





Academic Year	Module	Assessment Number	Assessment Type
S20	Introductory Data Structures and Algorithms (DipIT02)	A1	Assignment Submission

[Assignment Submission]

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Section : [DC8]

Module Leader : [Mr. Prakash Gautam]

Submitted on : 06-03-2020



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V	n=0 20
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À	D(1090) in worst Parc.
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	Limito hun.
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	rototions are inquired which increases complexity.
3-)	The length between low point "oppoximately" is
	Should be been added but if we are
	the locath between low and it is and it is
	good Prough.
Cosy >	Jet Trad be the mois time of the old III
	Let 1(n) be the running time of the algorithm a and let a function f(n) = O(n 2). That is 1(n) if a lippor board of O(a) sizes ((i) told by the America
1	10 per hand of C(1) 20012 - (10) 20 hand of 1000 U
	smaller than n? we an correct the statement at constant.
1 31	C.B.





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5)	(1 0) (2 0) (3 0) (4
q-	J8 8 5 2 37 = 0(50) O1 5 40 = 0(50)
1	$2^{(1)} \cdot 2^2 = 0(2^{(1)}) 0(2^{(1)}) = 0(2^{(2)})$
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	U: 3 5 5 5 55
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3 3.	tw: tw-1112
	f(a1):2
	who, f(3)=1 n=2
	t(1)=t(0)15
	= 2
1	f(2) - ((2-1)) 12
1/4	4, (5, -6(5-1)45
	= 1(1)12
	= 1+2 m/g = 1
	n-3 f(3)=f(3-1)13
	(Non A) (1218 1)
	U= 2 t(v) = 1 + 5 + 3 + - + 0 ()
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	= n (n 11)
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	2 2





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12-> 7-6, 2010
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2 (1) - (1) + (1+1)] (1+1) 1 + (1+1)
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10 0	100 = 7 (0-1) 7 = (0)
	1(0)= 1 (who n=0. function does nothing & exercises (and as) 1(1)=1(0)+1
	1(8)=1411=2
	1(3)=1(5) 13=1111513
	1 (b) = 1 1 1 1 513 7 - · · 10 · · ·
	F(v): v+(v-1) +(v-3) +(v-3) +17. (iv)
	Adding (1) La
	27(n): (n+1)+(n+1)+(n+1)
	= (U+1) { (1+1+) =
	=(011)(0)
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	C(US-)
	G (ne)
h.	501 20 1 1 412
()	20, 1010d 5 UA 5 300 \$ 30 0000 20. 0(30)
	3 111199 511 = 200 + 3
()	S(0) = 0 T $S(0-1)$
	5(n) = n TT log2n 1(n-1)
	= n. TT log 20 2(n-1) 2 100n Tx log 20
	2. 327
	O(nlogzn).
and b	





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<u>d</u>).	7(n):3n?1 n 142.
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	(cn) & (gra) for n > no
	Mero wa take, (=51
	g(n)=n2/1/1/
	3n2 jan 147 652n2
	Thus, we can say O(2)
()	T(n)=20002+n-91/(1/100)
	[(n) » 2 C.0(n) for n > 0
	here we toke, C=200
	100 y 2 10 - 3 5 5 00 U 5
	Thus, we soy orne)
01	T(n)= (n-2) ? + 1
	- 03 - NOTATIO
(445)	24 May 29
	= U3 - M1014
	34
	1(U) · 5 (° 3 (U) for U 500
	C = 700
	n?= 40 to 111 (2)
	200 - 10 10 10 10 10 10 10 10 10 10 10 10 10
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11-2	Sers take Trad=3+Tralz) Binory Search
	we 4m 7(1):1.
	JM)=3+7(n/2)-(1)
	1(n/2) = 3 +7 (n/u) - 2
	1(n/u)=317(n/8)-0
	Prom non (i) like
	J(n) = 317 (n/2)
	= 313170/4)
	- 3121217(n/8)
()	So. in general
	1 (m) = 3 k + 1 (0 1 5 p) - ()
	Of the same and we get I -1
	Than, n -2
	7 kg - 3
	U=5K
	toking lop on both Sid
	109 5 = log 2 (2 h)
	log 3 = log 2 (2 h)
	2000(0)(0)
	JUM = 3 100 07 1 (115 1000)
	7(n) = 3 log n + 7 (nr 2 log n) = 3 log n + 7(n/2 n) = 3 log n + 7(1)
	= 5 (ago + 100)
	= 3101 n + 1 - 2
	For ear 6 we can thoose (g(n) such that
	1(11) = 1.3





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Cohorci C:4
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3/gg o +1 29/byn
Then, we can soy a cloy of
lea linear Branch
1(4) - (1) (1)
7(n) = 4 · (g (n) for n 2nd
C=8
9(0):0
SU 4713 480
9(n):n. Sur 4n.13 480 Thus, we can say 0(n)
3) 0(11)
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