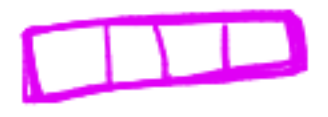
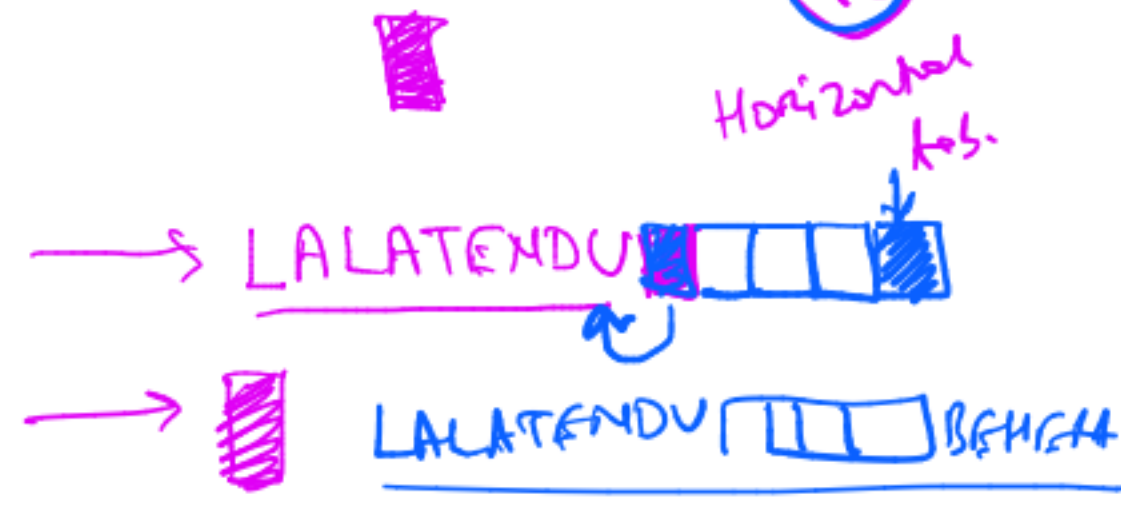


1n
Next/New line

1t
Horizontal tab



BEHEKA

1b

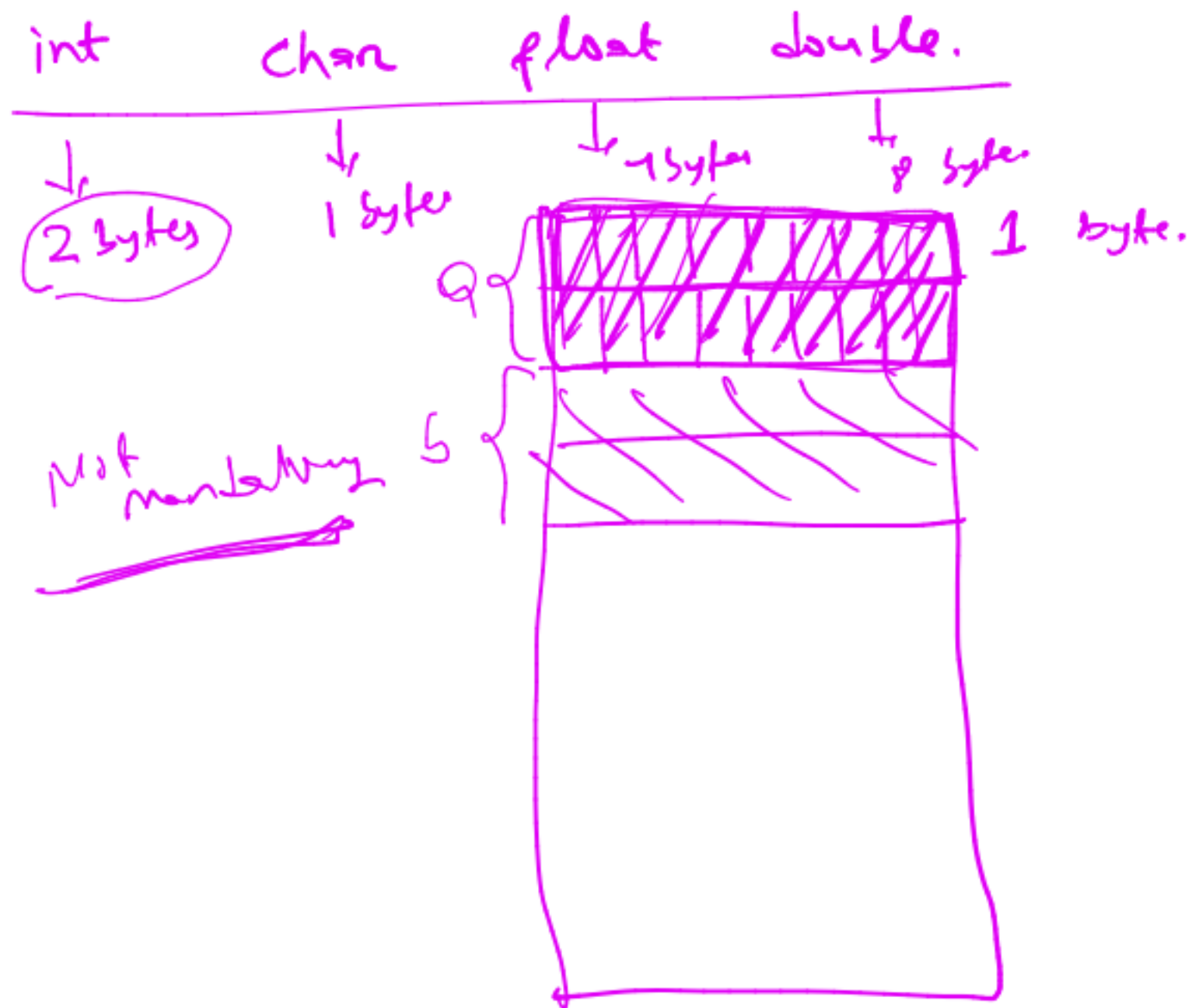
NITJ 1bC

NITJ C

NITC

NITJ 1b
NITJ J

1a
belu
printf (" LALATENDU (1a));
no_name.c



`int a, b;`



(39)

0-9 → (10)

binary

place value
face value

$$\begin{array}{r} 2 \overline{) 39} \\ 2 \overline{) 19} - 1 \\ 2 \overline{) 9} - 1 \\ 2 \overline{) 4} - 1 \\ 2 \overline{) 2} - 0 \\ 2 \overline{) 1} - 0 \\ \underline{0} - 1 \end{array}$$

$$3 \times 10^3 + 9 \times 10^2 + 4 \times 10^1 + 1 \times 10^0 \cdot 3 \times 10^{-1} + 2 \times 10^{-2}$$

Diagram showing place values and face values for the decimal number 3941.02. The digits are aligned with their respective powers of 10: 3 at 10^3 , 9 at 10^2 , 4 at 10^1 , 1 at 10^0 , 3 at 10^{-1} , and 2 at 10^{-2} . A box highlights the digits 4, 1, 3, and 2, which correspond to the face values 40, 10, 30, and 20 respectively.

$$3 \times 10^3 + 4 \times 10^2 + 9 \times 10^1 + 1 \times 10^0$$

40

10

0-1 → (2)

$$(39)_{10} = (100111)_2$$

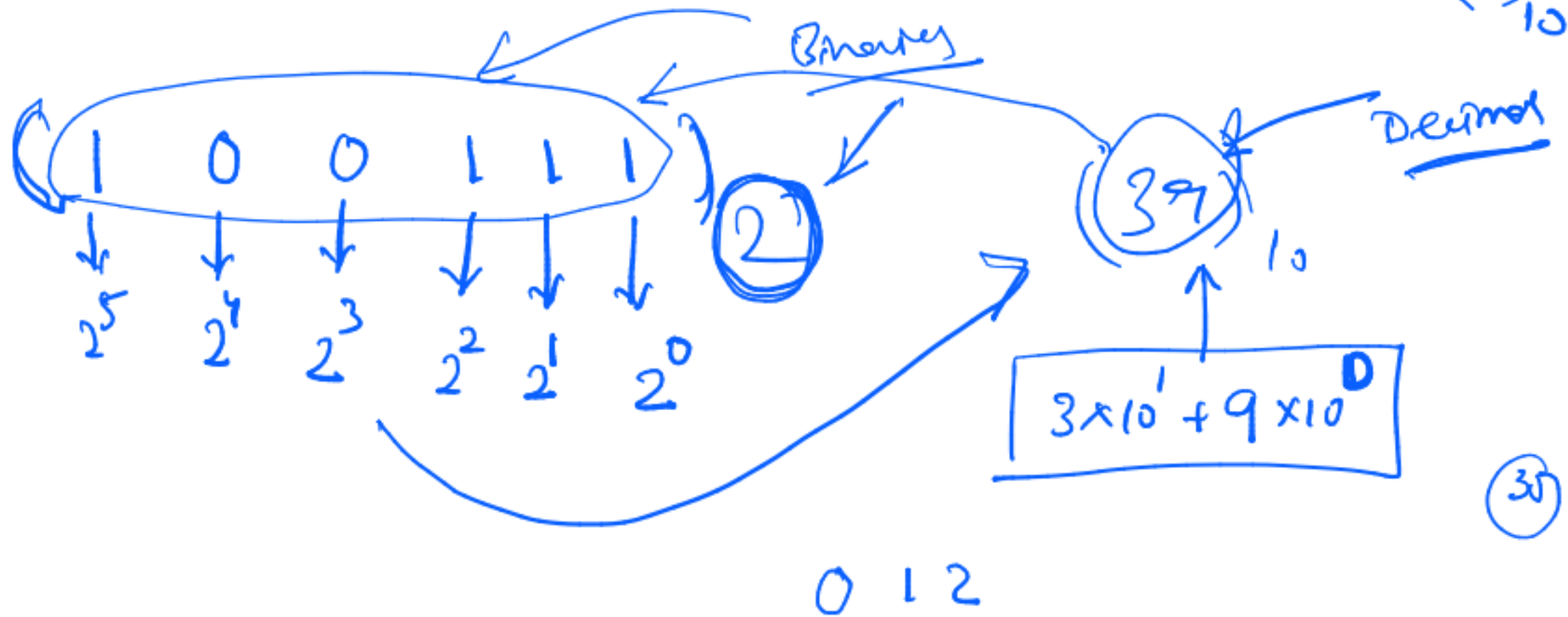
Diagram showing the binary representation of 39. The binary digits 1, 0, 0, 1, 1, 1 are shown in a sequence. Below the sequence, the digits 3, 9, 4, 1 are circled and labeled with their face values: 3000, 40, 10, and 1. The entire sequence is labeled with a subscript 2.

$$(100111)_2$$

$$1 \times 2^5 + 0 \times 2^4 + 0 \times 2^3 + 1 \times 2^2 + 1 \times 2^1 + 1 \times 2^0$$

$$32 + 0 + 0 + 4 + 2 + 1$$

$$= (39)_{10}$$



Octal (8) 3-bits

0-7

0 - 000
1 - 001
2 - 010
3 - 011
4 - 100
5 - 101
6 - 110
7 - 111

8 | 341
8 | 42-5
8 | 5-2
0-5

(525)₈

$$\underline{5 \times 8^2 + 2 \times 8^1 + 5 \times 8^0}$$

111 $\rightarrow \odot$
 $\uparrow \uparrow \uparrow$
4 2 1 = 7

Hexadecimal (16)

0-15

10-15

0-9
10-A
11-B
12-C
13-D
14-E
15-F

16 | 341
16 | 21-5
16 | 1-5
0-1

(155)₁₆

$$\underline{1 \times 16^2 + 5 \times 16^1 + 5 \times 16^0}$$

$$\left(\overline{001} \overline{001111011101} \right)_2$$

$$(1735)_8$$

$$(11735)_8$$

$$\left(\overline{0001} \overline{001111011101} \right)_2$$

$$(13DD)_{16}$$



$$\overline{0001} \overline{001111011101}$$

$$\boxed{110111}$$

$$8 \ 4 \ 2 \ 1$$

$$2^2 \ 2^0$$

$$8^1 + 8^0$$

$$\text{Octal} - \boxed{3514}_8$$

$$\text{Hexadecimal} - \boxed{14D4}_{16}$$

$$0 - 0000$$

$$1 - 0001$$

$$2 - 0010$$

$$3 - 0011$$

$$4 - 0100$$

$$5 - 0101$$

$$6 - 0110$$

$$7 - 0111$$

$$8 - 1000$$

$$9 - 1001$$

$$A - 1010$$

$$B - 1011$$

$$C - 1100$$

$$D - 1101$$

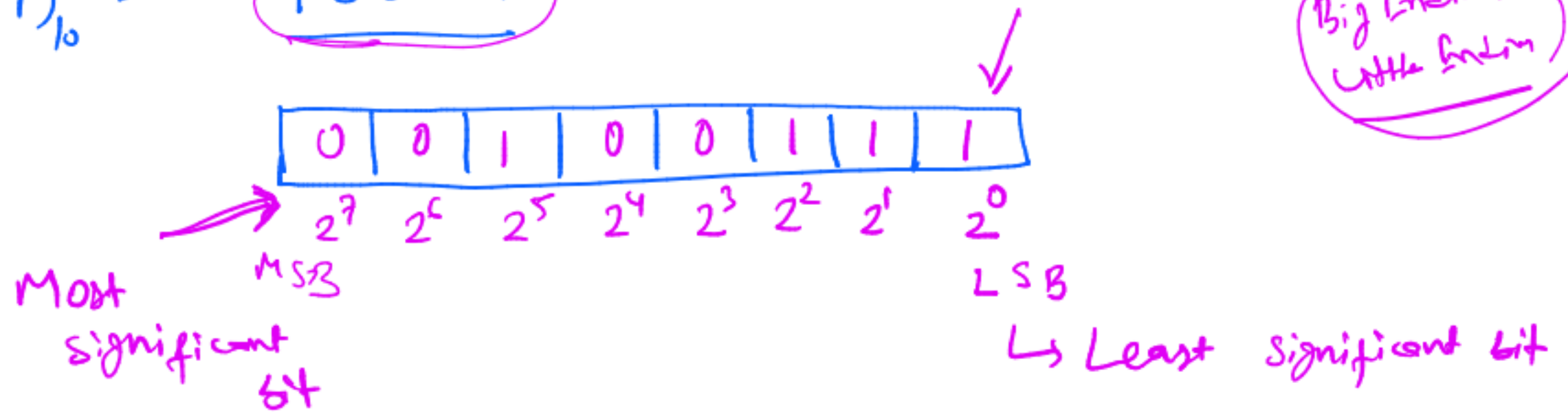
$$E - 1110$$

$$F - 1111$$

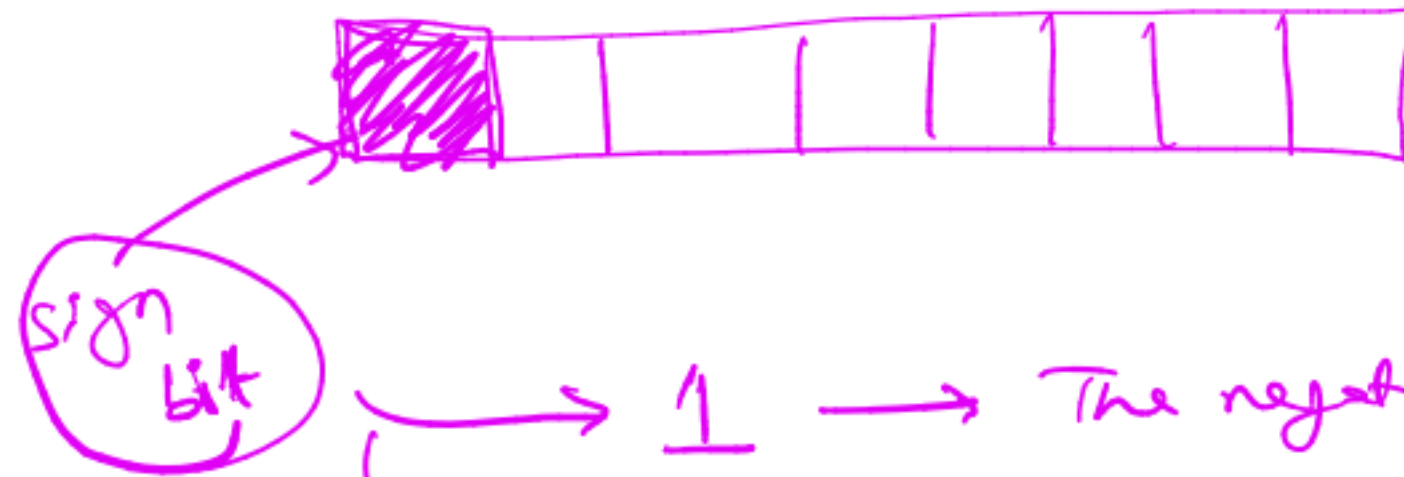
$$(39)_{10} =$$

100111

Big Endian
Little Endian



-5



1 → The negative number.

0 → The positive number.



$$0 + 0 = 0$$

$$0 + 1 = 1$$

$$1 + 1 = 0$$

→ Carry 1

$$10 + 1 = 1$$

→ Carry 1

(10)

(11)

$$\begin{array}{r} 10 \\ - 1 \\ \hline 11 \end{array}$$

$$\begin{array}{r} 1 \\ - 1 \\ \hline 0 \end{array}$$

(10)

$$\begin{array}{r} 38 \\ - 57 \\ \hline 5 \end{array}$$

$$\begin{array}{r} 10 \\ - 1 \\ \hline 9 \end{array}$$

(1)

0	0	0	0
1	0	0	0
1	1	1	1

(-7)

1	0	1	1
---	---	---	---

0	1	0	0
---	---	---	---

-0	0	1	1
----	---	---	---

+0	1	1	1
----	---	---	---

(+0 -0)

+0

-0

2's complement

+7

-7

+0

-0

1's complement

(1011)

(0100)

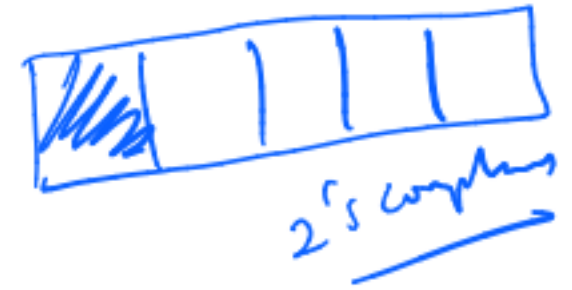
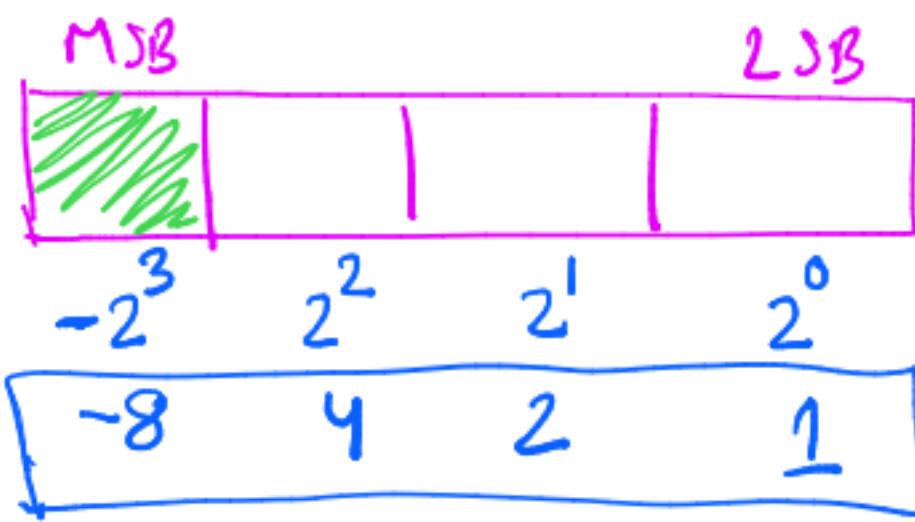
2's complement

(0100)

(0101)

(-3)

(+4)



4 - 5th

-1

0

16

$\frac{-8}{\uparrow}$

$\frac{+7}{\uparrow}$

no of
bits

$\leftarrow n-1$
-2

$n-1$
2 -1

7 - 5th

-64
 -2^6

$+63$
 $+2^6 - 1$

