow$

$\begin{array}{r} 39 \\ \hline 2 \end{array}$ $\begin{array}{r} 19 \\ \hline 2 \end{array}$ $\begin{array}{r} 9 \\ \hline 2 \end{array}$ $\begin{array}{r} 4 \\ \hline 2 \end{array}$ $\begin{array}{r} 2 \\ \hline 2 \end{array}$ $\begin{array}{r} 1 \\ \hline 2 \end{array}$ $\begin{array}{r} 0 \\ \hline \end{array}$	$- 1 \times 10^0$ $- 1 \times 10^1$ $- 1 \times 10^2$ $- 0 \times 10^3$ $- 0 \times 10^4$ $- 1 \times 10^5$	$100111$  $100111$
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$\rightarrow 1 \times 10^0 + 1 \times 10^1 + 1 \times 10^2 + 0 \times 10^3 + 0 \times 10^4 + 1 \times 10^5 + 1 \times 10^6$

$100000$

$10000$

$1000$

$100$

$10$

$10^0$

$mul = 1$

$sum = 0$

while( $n > 0$ ) {

$rem = n \% 2$   
 $sum = sum + rem * mul$   
 $n = n / 2$   
 $mul = mul * 10$

}

$$\begin{array}{r} 5 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 2 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 1 \\ \hline 2 \end{array}$$

$$\begin{array}{r} 0 \\ \hline 0 \end{array}$$

$101$

des number      zum sum <sup>power++</sup>

10	1 0 0 1 1	$\rightarrow 1 \times 2^0 = 1$
10	0 0 1 1	$\rightarrow 1 \times 2^1 = 2$
10	0 0 1	$\rightarrow 1 \times 2^2 = 4$
10	0 0	$\rightarrow 0 \times 2^3 = 0$
10	0	$\rightarrow 0 \times 2^4 = 0$
10	0	$\rightarrow 1 \times 2^5 = 32$
		<u>39</u>

25

$\rightarrow 1$   
 $\rightarrow 1$   
 $\rightarrow 121$   
 $\rightarrow 1331$   
 $\rightarrow 14641$   
 15101051