Data Structure

↳ to store the data in a structured manner

- ↳ Array
- ↳ Linked List
- ↳ Stack
- ↳ Queue
- ↳ Tree & many more

$n = 10$

Problem Statement

↳ Sum of natural number given the value of n by the user?

Approach 1

1 to 10

↳ **Loop**

```
int sum=0;

for (int i=1; i<=n; i++){

    sum += i    ;
}

return sum;
```

Time complexity = $O(n)$
Linear time complexity

Approach 2 (Better approach)

No Loop

```
int sum=0;
```
1 time
$$sum = \frac{n(n+1)}{2},$$

return sum;

Time complexity = $O(1)$
constant time complexity
Sum of
n natural numbers