DAS Intro:

DSA – Data Structure Algorithm

A way to organize and store the data. To computer perform efficiently.

Why DSA?

1. To Solve the Problem
2. To use Memory Management
3. To think logically & systematically about problem.

* Time Complexity and Space complexity:

1. Time Complexity:
   1. O(1) (constant time)

It was fixed value where we go to search. Not other place are search. (Page 1 was only searched)

* 1. O(n) (Linear Time)

You don’t known where the data was so we go with one by one.   
if we have 100 page. Imagine my data was on was in 98 page means it will execute until start from 1 to 98.

* 1. O(log n) (Logarithmic Time)

First I need to sort the values like alphabetically or asc or desc

And we split the values in half dividedly and go with left or right based on the data Values.  
  
if data was data was 51 means.   
we split the whole data divide half means 50 was left so (1-50) on left. Next (51 – 100) right. So it will go with left side.

* 1. O(n2) (Quadratic Time)

Shortcut way to sat the growth

We start with 1 – 10 first next move to 100 checks. Next 200 checks.   
so it was skip the pages if it was data was more than that we go with previous page.

* Space Complexity:

1. Space Complexity:

How much extra memory in (RAM) while running.

* 1. O(n) – Constant Space

We can store one exact value alone we known. A[0] means it one memory used.

* 1. O(n) Linear Space

We don’t know we don’t know what how many values are going to be store using new list. New\_A[:]

* 1. O(n2) Quadratic Space

Multiplication of the Table Size. Double it.