

Topics to discuss

- Print all Factors or divisors of a number.
- Brute force & Optimal Solution.
- Its time & space complexity.

Print all factors of a Numbers

#DSAWithArfin

Brute force Approach

```
static void solution (int n){  
    for (int i=1; i<=n; i++){  
        if (n%i==0)  
            print (i)  
    }  
}
```

I/p : 10

O/p : 1, 2, 5, 10

Optimal Approach

$$n = 10$$

factors = 1, 2, 5, 10

So, $i \times j = n$ (i & j are factors)

$$j = \frac{n}{i}$$

i.e, i & $\frac{n}{i}$ are factors.

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$n = 16$

i		$\frac{n}{i}$	
1	\leq	16	1 st
2	$<$	8	
4	\leq	4	
8	\geq	2	2 nd
16	\geq	1	

$$i \leq \sqrt{n}$$

```

static void OptimalSolution (int n) {
    for (int i=1 ; i<=Math.sqrt(n) ; i++) {
        if (n%i==0) {
            if (i==n/i) Print (i)
            else print (i + " , " +  $\frac{n}{i}$ );
        }
    }
}

```

It will not print factors
on sorted order.

Follow Now



Start Practicing



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