13 May 2023

Some inp torcks'

Divide by 2:
$$\times >>=1$$
 means $\times = \times >>1$

x= 10 i.e. 1010

X>7\ 0101 105

x= 7 i.e. 0111 x <<1 1110 i.e. 14

- 3 Find rightmost digit of a no. ; 221
- (4) Clear the lowest set bit for x: x&(x-1)
- (5) Extracting the lowest set bit of x. : x & N(x-1)
- 6) Clearing all the bits from LSB to ith bit bitmax= N ((| << i+1)-1); 2d= mask
- (7) Clearing all bits from MSB to ith bit bitmask= (1<<i)-1; x &= mask
- (8) A number x with lowest cleared bit set. x (x+1)
 - 9 Extract the lowert cleared but of 2 $\propto |N(x+1)|$

(10) Checking if a nox is a power of 2 or not

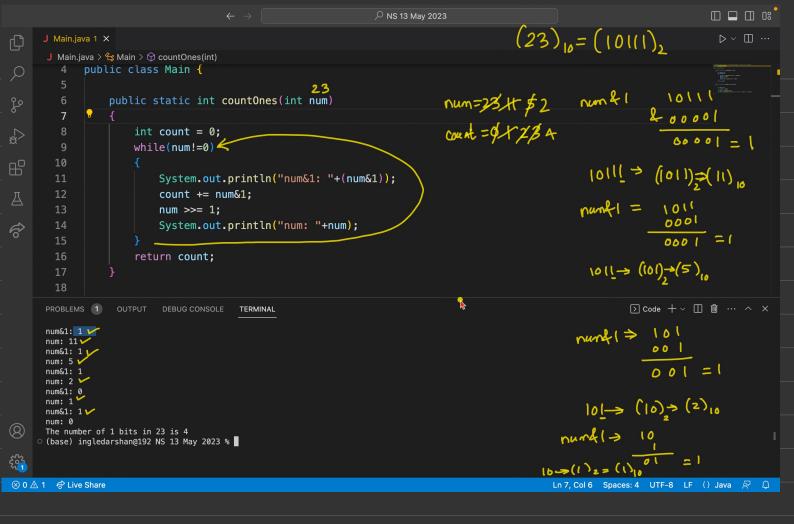
if (x44!(x+(x-1))) == 1 then x isa power of 2.

Bitwise & Logical operators:

$$\frac{2}{2} | 1 = 3$$

// WAP that uses function to count the number of 1 bits in an integer

```
J Main.java 1 X
 ф
        J Main.java > ♦ Main > ♦ main(String[])
                    public static int countOnes(int num)
                         int count = 0;
                         while(num!=0)
                             System.out.println("num&1: "+(num&1));
                             count += num&1;
                             System.out.println("num: "+num);
                         return count;
        PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL
                                                                                                                         ∑ Code + ∨ □ ଢ ··· ^ ×
                                                                                                                               R
      The number of 1 bits in 23 is 4
(base) ingledarshan@192 NS 13 May 2023 %
 <del>ر</del>ري
کرا
⊗ 0 △ 1 🕏 Live Share
                                                                                                        Ln 22, Col 21 Spaces: 4 UTF-8 LF {} Java 👨 🚨
```



// WAP that finds the pair of integers in an array with minimum XOR value.

