

=====

Roll Number: SYCOC303

Division: C

PRN Number: 122B2B303

Batch: C4

Name: VINAYAK MADAN SHETE

=====

### Problem Statement:

⇒ Write a C++ program to store the monthly salary of an employee in an array. Sort array of numbers in ascending order using Quick sort and Display details of top five employees with the highest salary.

=====

### INPUT:

```
/*
 *  =====
 *      Program Name: QuickSort.cpp
 *      Created on: December 23, 2022
 *      Author: Vinayak Shete
 *  =====
 */

#include <iostream>

using namespace std;

struct EmpDet
{
    int emp_id;
    string emp_name;
    int emp_salary;
};

int partition(struct EmpDet arr[], int start, int end)
{
    int pivot = arr[start].emp_salary;
```

```
int count = 0;
for (int i = start + 1; i <= end; i++)
{
    if (arr[i].emp_salary <= pivot)
        count++;
}
int pivotIndex = start + count;
swap(arr[pivotIndex], arr[start]);
int i = start, j = end;
while (i < pivotIndex && j > pivotIndex)
{
    while (arr[i].emp_salary <= pivot)
    {
        i++;
    }
    while (arr[j].emp_salary > pivot)
    {
        j--;
    }
    if (i < pivotIndex && j > pivotIndex)
    {
        swap(arr[i++], arr[j--]);
    }
}
return pivotIndex;
}

void quickSort(struct EmpDet arr[], int start, int end)
{
    if (start >= end)
        return;

    int p = partition(arr, start, end);
    quickSort(arr, start, p - 1);
    quickSort(arr, p + 1, end);
}
```

```
//function for displaying employee details
void display(struct EmpDet *a,int size)
{
    cout<<"\n=====EMPLOYEE DETAILS=====";
    cout<<"\nID\t\tName\t\tSalary\n";
    for(int i=0;i<size;i++)
    {
        cout<<a[i].emp_id<<"\t\t"<<a[i].emp_name<<"\t\t"<<a[i].emp_salary;
        cout<<"\n";
    }
}

//displaying top 5 employees with highest salary
void top5(struct EmpDet *a, int size)
{
    cout<<"\n====TOP 5 EMPLOYEE DETAILS WITH HIGHEST SALARY====";
    cout<<"\nID\t\tName\t\tSalary\n";
    int z=0;
    for(int i=size-1;z<5;i--)
    {
        cout<<a[i].emp_id<<"\t\t"<<a[i].emp_name<<"\t\t"<<a[i].emp_salary;
        cout<<"\n";
        z++;
    }
}

int main()
{
    int n,i,id,salary,ch,doch;
    string name;
    cout<<"=====WELCOME=====";
    cout<<"\nCreating Employee Details Table=>>";
    cout<<"\nHow many employees you want to add?-->";
    cin>>n;
    struct EmpDet empArr[n];
```

```
cout<<"\nEnter "<<n<<" Employees Details:\n";
for(i=0;i<n;i++)
{
    cout<<"\n===== ";
    cout<<"\nEnter details for employee "<<i+1<<"-->";
    cout<<"\nEnter employee id:";
    cin>>id;
    cout<<"\nEnter employee name:";
    cin>>name;
    cout<<"\nEnter employee salary:";
    cin>>salary;
    empArr[i].emp_id=id;
    empArr[i].emp_name=name;
    empArr[i].emp_salary=salary;
    cout<<"\n===== ";
}
do
{
    cout<<"\n1.Display\n2.Sort using Quick Sort\n3.Display top 5 employees with
highest salary\n4.EXIT";
    cout<<"\nEnter your choice:";
    cin>>ch;
    switch(ch)
    {
        case 1:
            display(empArr,n);
            break;

        case 2:
            quickSort(empArr,0,n-1);
            cout<<"\nThe employee details have been sorted according to
their salary!==">";
            display(empArr,n);
            break;

        case 3:
            top5(empArr,n);
```

```
        break;

    case 4:
        goto exit;
        break;

    default:
        cout<<"\nPlease enter correct choice!";
    }
    cout<<"\n===\nDo you want to continue?[1 for YES || 0 for NO]-->";
    cin>>doch;
}while(doch==1);
exit:
    cout<<"\n=====THANK YOU=====";
return 0;
}
```

=====

## OUTPUT:

```
=====WELCOME=====
Creating Employee Details Table=>>
How many employees you want to add?-->7
Enter 7 Employees Details:
=====
Enter details for employee 1-->
Enter employee id:101
Enter employee name:ABC
Enter employee salary:50000
=====
Enter details for employee 2-->
Enter employee id:102
Enter employee name:DEF
Enter employee salary:9000
=====
Enter details for employee 3-->
Enter employee id:103
Enter employee name:GHI
Enter employee salary:72000
=====
```

```
=====
Enter details for employee 5-->
Enter employee id:105
Enter employee name:MNO
Enter employee salary:20000
=====
Enter details for employee 6-->
Enter employee id:106
Enter employee name:PQR
Enter employee salary:80000
=====
Enter details for employee 7-->
Enter employee id:107
Enter employee name:STU
Enter employee salary:64000
```

Displaying before Sorting:

```
=====
1.Display
2.Sort using Quick Sort
3.Display top 5 employees with highest salary
4.EXIT
Enter your choice:1

=====EMPLOYEE DETAILS=====
ID          Name          Salary
101         ABC           50000
102         DEF           9000
103         GHI           72000
104         JKL           96000
105         MNO           20000
106         PQR           80000
107         STU           64000

===
Do you want to continue?[1 for YES || 0 for NO]-->
```

Displaying after Sorting:

```
=====
1.Display
2.Sort using Quick Sort
3.Display top 5 employees with highest salary
4.EXIT
Enter your choice:2

The employee details have been sorted according to their Salary!==>
=====EMPLOYEE DETAILS=====
ID          Name          Salary
102         DEF           9000
105         MNO           20000
101         ABC           50000
107         STU           64000
103         GHI           72000
106         PQR           80000
104         JKL           96000

===
Do you want to continue?[1 for YES || 0 for NO]-->
```

Displaying Top 5 employees with highest salaries:

```
1.Display
2.Sort using Quick Sort
3.Display top 5 employees with highest salary
4.EXIT
Enter your choice:3

====TOP 5 EMPLOYEE DETAILS WITH HIGHEST SALARY====
ID          Name          Salary
104         JKL           96000
106         PQR           80000
103         GHI           72000
107         STU           64000
101         ABC           50000

===
Do you want to continue?[1 for YES || 0 for NO]-->0

=====THANK YOU=====
-----
```

=====