**Modern Education Society’s  
College of Engineering, Pune**

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| **NAME OF STUDENT:** Prathamesh Kalyan Sable | **CLASS:** SE Comp 1 |
| **SEMESTER/YEAR:** Sem-3 / 2022-23 | **ROLL NO:** 015 |
| **DATE OF PERFORMANCE:**  / /2022 | **DATE OF SUBMISSION:** / /2022 |
| **EXAMINED BY:** | **EXPERIMENT NO: B-16** |

**TITLE : SORTING OPERATION**

**PROBLEM STATEMENT :** Write a Python program to store first year percentage of students in array. Write function for sorting array of floating point numbers in ascending order using quick sort and display top five scores.

**OBJECTIVES :  
 1.** To understand structure of Array.  
 **2.** To understand How to sort elements of given array.

**OUTCOME :** 1. To operate on the various structured data.  
 2. To analyze the problem to apply suitable algorithm and data structure.

**PRE-REQUISITES :  
 1.** Knowledge of Python Programming  
 2. Knowledge of quick sorting method and array.

**APPARATUS :**

Computer Machine, python3 installed, etc.

**QUESTIONS :**

1. Explain Merge sort with example and write C++ program for same.

**SOURCE CODE:**

def quick\_sort(arr, low, high):

    if (low < high):

        pivot = partitionate(arr, low, high)

*# recursive call for quicksort of part below and above pivot index*

        quick\_sort(arr, low, pivot-1)

        quick\_sort(arr, pivot+1, high)

def partitionate(arr, low, high):

    pivot = arr[low]

    i = low

    j = high

    while (i < j):

        while (arr[i] <= pivot and i < len(arr)-1):

            i += 1

        while (arr[j] > pivot):

            j -= 1

        if (i < j):

            arr[i], arr[j] = arr[j], arr[i]

    arr[low], arr[j] = arr[j], arr[low]

    return j  *# index of pivot in array*

arr = []

n = int(input("Enter Number of Students:"))

for i in range(n):

    arr.append(float(input(f"Enter Percentage of Student{i+1}:")))

print("Array of Percentage is : ", arr)

quick\_sort(arr, 0, n-1)

*# top five scores using reverse indexing*

print("Top five Scores are : ", arr[-1:-6:-1])

**OUTPUT:**

