	Hause sun
	Section F
	CONSTRUCTION OF THE
	b.tech (cse)
	DAA
1	Tudoural 1
	1/11 = C (na n+1) = 0 (na n+
	Closing of the Charles & Contraction
Ansto	Alegantotic notations are the mothernatical notations
	to acsembe running time of an
	Todaction value (0) a language to a language
1	notations are mainly contegorised in to following
7	3-types.
	0'
10	Big O motation -> At gives the worst case Complexity
<u>Do</u>	Omega notation > It gives the best care conditionity
30	Theta notation > It gives the best case complexity
12	Charles and the tork
<u> </u>	Exampleo (8-18/18/18/18/18/18/18/18/18/18/18/18/18/1
	Bubble Sort algorithm has of n) time complexity
	in best case of O(n2) time complexity in 1
	we so of n2) in average case.
	(2 1/0) 2 (0) 1/2 (0) 5 (1/2) 2 (1/2)
2.0	S CELONARY .
Ansto	for (1=1 ton)
	? ?= ?*2;
	Demonto Ofr 1 1-11-10 17 7 = 1017 while
	1=7,2,4,8,n->GP
	ax = ax k-1
	$a_k = 1 \cdot 3^{k-1}$ $a = 1, \gamma = 2$
la l	$Q_{i} = i \cdot 2^{k-1}$ $N = 2^{k-1}$
	$n = 2^{n-1}$
	$\log n = k - 1$

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	R = 1+8092 No
	:. T(n)=0(log,n+1)=0(logn)
1	
1 3°	$T(n) = \begin{cases} 3T(n-1) & n > 0, \text{ otherwise} \end{cases}$
1 2 (2 4)	
	T(n)= 2 T(n)
	hut (n-1)
5. J.	$T(n) = 3T(n-1) \rightarrow 0$ $put n = n-1 \text{ing = eg } 0$
À.	T(m-1) = 0 = 0
**************************************	T(n-1) = 3T (n-2) (3)
Arc. VIII	Red 3 In a
1	
101	$T(n) = 3(3T(n-2)) = 3^2T(n-2)$ Put $n=n-2$ in eq (1)
	Put n=n-2 in eq a
	$\frac{1(4)-2}{2} = 37(n-3)$
	$T(n) = 3 \cdot 3 \cdot T(n-3) = 3^3 \cdot T(n-3)$ $T(n) = 3^k \cdot T(n-k)$
	$f_{i} \neq m - R = 0$
	$T(n) = 3^{7}T(0) = 7T(n) = 3^{n}$
	J(n)=0 (3") \$
<u>.</u>	Total Control of the
And	$T(n) = {2T(n-1)-1 n > 0, otherwise }$
	T(n) = 2T(n-1) - 1
1	707=1
San h	gut m=n-1
-	T(n-1) = QT(n-2)-1 3
	Put 3 m 0
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	T(n)-2/27(n-2)-1)-11
	= 47 (n-2)-2-13= 2+ (n-2)-2-1-9
	Put n=n-2 in D
	$T(n-2) = 2T(n-3) - 1$ $T(n) = 2^{2}(2T(n-3) - 1 - 2 - 1$
27 7 1	$= 0^3 + (m-3) - 2^2 - 2^3 - 1$
	$T(n) = 2^{k}T(n-k)-2^{k-1}-2^{k-2}-2^{k-3}$
	20
	let n-k=0
	n=k $n-1$ $n-2$ $n-3$
	T(n) = 2 T(n-n) - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -
	$ \frac{n=k}{T(n)=2^{n}T(n-n)-2^{n-1}-2^{n-2}-2^{n-3}-2^{n}} $ $ \frac{T(n)=2^{n}T(0)-2^{n-1}-2^{n-2}-2^{n-3}-2^{n}}{T(n)=2^{n}-2^{n-1}-2^{n-2}-2^{n}} $
	$T(n) = a^n - (a^n - 1)$
	$\frac{1}{2}$
	2: 2 ⁿ⁻¹ + 2 ⁿ⁻² + + 3 = 2 ⁿ -13
	T(n)=1 $T(n)=o(1)$
Arus.	nt = 1, $s = 1$;
All Prints	white(S < = n)
	i++;
	R=15+1;
	point 1 (" #");
	S Comment of the second of the
	j=1
	9=2 2=3 5=1+2+3 1=3 (=6)
A CENT	1=3 5=6 5=1+2+3+4 1=9 8=10
	7-10
11	

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K= 1/ 0.10:	11. 31. 31.
5 = 1 + 2 + 3 + 4 + k = k(k+1) 74	
the state of the s	
$d = k^2 + k > n$	- 1
2	
10 5 5	
R 7 JR	
T(n)=0 (vn) Ay	
A le la	
Aug. Void function (fit n)	
E PROMITE (PU Y)	
Lot of	
A Count = 0;	
Int i, Count = 0; for (=1; 9*10 <= n; 1+4) S	
Court++;	
j'=1,2,3,n	
$\frac{1}{1}$ = $\frac{1}{1}$ = $\frac{2^2}{3^2}$ = $\frac{3^2}{1}$ = $\frac{3^2}{1}$	
$i^2 \in \mathcal{N}$	
-> \$\begin{align*} -> \text{\$\sigma} \& \leq \= \sqrt{\chi}	
B C C Vh	4
$a_{p} = a + (k-1)d$	
$\alpha=1$, $d=1$	\
$\alpha_{i} = \sqrt{n}$	
$\sqrt{n} = 1 + (k-1)1$	
$\sqrt{n}=k$	
$(1, T(n) = O(\sqrt{n})$	-
· (1) · O (Yn)	
AUD Most to a Co	
Void function (int n)	
3	
int i, j, k, count = 0°	
For 1 = n/2; i = n; i++)	
3	electric .
for (j=1; j <n; j="j*2)</td"><td>1</td></n;>	1
/ / /	

1	Aradeep ~
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-0.00	1 to Colore to Colore to Colore to
	-for (k=1; k <n; k="k+2)</th"></n;>
-	E THE FALL
	S-Count +++; (S-CC)
	3 (i) 1/13-11-15 tup
-	33-61 (8-11) + (2-11) + (11)
	7 Summer ton
	5 (1-10) +12-10, T -13-10, T
+ 5+	C+ 18-11 (18-10) T (18)
300	n/2 down down
(
	n+1 -log_n (log_n)
	1 1-00 - 5 15 15 15 15
	n logn logn
	Harry The state of
	M. + 1 being
-	d still and an
	O(i * k) = O((n + 1) * (log n))
	T(n)= o (n (togn)?)
Agg.	forction (Int n) (and) ?
	11 - 1 7 (n==1)-1 - 10 - 10 - 1
	vaturn;
	for (1=1 tons)
	3
	for / 1=1 ton)
The second second	for (1=1 ton) 2 print { (" *");
	5
	Function (n-3)
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1	T(n)= T(n-3)+n - 0
	1 (b = 1 (C) x : x : x : x : 1 = 1)
	Put n= n-3 in eq 0
12	$T(n-3) = T(n-6) + (n-3)^{2}$
	Put 7(n-3) in (1)
	$T(n) = T(n-6) + (n-3)^2 + n^2$
	put n = n - 6 in (1)
	$\frac{T(n-0)}{T(n-1)} = \frac{T(n-1)}{T(n-1)} + T($
	$T(n) = T(n-3) + (n-3) + n^2$
	$T(n) = T(n-3k) + (n-3(k-1))^2 + (n-3(k-3)) + n^2 - (n-3(k-1))^2$
	$\frac{(n-3(k-1))^2}{(n-3(k-1))^2}$
	put n-3 k=1
	n = 1 + 3k = 7k = n - 1
	$T/n = T(1) + n^2 + (n-3)^2 + (n-6)^2 +(n-2) + 1)^2$
	$T(n) = T(1) + n^{2} + (n-3)^{2} + (n-6)^{2} + (n-n+1)^{2}$ $T(n) = 1 + n^{2} + (n-3)^{2} + (n-6)^{2} + 1^{2}$
	$T(n) = 6n^2 + k$ $T(n) = O(n^2)$
	T(n)=0(n3)
Arg	· Void function (int m) (int)
	-for (9=1 ton)
	$ \frac{2}{\sqrt{3}} \left(\sqrt{3} - 1 \right) \sqrt{3} \leq n \cdot \sqrt{3} = \sqrt{3} + 1 \right) $
	print f ("x")
	3
	2
	3 () () () ()
	The state of the s

$$j=1$$
, $j=1,2,3,4--n-finus$
 $j=2$, $j=1,3,5,7---n|2$ finus
 $j=3$, $j=1,4,7,11----n|3$ finus

$$n^{k} = O(C^{n})$$
as
$$n^{k} <= 2C^{n} + ny, n$$

$$for n = 1$$

$$C = 2$$

$$\frac{l^{k} < = Q_{2}}{N_{0}=1} \quad C = 2$$

