Date: May 20,24	Day.	
Submitted By:	Junaid Asif	
Roll No:	BSAI-144	
Submitted By: Roll No: Class Subject	BSAI - (IV-Sem)	
Subject:	Analysis & Algorithm	
Submitted To:	Dr. Hina Hli	
Assignment	# 02	
FISSIGNMEN	-	
-		
the state of the s	A holis	
Quick	Sort	
Array 2[13, 22, 3	23, 48,70)	
Sol: plan	و(لمنولم)	
	23 48 70	
	2 3 4	
Pivot element P	The state of the s	
	"P= pivet ellenat	
r=13 at 0 index	: q = high index : Y = low index	
22 Partition (A, O, 4)	: Y= low index	
P=13 at 0 i	a lea	
P= A[r]	-> P= A[o]	
1291		
1= 4+1 =>5	1= 4+1 =>5	
134 to 1		
j=4 1. 1 j=4 , i=5 if 13 >= 22		
if 13 >= 22	•	
124		

Day	
$3: \Omega_{a} \Omega_{a}$	
1. 3 . 123	
[.]A H. [1:]A . P	
Alon Him Plans	
TILD) WITH TIESS SHE CHAIN	
Now Orick Ret (A O -1)	
Q3 (A.1.4)	
P=72 - r is of index 1	
221	
if 23 7 = 22	
; = 4	
Similardy,	
i= 3 , i=3	
<u> </u>	-
Swap A[2-1] with Alr)	
F(1) with A(1) - nochange	
Mou	
THE TILL STILL WALL LITE	A construction of the construction
	j=4 to 2 j=4 , i=5 if 23 >= 22 i=4 Similardy,

Date:_	Day	
		-
	Quick Sort (A, 2,1) QS (A, 3,4)	
	P= 48	_
	125	
	j=4 10 4	
	if 707=48	
	124	
	Juap Ali-1) with Alp	
	Swap A[i-1] with A[p] A[3] with A[3] -> no change	
	(bu)	
	QS(A, 3, 2)	
	QS (A4,4)	
	So, final Sorded Array 213 22 23 48 70	
	ree:	ومايدت
	Partition (0, 4)	
	X Million Company	
	OS(A, 0, -1) X OS(A, 1, 4)	
	QS(A,1,0)X QS(A,2,4)	
	OS(A, 2, 1) OS(A, 3, 4)	
	QS(A, 3, 2) QS(A, 4,4)	
	Pseudo Code for Ouick Sort (Left to Right)	
	(1eff to Right)	
	Q\$(A,r,g)	
	if (rcg)	
	Partition (Ara)	
	0818-6-11	
	OS (A, P+1), q)	
	93 (11) 111111111111111111111111111111111	

Date:	Day:
	Partition (A, r, g)
	Prod (P) = A[r]
	1=9+1
	for jag dounts rtl
	touig = < [i] A Bi
	7 .
	Swap A[i] with A[i] Swap Swap A[i-1] with A[r] return i-1
	Soup Swap A[i-1] with A[r]
	redurn 1-1
	orted Array Worst Case:
-	T
-	The work case se scenario
	cours because each partitioning step
	nly removes one element and the emaining array is still essentially
	alal ter marising the maximum bunder
	recurs recursive calls and
	omocrisons. This makes quick sort perform
r	poorly in this specific case leading to
, i	omparisons. This makes quick sort perform poorly in this specific case leading to sorst-case time complexity $O(n^2)$.
and the state of t	