**Algorithm**

**Note: All Algorithm Based on Python Language.**

**1. Store Data of 5 Employees in Array and Display Data value.**

**1>** start.

**2>** Initialize **emp= []**

**3>** Repeat step 4 to 8 five times.

**4>** Initialize **emp1= [None, None, None]**

**5> emp1[0] =**Input (“Employee Id”)

**6>** **emp1[1] =**Input (“Employee Name”)

**7>** **emp1[2] =**Input (“Employee Address”)

**8> emp.append(emp1)**

**9>** Repeat step 10 to 13 for every element of **emp.**

**10>** Initialize **i=emp[i]**

**11>** print("Table After Sorting")

**12>** print(str(i [0])+" "+str(i [1])+" "+str(i [2]))

**13>** Go to next line

**14>** Stop

**2. Store Data of 5 Employees in Array and Sort Data Using Bubble Sort Based On its Employee’s Id.**

**1>** start.

**2>** Initialize **emp= []**

**3>** Repeat step 4 to 8 five times.

**4>** Initialize **emp1= [None, None, None]**

**5> emp1[0] =**Input (“Employee Id”)

**6>** **emp1[1] =**Input (“Employee Name”)

**7>** **emp1[2] =**Input (“Employee Address”)

**8> emp.append(emp1)**

**9>** begin **bubbleSort(nlist)**

for all elements of nlist

if int(nlist[i][0]) > int(nlist[i+1][0])

temp = nlist[i]

nlist[i] = nlist[i+1]

nlist[i+1] = temp

end BubbleSort

**10> nlist = emp**

**11> bubbleSort(nlist)**

**12>** Repeat step 13 to 16 for every element of **emp.**

**13>** Initialize **i=emp[i]**

**14>** print("Table After Sorting")

**15>** print(str(i [0])+" "+str(i [1])+" "+str(i [2]))

**16>** Go to next line

**17>** Stop

**3****. Store Data of 5 Employees in Array and Sort Data Using Merge Sort Based On its Employee’s Id.**

**1>** start.

**2>** Initialize **emp= []**

**3>** Repeat step 4 to 8 five times.

**4>** Initialize **emp1= [None, None, None]**

**5> emp1[0] =**Input (“Employee Id”)

**6>** **emp1[1] =**Input (“Employee Name”)

**7>** **emp1[2] =**Input (“Employee Address”)

**8> emp.append(emp1)**

**9>** Begin **merge(arr,l,m,r)**

n1=m-l+1

n2=r-m

L=[0]\*(n1)

R=[0]\*(n2)

**9.1>** Repeat Step 9.2 to 9.4 **n1** times

**9.2> i=0**

**9.3> L[i] = arr[l + i]**

**9.4> i=i+1**

**9.5>** Repeat Step 9.6 to 9.8 **n2** times

**9.6> j=0**

**9.7> R[j] = arr[m+1+j]**

**9.8> j=j+1**

**i=0, j=0, k=1**

**9.9>** Repeat Step 9.10 to 9.16 until **i<n1 & j<n2**

**9.10> if int(L[i][0]) <= int(R[j][0]):**

**9.11>** arr[k] = L[i]

**9.12>** i += 1

**9.13> else:**

**9.14>** arr[k] = R[j]

**9.15>** j += 1

**9.16>** k += 1

**9.17>** Repeat Step 9.18 to 9.20 until **i<n1**

**9.18> arr[k] = L[i]**

**9.19> i += 1**

**9.20> k += 1**

**9.21>** Repeat Step 9.22 to 9.24until **j<n2**

**9.22> arr[k] = R[j]**

**9.23> j += 1**

**9.24> k += 1**

**10>** Begin **mergeSort(arr,1,r)**

if l<r

m=l+(r-l)//2

mergeSort(arr,l,m)

mergeSort(arr,m+1,r)

merge(arr,l,m,r)

end mergeSort

**11> arr = emp**

**12> n=len(arr)**

**13> bubbleSort(arr,0,n-1)**

**14>** Repeat step 15 to 18 for every element of **arr.**

**15>** Initialize **i=arr[i]**

**16>** print("Table After Sorting")

**17>** print(str(i [0])+" "+str(i [1])+" "+str(i [2]))

**18>** Go to next line

**20>** Stop

**4. Store Data of 5 Employees in Array and Sort Data Using Selection Sort Based On its Employee’s Id.**

**1>** start.

**2>** Initialize **emp= []**

**3>** Repeat step 4 to 8 five times.

**4>** Initialize **emp1= [None, None, None]**

**5> emp1[0] =**Input (“Employee Id”)

**6>** **emp1[1] =**Input (“Employee Name”)

**7>** **emp1[2] =**Input (“Employee Address”)

**8> emp.append(emp1)**

**9>** **A= emp**

**10>** Repeat step 11 to 19 **five** times.

**11> i=0**

**12> min\_idx=i**

**13>** Repeat step 13 **to (len(A)-(i+i))** times

**14> j=0**

**15> if** **(int(A[min\_idx][0]) > int(A[j][0]))**

**16> min\_idx=j**

**17> j=j+1**

**18> A[i], A[min\_idx] = A[min\_idx], A[i]**

**19> i=i+1**

**20>** Repeat step 21 to 24 for every element of **A.**

**21>** Initialize **i=A[i]**

**22>** print("Table After Sorting")

**23>** print(str(i [0])+" "+str(i [1])+" "+str(i [2]))

**24>** Go to next line

**25>** Stop

**5.** **Store Data of 5 Employees in Array and Sort Data Using Quick Sort Based On its Employee’s Id.**

**1>** start.

**2>** Initialize **emp= []**

**3>** Repeat step 4 to 8 five times.

**4>** Initialize **emp1= [None, None, None]**

**5> emp1[0] =**Input (“Employee Id”)

**6>** **emp1[1] =**Input (“Employee Name”)

**7>** **emp1[2] =**Input (“Employee Address”)

**8> emp.append(emp1)**

**9>** Begin **partition(arr, low, high)**

I=(low-1)

pivot= arr[high]

**9.1>** Repeat Step 9.2 to 9.4 (**high-low)** times

**9.2> j=0**

**9.3> if int(arr[j][0]) <= int(pivot[0])**

**9.4>** i=i+1

**9.5>**  arr[i], arr[j] = arr[j], arr[i]

**9.6>** arr[i+1], arr[high] = arr[high], arr[i+1]

**9.7> j=j+1**

**9.7> return (i+1)**

**end partition**

**10>** Begin **quickSort(arr, low, high)**

**if (len(arr) == 1)**

**return(arr)**

**if(low<high)**

**pi = partition(arr, low, high)**

**quickSort(arr, low, pi-1)**

**quickSort(arr, pi+1, high)**

end **mergeSort**

**11> arr = emp**

**12> n=len(arr)**

**13> quickSort(arr,0,n-1)**

**14>** Repeat step 15 to 18 for every element of **arr.**

**15>** Initialize **i=arr[i]**

**16>** print("Table After Sorting")

**17>** print(str(i [0])+" "+str(i [1])+" "+str(i [2]))

**18>** Go to next line

**19>** Stop

**6. Store Data of 5 Employees in Array and Sort Data Using Stack Based (Reversed Order) On its Employee’s Id.**

**1>** start.

**2>** Initialize **emp= []**

**3>** Repeat step 4 to 8 five times.

**4>** Initialize **emp1= [None, None, None]**

**5> emp1[0] =**Input (“Employee Id”)

**6>** **emp1[1] =**Input (“Employee Name”)

**7>** **emp1[2] =**Input (“Employee Address”)

**8> emp.append(emp1)**

**9>** Repeat step 15 to 18 for every element of **reversed**(**emp).**

**10>** Initialize **i= (reversed**(**emp))[0]**

**11>** print("Table After Sorting")

**12>** print(str(i [0])+" "+str(i [1])+" "+str(i [2]))

**13>** Go to next line

**14>** Stop