IARE
INSTITUTE OF
AERONAUTICAL ENGINEERING
(An Autonomous Institute affiliated to JNTUH, Hyderabad)
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LABORATORY WORK BOOK

Name of the Student : HIMAKAR C

Class CSE - B Semester VI

Course Code : ACIC09 Course Name : SQAT Laboratory

Roll Number									
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Name of the Course Faculty Mr. ACHYUTA SURESH BABU Faculty ID : IARE 10996

Exercise Number : Week Number : 08 Date : 11/06/24

S. No.	Exercise Number	EXERCISE NAME	MARKS AWARDED						
			Aim/ Preparation	Algorithm / Procedure / Performance in the Lab		Source Code / Calculations and Graphs	Program Execution / Results and Error Analysis	Viva - Voce	Total
			4	4		4	4	4	20
1	8.1	Linear Search	4		4	4	4	4	20
2	8.2	Binary search							
3	8.3	Merge Sort							
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12									

Signature of the Student

Signature of the Faculty

8.1 Linear search

Design, develop, code & run the program in any suitable programming language to implement linear search algorithm.

Program:

```
l = list(map(int, input('Enter elements: ').split()))
n = int(input('Enter element to search: '))
try:
    print(l.index(n))
except:
    print('Element not found in list.')
```

INPUT/OUTPUT:

Test-case-I:

Enter elements: 1 2 3 4 5
Enter element to search: 4
3

Test-case-II:

Enter elements: 1 2 3 4 5
Enter element to search: 6
Element not found in list.

ROLL NUMBER :

8.2 Binary search

PROGRAM:

```
l = list(map(int, input('Enter elements: ').split()))
n = int(input('Enter element to search: '))
l.sort()
L, R = 0, len(l) - 1
while L <= R:
    m = (L + R) // 2
    if l[m] < n:
        L = m+1
        m = (L + R) // 2
    elif l[m] > n:
        R = m - 1
        m = (L + R) // 2
    else:
        print ('Element found at index: ', m)
        break
else:
    print('Element not found.')
```

INPUT/OUTPUT:

Test-case-I:

Enter elements: 1 2 3 4

Enter element to search: 2

Element found at index: 1

Test-case-II:

Enter elements: 1 2 3 4 5

Enter element to search: 6

Element not found.

ROLL NUMBER :

8.3 Merge sort

Program

```
def mersor(l1, l2):
    i, j = 0, 0
    l = []
    while j < len(l1) and j < len(l2):
        if l1[i] < l2[j]:
            l.append(l1[i])
            i += 1
        else:
            l.append(l2[j])
            j += 1

    while i < len(l1):
        l.append(l1[i])
        j += 1
    while j < len(l2):
        l.append(l2[j])
        j += 1
    return l

def merge(l):
    if len(l) <= 1:
        return 1
    l1 = merge(l[: len(l) // 2])
    l2 = merge(l[len(l) // 2 :])
    return mersor(l1, l2)
```

```
l = list(map(int, input('Enter Elements: ').split()))
print('List before sorting is: ', *l)
print('List after sorting is: ', *merge(l))
```

INPUT/OUTPUT:

Test-Case-I:

Enter Elements: 1 5 4 2 3
List before sorting is : 1 5 4 2 3
List after sorting is : 1 2 3 4 5

Test-Case-II:

Enter Elements: 5 25 65 8 56
List before sorting is: 5 25 65 8 56
List after sorting is: 5 8 25 56 65

11/02/24