

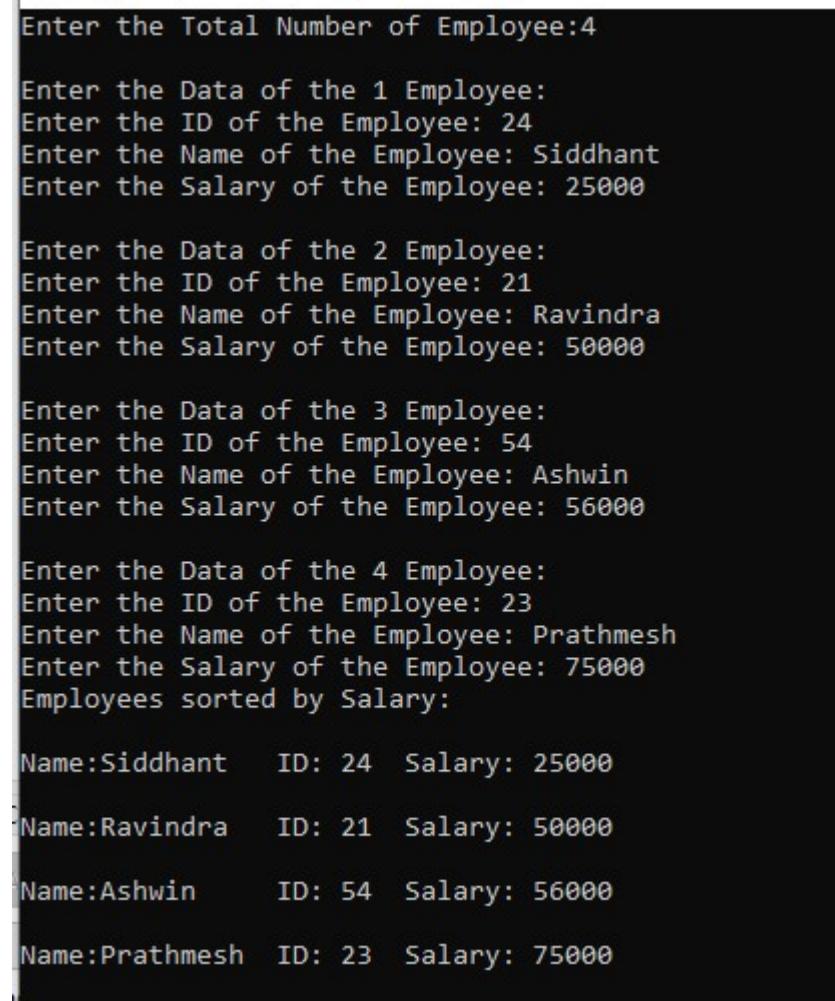
1) Merge Sort for Efficient Employee Salary Sorting:

```
#include <iostream>
using namespace std;
struct Employee {
    int id;
    string name;
    double salary;
};
void merge(Employee arr[], int low, int mid, int high) {
    int n1 = mid - low + 1;
    int n2 = high - mid;
    Employee L[n1], R[n2];
    for (int i = 0; i < n1; i++)
        L[i] = arr[low + i];
    for (int j = 0; j < n2; j++)
        R[j] = arr[mid + 1 + j];
    int i = 0, j = 0, k = low;
    while (i < n1 && j < n2) {
        if (L[i].salary <= R[j].salary)
            arr[k++] = L[i++];
        else
            arr[k++] = R[j++];
    }
    while (i < n1)
        arr[k++] = L[i++];
    while (j < n2)
        arr[k++] = R[j++];
}
void mergeSort(Employee arr[], int low, int high) {
    if (low < high) {
        int mid = (low + high) / 2;
        mergeSort(arr, low, mid);
        mergeSort(arr, mid + 1, high);
        merge(arr, low, mid, high);
    }
}
int main() {
    int n;
    cout<<"Enter the Total Number of Employee:";
    cin>>n;
    Employee emp[n];
    for(int i = 0; i <n; i++){
        cout<<"\nEnter the ID of the Employee: ";
        cin>>emp[i].id;
        cout<<"Enter the Name of the Employee: ";
        cin>>emp[i].name;
    }
}
```

```

cout<<"Enter the Salary of the Employee: ";
cin>>emp[i].salary;
}
mergeSort(emp, 0, n - 1);
cout << "Employees sorted by Salary:\n";
for (int i = 0; i < n; i++) {
    cout << "\nName:"<<emp[i].name<<" ID: " << emp[i].id << " Salary: " << emp[i].salary
<< endl;
}
return 0;
}

```



The screenshot shows a terminal window with the following interaction:

```

Enter the Total Number of Employee:4

Enter the Data of the 1 Employee:
Enter the ID of the Employee: 24
Enter the Name of the Employee: Siddhant
Enter the Salary of the Employee: 25000

Enter the Data of the 2 Employee:
Enter the ID of the Employee: 21
Enter the Name of the Employee: Ravindra
Enter the Salary of the Employee: 50000

Enter the Data of the 3 Employee:
Enter the ID of the Employee: 54
Enter the Name of the Employee: Ashwin
Enter the Salary of the Employee: 56000

Enter the Data of the 4 Employee:
Enter the ID of the Employee: 23
Enter the Name of the Employee: Prathmesh
Enter the Salary of the Employee: 75000
Employees sorted by Salary:

Name:Siddhant    ID: 24    Salary: 25000
Name:Ravindra   ID: 21    Salary: 50000
Name:Ashwin     ID: 54    Salary: 56000
Name:Prathmesh  ID: 23    Salary: 75000

```