(i)   N = 123456

r	N
0 -/. 6 = 0	123456.
1 -/. 6 = 1	234561
2 -/. 6 = 2	345612.
3 -/. 6 = 3	456123
4 -/. 6 = 4	561234
5 -/. 6 = 5	612345
6 -/. 6 = 0	123456
7 -/. 6 = 1	234561
8 -/. 6 = 2	345612.
9 -/. 6 = 3	456123
10 -/. 6 = 4	561234
11 -/. 6 = 5	612345
12 -/. 6 = 0	123456

	-/. 6	
-6 + 6		= 0
-5 + 6		= 1
(-4 + 6		= (2)
-3 + 6		= 3
-2 + 6		= 4
-1 + 6		= 5
0 + 6		= 0
1 + 6		= 1
2 + 6		= 2

$$\frac{3+6}{4+6} \quad\Big|\quad = 9$$
$$5+6 \qquad\qquad = 5$$

$$(N, K) \qquad , \quad N = 123456$$
$$D = 6$$

$$K = (K + D) \gamma \cdot D = \underline{\underline{K'}}$$

$$\boxed{\begin{array}{l} c\,t\gamma + 6 = \text{sidbar} \\ c\,t\gamma + \sim = \text{torminal} \end{array}}$$

$$d = 9 \quad, \quad K = -19$$

$$\boxed{\quad K \circ \mathfrak{z} \circ \underline{d} \quad = \quad \pm [\,0,\, d-1\,]\quad}$$

$$-13 \gamma \cdot 9 \quad =$$
$$(-12 - 1) \cdot 9 \cdot 9 = \quad -12 \gamma \cdot 9 - 1 \underline{\gamma \cdot 9}$$

$$= \quad 0 \ + \ -\boxed{(1 \div 9)}$$

$$= \quad -1$$

correct eq: $\quad (K \div d + d) \div d$

EX: $\quad (13 \div 9 + 3) \div 3$ $\qquad\qquad$ $K = 13, \ d = 3$
$$= \quad (1 + 3) \div 3$$
$$= \quad 1$$

EX:2 $= \quad (-13 \div 9 + 3) \div 9$ $\qquad$ $K = -13, \ d = 9$
$$(-1 + 3) \div 3$$
$$2 \div 3$$
$$2$$

$N = \quad \underline{5\ 6\ 7\ 8\ 9\ 4\ 3} \qquad\qquad K = 1$
$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad K = 2$
$\qquad\qquad\qquad \underline{567} \quad \underline{8943} \qquad\qquad K = 3$
$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad K = 4$
$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad K = 5$
$Quc = \quad N \ / \ 10^{d-k} \qquad\qquad K = 6$
$rem: \quad N \div \% \ 10^{d-k} \qquad\qquad K = 7$

$$8943 \times 1000 \quad = \quad 8943000$$

$$\overline{}^{\,S\,6\,7}$$

$$8\,9\,7\,3\,5\,6\,7$$

Q

$\rightarrow$ 1 2 9 4 5 6

reverse: 6 5 4 9 2 1

multible = 10

divisor = 10^{d-1}

N = 1 2 9 4 5 6

ans = 0 * 10 + 6   = 6

quo = N / 10^{d-1}

an = 6 * 10 + 5 = $\underline{65}$

rem = N % 10^{d-1}

an = 65 * 10 + 4 = 654

(N → 0)

an = 654 * 10 + 9 = 6549

rem = N % 10

N = N / 10

an = 6549 * 10 + 2 = 65492

an = ans * 10 + rem

an = 65492 * 10 + 1 = $\underline{654921}$

612945
↓

Q) Fibonacci

$$fib(N) = fib(N-1) + fib(N-2)$$

$$
\boxed{
\begin{array}{l}
fib(0) = \quad 0 \\[4pt]
fib(1) = \quad 1
\end{array}
}
$$

$\rightarrow \quad fib(2) = fib(1) + fib(0)$

$\qquad\qquad = \quad 1 \quad + \quad 0$

$\qquad\qquad = \quad 1$

$\rightarrow \quad fib(3) = fib(2) + fib(1)$

$\qquad\qquad = \quad 1 \quad + \quad 1$

$\qquad\qquad = \quad 2$

$\rightarrow \quad fib(4) = fib(3) + fib(2)$

$\qquad\qquad = \quad 2 \quad + \quad 1$

$\qquad\qquad = \quad 3$

$\rightarrow \quad fib(5) = fib(4) + fib(3)$

$\qquad\qquad\qquad (N-1) \qquad (N-2)$

$$N-2 = \cancel{0} \ \cancel{1} \ \cancel{2} \ \boxed{3}$$
$$N-1 = \cancel{1} \ \cancel{2} \ \cancel{3} \ \boxed{5}$$

0	1	2	3	4	5	6	7	8
0	1	1	3	5	7			

```java
// It is true always, N >= 0
public static int nThFibonacci(int N) {
    if (N <= 1) {
        return N;
    }

    int fib_N_minus_1 = 1;
    int fib_N_minus_2 = 0;
    for (int n = 2; n < N; n++) {
        int ans = fib_N_minus_1 + fib_N_minus_2;

        fib_N_minus_2 = fib_N_minus_1;
        fib_N_minus_1 = ans;
    }

    return fib_N_minus_1 + fib_N_minus_2;
}
```

$$N1 = \cancel{1} \ \cancel{1} \ \cancel{2} \ \cancel{3} \ \cancel{5} \ 8$$
$$N2 = \cancel{0} \ \cancel{1} \ \cancel{1} \ \cancel{2} \ \cancel{3} \ 5$$

$$n = \cancel{2} \ \cancel{3} \ \cancel{4} \ \cancel{5} \ \cancel{6} \ 7$$
$$ans = \cancel{5} \ 8$$

0	1	2	3	4	5	6	7	8	9	10

0	1	1	2	3	5	8

Q   freq. of digit

$N =$ 122334566   , $d = 3$

count = 0

122334566
↓
0 ,   12233456 , 6
↓
0 ,   1223345 , 6
↓
0 ,   122334 , 5
↓
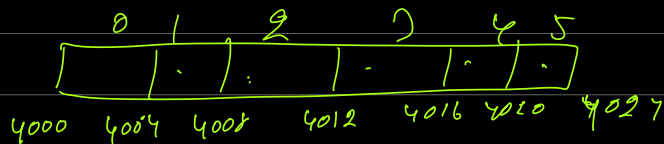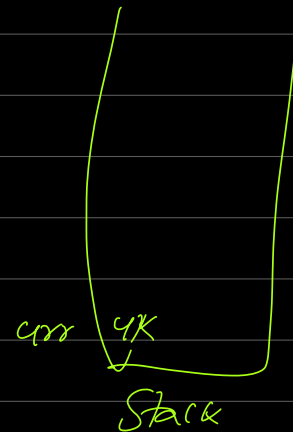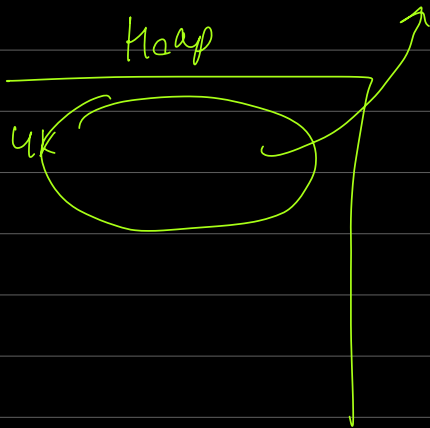0 ,   12233 , 4
↓
1 ,   1223 , 3
↓
2   122 , 3
↓
2   12 , 3
↓
2   1 , 2
↓
3   0 , 1

Array

$int = 4 byte$, $1 byte = 8 bit$, $bit = 0/1$

$= 32 bit$

4K | . | . | . | . | . | . |
   0   1   2   3   4   5

Heap

4K

arr 4K

Stack

0   1   2   3   4   5
| . | . | . | . | . |
4000 4004 4008 4012 4016 4020 4024
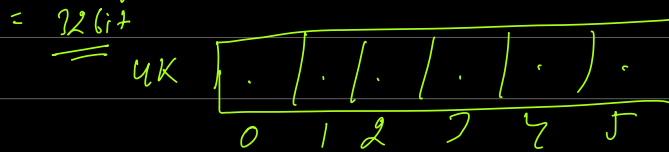
$arr[i] = Address \ of \ arr + i \times 4$

$= 4000 + 2 \times 4$, $i = 2$

$= 4000 + 8$

$= 4008$