2.1 SORTING A LIST WITH NEGATIVE NUMBERS

Question:

Write a program to perform the following

An empty list

A list with one element

A list with all identical elements

A list with negative numbers

AIM

To write a program that sorts a list containing negative numbers in ascending order.

ALGORITHM

1. Start the program.

2. Define a function sort_list(arr) that uses Python's built-in sorted().

3. Pass the list [-5, -1, -3, -2, -4] to the function.

4. The function returns the sorted list.

5. Print the result.

6. End the program.

PROGRAM:

```python
def process_list():
    arr = input("Enter list elements separated by space: ").strip()
    arr = list(map(int, arr.split())) if arr else []
    print("Processed list:", sorted(arr))
process_list()
```

Input:

[-5, -1, -3, -2, -4]

Output:

```
Enter list elements separated by space: -5 -1 -3 -2 -4
Processed list: [-5, -4, -3, -2, -1]
>>> |
```

RESULT:

Thus the program is successfully executed and the output is verified.

PERFORMANCE ANALYSIS:

Time Complexity:

- Best Case: O(n) (if already sorted).
- Average & Worst Case: O(n log n).

Space Complexity:

- O(n), due to Timsort's auxiliary storage.