Day-06

18/09/23

-: Lacture - 06 :-

-: Binary & decimal number system. :-

Decimal :- 10 , 15 , 12 , 23 , . . . etc.

Binary :- 0 / 1.

Binary no. con
-ain only 1 and (

* Decimal to binary. :-

2 → 10
5 → 101
10 → 1010
8 → 1000

Approch

① n = 10

→ 10 by 2
→ store reminder in answer.
→ Repeat above 2 step until (n != 0)
→ reverse answer

Ex:- n = 10

Division	Rem
divisor = 2	
10/2 → 5	0
5/2 → 2	1
2/2 → 1	0
1/2 → 0	1

0101 → 1010 — reverse.

Ex:- n = 7

Division	Rem
7/2 → 3	1
3/2 → 1	1
1/2 → 0	1

| 1 | 1 | 1 |

→ Reverse

| 1 | 1 | 1 |

1 1 1

$2^2 + 2^1 + 2^0$

$4 + 2 + 1 \Rightarrow 7$.

② Approch — 101

n = 5 → Binary

num & 1 → odd (1) / even (0)

n = 5

```
while(n != 0)
{
  bit = n & 1;
  n = n >> 1;
}
```

XXX

n >> 1

```
while(n != 0)
{
  bit = n & 1;
  n = n >> 1;
}
```

answer = 101 → 1 → 01 → 101

ans = (10^0 x digit) + answer

Ex: 1, 2, 3

Same flow

ans = ans x 10 + dig

(0 x 10) + 1 → 1

(1 x 10) + 2 → n.

(12 x 10) + 3 → 123

reverse flow — 321

ans = 0

ans = (1 x 10^0) + 0 → 1

ans = (2 x 10^1) + 1 = 21

ans = (3 x 10^2) + 21 = 321

ans = (digit x 10^p) + ans

= o/p = 5 n = 5

5 → XXX → &1 → 1

x = 1
x = 2

XXX
1
0/1.

n >> 1

00XX
1

00X.
1

= Binary to Decimal number :-

1 0 1 0 1 → 2

$2^4 2^3 2^2 2^1 2^0$
✗ ✗

$2^4 + 2^2 + 2^0$
16 + 4 + 1
21

Division	Rem
21/2 → 10	1
10/2 → 5	0
5/2 → 2	1
2/2 → 1	0
1/2 → 0	1