Experiment No – 16 (Group B) Write a **Python** program to store first year percentage of students in array. Writefunction for sorting array of floating point numbers in ascending order using quick sort and display top five scores.

quick sort algorithm:-

Step 1 - Consider the first element of the list as pivot (i.e., Element at first position in the list).

Step 2 − Take two variables to point left and right of the list excluding pivot

Step 3 − left points to the low index +1

Step 4 − right points to the high

Step 5 − while value at left is less than pivot move right

Step 6 − while value at right is greater than pivot move left

Step 7 − if both step 5 and step 6 does not match swap left and right

Step 8 − if left ≥ right, the point where they met is new pivot

```
def pivot_place(arr,first,last):
   pivot = arr[first]
   left=first+1
   right=last
   while (True):
      while(left <=right and arr[left]<= pivot):
         left=left+1
      while(left<=right and arr[right]>=pivot):
         right = right - 1
      if (right<left):
         break
      else:
         arr[left],arr[right]=arr[right],arr[left]

   arr[first],arr[right]=arr[right],arr[first]
   return right

def Quicksort(arr,first,last):
        if (first < last):
           p=pivot_place(arr,first,last)
           Quicksort(arr,first,p-1)
           Quicksort(arr,p+1,last)

#Driver Code
n = int(input("\nHow many students are there?"))
arr = []
for i in range(0,n):
    item = float(input("\nEnter percentage marks"))
    arr.append(item)

print("You have entered following scores...\n")
print(arr)
print("\n The sorted Scores are...")
Quicksort(arr,0,n-1)
print(arr)
print("Top Five Scores are...")
for i in range (len(arr)-1,len(arr)-6,-1):
   print(arr[i])
```