A	Name: Ankit choudhary 16 mg grown 27 8
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	Roll No: 18 (re) o es Hissamo
	Trade: V · 10
	Assignment -01
DS-101	ore - (1-n) TS = (n) T notation on orderensing or
110	Asymptotic notations are known as mathematical
0	tools which and growingled to describe the limiting
	behaviour of a function as its input tinds tourseras
(1/2)	infinity myig out to ofiver man want out c
4	" ROUX9" &" WIR. WILL HALL RESEARCH! ADDI IN
( His	By a notations (a) = This notation suppresent the upper
/ \	found of an algorithm's running time in the work case For ex: 0(n2) for a quadratic equation.
- (5)	
Ch	du matt rotages si litere setoresti 9001. DAT
Lii)	Omega notation Reposeent the lower bound of an
1	algorithm ounning time in the best cast scenario. extr(n) for a linear algorithm
14	ext 11(n) gost a milest cayesus num
900	Trala nalation (0): A progrant bath the wopen and
10[1]	Theta notation (0): Represent both the upper and lower bounds providing a tight bound on the algorithm
1 4	sunning dim.
	ex= Q(n) for a linear algorithmen sound 8
0 1	- Me stude (such ti paixam somit in source
2	To line com slovity of the given code is o (logn).
٧.	The time complexity of the given code is o (logn). Since the variable "i" doubles in each iteration the loop executes approximately logs (n) times.
	Since and various and told loss (n) times.
	100 p executes approximately and
	7/10 +11-1-2

- The precurrence prelation T(n) = 3T(n-1) prepresent the exponential growth. Therefore the time complexity is O(3n). 4. The siecurorence relation T(n) = 2T(n-1) - 1 exponential growth. Thorotogre the time complete to  $O(2^n)$ . 5 The time complexity of the given code is O(n'k)
  The Joop iterates until the sum "s" exceeds 'n'
  which happens approximately when "i" reaches (n') 6. The time complexity of the given code is o (n/e).

  The loop iterates until is greater than which happen approximately when "i" reaches (n'e). 7. The time complexity of the given codes is a (ndean) The outer loop runs n/z to n times, the middle loop runs logn Almes & the inner loop on runs log n time Therefore, the total time complexity is o (n.logn)
- 8. Inner loop runs n times and the outer loop runs n times, making it o(n2). Additionally. The function recursively calls with n-3 so the no ab times it reuses can be represent as n/3

 $O(n^2) * O(n/3) = O(n^2)$ 

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Date. ————————————————————————————————————
The outer and inner loop will run n times. Therefore time complexity of second function is
hermonic series is logn. So time complexity is o(n logn).
in growth nate increase polynomially with n.
if C71 & too then
Jim en n-70 nk  Therefore from a contraction
Therefore from any CXI & K70 cn grounds fayten than nk.