Lab - 2 J.Dayan, 2005839, B-14

Q1. WAP to input name, roll and marks in 5 subjects of student and display it.

⇒
```
#include <iostream>
using namespace std;
struct student
{
    char firstname[50];
    int roll;
    int marks[5];
} s;

int main()
{
 cout << " Enter the information of student :" << endl;
 cout << " Enter roll : " << endl;
 cin >> s.roll;
 cout << " Enter first name : " << endl;
 cin >> s.firstname;
 cout << " Enter marks : " << endl;
 for (int j = 0; j < 5; j++)
   {
     cin >> s.marks[j];
   }
 cout << " - - - - - - - - - - - - - " << endl;
 cout << " Roll number : " << s.roll << endl;
 cout << " firstname : " << s.firstname << endl;
 for (int j=0; j<5; j++)
   {
     cout << " marks of student in sub " << j+1 << " is " <<
                                          s.marks[j] <<
                                          endl;
   }
 return 0;
}
```

Output:-

```
Enter information of student:
Enter roll:
839
Enter first name:
Daman
Enter marks:
90 99 98 97 96
-----------
Roll number: 839
First name: Daman
Marks of student in sub1 is 90
Marks of student in sub2 is 99
Marks of student in sub3 is 98
Marks of student in sub4 is 97
Marks of student in sub5 is 96
```

Q2. WAP to input name, roll number and marks in 5 subjects for n number of students. Write functions to:

a) find total marks and percentage of all n students
b) Display details of a student with a given roll number
c) Display the details for all the students having percentage in a given range.
d) Sort the array in asceneling order of marks

Code -

```
#include <iostream>
using namespace std;
struct {
        char firstname[50];
        int roll;
        int marks[5];
      } s[10];
int total ( struct student m, int n)
    int mark = 0;
   for ( int i = 0; i < 5 ; i++)
    {
      mark = mark + m.marks[i];
    }
    return mark;
   }

float percentage ( start student n)
    { int mark = 0;
      float per = 0;
     for ( int i = 0; i < 5; i++)
       { mark = mark + n.marks[i];
       }
       per = mark/5.0;
        return per;
     }
void printdetails ( struct student p)
{ cout << "Roll: " << p.roll << endl;
  cout << "Name " << p.firstname << endl;
```

```
cout << " Marks : " <<endl;
for ( int y=0; y<5; y++)
{
cout <<p.marks[y] << " . ";
}
cout << endl;
cout << " Total marks : " <<p.total << endl;
cout <<" Percentage : " <<p.per<<endl;

Void sorting ( Struct student c)
{
int temp;
for ( int g=0; g<5; g++)
{
for ( int h = g+1; h<5; h++)
{
if ( c.marks[h] < c.marks[g]){
temp = c.marks[g];
c.marks[g] = c.marks[h];
c.marks[h] = temp;
}
}
}
for (int K=0; K<5; K++) {
cout << c.marks[K] << " ";
}
cout << endl;
}
int main ()
{ int n;
cout << " Enter no. of students " <<endl;
cin >> n;
student s[n];
for (int i=0; i<n; i++) {
cout << " Enter name : " << endl;
cin >> s[i].name;
cout << " Enter roll : " <<endl;
cin>> s[i].roll;
```

```
for (int j=0; j<5; j++) {
  Cout << "Enter marks " <<j+1 << endl;
  Cin >> s[i].marks[j];
 }
s[i].total = totalmarks (s[i]);
s[i].per = percentage (s[i]);
 Cout<< endl;
}
for (int m=0; m<n; m++) {
     Cout << "Details of student " << m+1 <<endl;
     Printdetails (s[m]);
    Cout << endl;
 }
int j; Cout << "Enter roll of student to view details" << endl;
       Cin >> j;
    Cout << endl;
 for (int i=0; i<n; i++) {
       if (s[i].roll == j){
            printdetails (s[i]);
              break; }
      }
int r, e;
   Cout << endl;
   Cout << "Enter starting range of percentage : "<<endl;
   Cin >> r;
  Cout << "Enter last range of percentage : "<<endl;
  Cin >>e;
  Cout <<endl;
  for (int k=0; k<n; k++) {
           if (s[k].per >= r && s[k].per <= e) {
          printdetails (s[k]);
          Cout << endl; } }
Cout <<" Sorted marks are : " << endl;
for (int w=0; w<n; w++) {
     Cout << " Sorted marks of " << s[w].name << " : " <<endl;
   sorting (s[w]);
   }
 }
```

output

```
Enter no. of students:
1
Enter name:
Dayan
Enter roll:
33
Enter marks 1
90
Enter marks 2
80
Enter marks 3
85
Enter marks 4
95
Enter marks 5
100
Details of student:
Roll: 33
Name: Dayan
Marks
90 80 85 95 100
Total marks: 450
Percentage: 90.0
Enter roll of the students to view details 33
Roll: 33
Name: Dayan
Mark: 90 80 85 95 100
Total mark: 450
Percentag: 90.0
Enter starting range of percentage: 90
Enter last range of percentage: 100
Sorted marks are:
80 85 90 95 100
```

Q3. WAP to enter id, name, age and basic pay salary of n number of employees. Calculate the gross salary of all the employees and display it along with all other details in a tabular form, using pointer to structure.

[Gross salary = Basic salary + DA + HRA]

DA = 80% of Basic salary

HRA = 10% of Basic salary

```
#include <iostream>
using namespace std;
struct employee
{ int id;
  char name[100];
  int age;
  int basicsal;
  float grosal;
}
void display (struct employee *s, int n)
{ for (int i=0; i<n; i++)
  [
    Cout << "emp " << i+1 << " id is " << s -> id << endl;
    Cout << " emp " << i+1 << " name is " << s -> name << endl;
    Cout << " emp " << i+1 << " age is " << s -> age << endl;
    Cout << " emp " << i+1 << " salary is " << s -> basicsal << endl;
  }
}
int main()
[ int n;
  Cout << " enter no. of employees " << endl;
  Cin >> n;
  employee emp[n];
  for (int i=0; i<n; i++)
  { Cout << " enter emp id: ";
    Cin >> emp[i].id;
    Cout << " enter emp name: ";
    Cin >> emp[i].name;
```

```
cout << " enter emp age : ";
cin >> emp[i].age;
cout << " enter emp salary ";
cin >> emp[i].basicsal;
}

display(emp, n);
for (int i=0; i<n; i++)
{
    emp[i].grosssal = (emp[i].basicsal) + (emp[i].basicsal * 0.8)
                    + (emp[i].basicsal * 0.1);
cout << " employee " << i+1 << " grosssalary is " << emp[i].grosssal <<
                                                        endl;
}
return 0;
}
```

Code:-
output

```
enter no of employees
2
enter emp id : 123
enter emp name : Daman
enter emp age : 19
enter emp salary: 23456
enter empid : 132
enter emp name: Rahul
enter emp age : 20
enter emp salary 23456
employee 1 grosssalary is 44566.4
employee 2 grosssalary is 44566.4
```