Acilya Oupta CST 8PL-1-25 Date / /

lutosials-3

pseudocode per lenear search yer (ico ton) Ef (ars Ci] = = relue) //element found cinkalan omusas species word Ensestion (ent au [] Ent m) 1/ secussive if (ncel) refun; Ensatton (au, n-1); Ent non 2 al [n-1];

Ent jan-2;

write (j>20 Le areCJJ>nn)

ous [j+1] = als [i];

g--;

arr [s+172 nth;

for (celoton) = 11 Eterative

key = A [i]

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& Ali+176 Ar. 7

rition (over the land

Date / / A [i+1] + key (\mathcal{B}) Complenety name Best worse Average Scleenson $O(n^2)$ 0 (n2) bebble 0 (n) O(n2) . 0(n2) insution 0(n2) 0(112) Heap 0 (n log (n)) O(nleg(1)) 0 (n log(u)) queck O(nleg(u)) 0 (42) à (nleg (n)). Merge o(n hog(n)) O(nlog(n)) 0 (n isy (n)) 4 Inglace serting Stable sorting Gilline sorting Bubble Luserbion Selection Bubble Inseption Ersection Pulck Heap binary (Ent ale [] Ent &, Ent o, Ent n) 8n+ [] (ND E) 170 120 Ent mid = 6+(0-6)/2; if (an [mid] = = n) setula mid; che if (as (mid J > x) return binary (are, l, m-1, 2); else binay (ou, mil, x, x); netun

+	Date / /
\perp	3 house
_	return -1;
	<u>y</u>
+	
\dashv	Ent bloosy (But all I, Ent r, Put n)
_	1 9 20 1 1 1 1 1 1 1 1 20 20 21 21 2 1 2 1
_	while (16=8)
\dashv	g fort m c (+ (r-1)/2);
+	Of law [m] eex)
-	Too they was a subject to the subjec
5-1 -	else of all m7.7%
- 1	11 4 2 15 1
, , , , ,	La sarian over opine elsebolisme
-	
	vetuen-1; (C())
	setuen-1;
	Sime we can be a selected as the selected and the selected as
	time complexity of binary research -> 0 (logn) linear search -> 0 (n)
1.	unear search = O(n)
	i const the complexity of quit the force i
0	Reserveure helation joe binagy resuevive search.
· · · · ·	
	T(n)= T(n/2)+1
_	To problem a problem of the
1	Put 18nd (A[], m, K)
	¿ sort (paja) The old) of the spend
	{ sort ((A,n) 1 = (a)) = 300 = 10000 = 1000 = 1000 = 1000 = 10000 = 1000 = 1000 = 1000 = 1000 = 1000 = 1000 = 1000 = 1000 = 100
	\$
	ne binary search (A, u,n-1,2 -A[i])
	if (n)

Date / / return 1 retun-1 Une complexity = 0 (n log(n)) + n () (logn)
= 0 (n log(n)) o Chick sort & me fasket general purpose 80st.

On most practical situations, quiek 80st is the method of choice. If stability is important & space & available, merge 80st might be best. A pair (all, alg) is said to be inversion if on au [] = 27,21,31,8,10,1,20,6,4,53 Total no go énucisions ale 31, using mesge sort. Worst lare time complenity of quick sort is 0/n2)
This can occurs when the fiched fonot is
always an entreme element. This happens
when input away is sorted as seness sorted Recurrence Relation of Commence | (1) Merge Sort → 7(n) = 27 (n/2) + 200 mick Sort → 7(n) = 27 (n/2) + 200 mick

Chip of I will be a fitter

• Meige fort is more efficient t works Justice

than quick sort in case of larger away of

8ize a datasets. o worst case complerity joe quiek sort is $o(u^2)$ whereas $o(n\log u)$ for merge sort. Stable Sclection bort (11) uoid stable selection (Ent are [], (nt n) & fee (Ent iz 0; EZn-1; [++) of int minzi; yer (Ent je let); j\n; j\et)

\$ if (are (min) > are [j])

where j; But key a ass [min]; while (minzi) of are [min] 2 ass [min]; all liJe key: 4 modified bubble souling 18 uerd buttle (fint a [], intn)

af for (intico; &<n; itt)

a for (intico; &<n; itt)

a for (ent sco; j<n-l; j+t)

a id (a []] > a []+1])

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	4 break;		
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