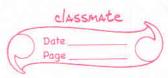
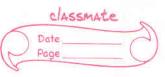


	Page
	The contraction
	Maintenance: - If it is touc before an iteration of the
	Loop, it remains true before the next iteration.
	ment of the first
	Termination: - When the loop terminates, the invariant
	gives us a useful too perty that helps snow that the
	algoritum is Correct.
	The state of the second
Bralysis	Harman Committee of the
-	The time taken by algorithm is depends on input size.
A sitro	and the same of th
-	Algo takes deft amount of time to Sort input seg of some
	Algo takes diff amount of time to Sort input seg of some Size, depending on how nearly sorted they already are.
-	Running time of an algo 18 the no of primitive operations
	Running time of an algo 18 the no of primitive operations or Steps executed.
	Cost limes
1.	for j= 2 to A: length (1)
2,	key = A[J] C2 n-1 11 remarks 3 n-1
3.	l = j - l remarks $n - l$ $n - l$
4.	$l = J - I$ while is a and A[i] > key co $\sum_{j=2}^{n} t_j$
5.	A[i+1] = A[i] (6 E;=2 (tj-1)
6.	l=l-1 $-ds-$
7.	A[i+i]= key (8 n-1
	The second section of the second section of the second section of the second section s
T(n)=	Cin+C2(n-1)+Cy(n-1)+C5[ ti+C6[ (ti-1) +
	G I (tj-1) + (g(n-1)
Best Gs	e: if array is already Sorted (ti=1)
T(n)	= C,n+C, (n-1)+Cy(n-1)+Cg(n-1)+ (g(n-1)

= ((,+c2+c4+c5+c8)n-(c2+c4+c5+l8)



i kanatha	express as an + b for Const 'a' and b' (cinear function) of n
Worst Case	of n
	if array is in ocresse sosted order compare ACi) element
	n elements )
	$\xi \dot{i} = n(n+1) - 1   \xi (i-1) = n(n-1)$
	if array is in vereste Sorted order (compone ALi) element
TCH) =	$\frac{C_{1}n + C_{2}(n-1) + C_{4}(n-1) + C_{5}(n(n+1)-1) + C_{6}(n(n-1))}{2} + \frac{C_{7}(n(n-1)) + C_{8}(n-1)}{2}$
	$+ C_7(n(n-1)) + C_8(n-1)$
	2/1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1
5	$n^{2}(\frac{c_{5}}{2} + \frac{c_{6}}{2} + \frac{c_{7}}{2}) + n(\frac{c_{1}+c_{2}+c_{4}+c_{5}-c_{6}-c_{7}+c_{8}}{2})$
	- ((2+C4+C5+C8)
	express as an2+ bn+ c for constant a 5 Quadratic func
Average Case	express as $9n^2 + bn + C$ for Constant a, b ( ob n)
-0	we check half of the Subarray A[15-1] and so to is about $i/2$ $T(n) = \sum_{j \ge 2} \Theta(v/2) = \Theta(n^2)$ where $i$ is about $i$ and $i$ is about $i$ .
	is about 1/2 n All permutations equally
(1	$T(n) = \sum_{i=1}^{n} \Theta(v/2) = \Theta(n^2)^{-1}$
-	Resulting are average Case running time out to be a
	quadratic function of input Size like worst Cave.
Point 60	remember
1-	Time complexity = O(n2)
	Auxiliary Space = 6(1)
	Algo Paradigm = Incremental approach
	Sorting in place = Yes
270	Stable = Yes
6-	Uses:) When no. of elements is small.
	2) Useful when input array is almost sorted, only
	few elements one nusplaced in Complete big away.



nder La	A Stable Sort is one which preserve the original order of
	input set, where Companision algo donot distinguish between
	two or more items.
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