

Lab Task 4[Linear Search Student Result]

Task:



You are working as a lab instructor for the Software department. You are given the marks of 30 students in three subjects:

- Programming Fundamentals (PF)
- Object-Oriented Programming (OOP)
- Data Structures and Algorithms (DSA)

Each subject has a total of 100 marks.

You need to help the department develop a program that allows students to enter their roll number (which acts as a key).

The program should use Linear Search to:

1. Find the student's marks in PF, OOP, and DSA using the roll number as a key.
2. Calculate the total marks obtained.
3. Calculate the percentage.
4. Display the result in a proper format.

Task Requirements:

- Use arrays to store marks of 30 students.
- Roll numbers should be stored in a separate array.
- Use Linear Search algorithm to search the roll number.
- Display total marks and percentage if the roll number is found.
- Display "Record Not Found" if the roll number does not exist.

Code:

```
//By Muhamamnd Bilal Khan

#include<iostream>
using namespace std;

int LinearSearch(int arr[],int size,int key)
{
    for(int i=0;i< size;i++)
    {
        if(arr[i] == key)
        {
            return i;
        }
    }
    return -1;
}

int main()
{
const int Size = 30;

int RollNo[Size];
int PF[Size],OOP[Size],DSA[Size];

cout<<"Enter RollNo and Marks of 30 Students"<<endl;

for(int i=0;i < Size;i++)
{
cout<<" " <<endl;
cout<<" " <<endl;
    cout<<"Student No: "<<i+1<<endl;
cout<<"Enter Roll No: ";
cin>>RollNo[i];
cout<<"Enter PF Marks: ";
cin>>PF[i];
cout<<"Enter OOP Marks: ";
cin>>OOP[i];
cout<<"Enter DSA Marks: ";
cin>>DSA[i];

cout<<" " <<endl;
}

int SRollno;
cout<<"Enter RollNo For Search Record: ";
cin>>SRollno;

int Found = LinearSearch(RollNo,Size,SRollno);

if(Found > -1)
{
    cout<<" " <<endl;
    cout<<"Record Found.." <<endl;
    cout<<" " <<endl;
    cout<<"PF Marks: "<<PF[Found]<<endl;
    cout<<"OOP Marks: "<<OOP[Found]<<endl;
    cout<<"DSA Marks: "<<DSA[Found]<<endl;
    cout<<" " <<endl;
    int total = PF[Found]+OOP[Found]+DSA[Found];
    float percentage = total / 3.0;
    cout<<"Total Marks: "<<total<<endl;
    cout<<"Percentage: "<<percentage<<endl;
}
else
{
    cout<<"RollNo are Record Not Found!"<<endl;
}

return 0;
}
```

Table Of Output:

Output	Condition
Record Found	When entered Roll Number exists in the records
Roll No are Record Not Found!	When entered Roll Number does not exist
Total 2 possible Outputs	

For Import Data in Array:

Output::

```
Student No: 1
Enter Roll No: 01
Enter PF Marks: 100
Enter OOP Marks: 94
Enter DSA Marks: 84
```

```
Student No: 2
Enter Roll No: 02
Enter PF Marks: 74
Enter OOP Marks: 82
Enter DSA Marks: 56
```

```
Student No: 3
Enter Roll No: 03
Enter PF Marks: 74
Enter OOP Marks: 85
Enter DSA Marks: 58
```

```
Student No: 4
Enter Roll No: 04
Enter PF Marks: 95
Enter OOP Marks: 65
Enter DSA Marks: 74
```

```
Student No: 5
Enter Roll No: 05
Enter PF Marks: 74
Enter OOP Marks: 85
Enter DSA Marks: 68
```

```
Student No: 6
Enter Roll No: 06
Enter PF Marks: 75
Enter OOP Marks: 48
Enter DSA Marks: 76
```

```
Student No: 7
Enter Roll No: 07
Enter PF Marks: 74
Enter OOP Marks: 56
Enter DSA Marks: 85
```

```
Student No: 8
Enter Roll No: 08
Enter PF Marks: 75
Enter OOP Marks: 92
Enter DSA Marks: 85
```

```
Student No: 9
Enter Roll No: 09
Enter PF Marks: 95
Enter OOP Marks: 85
Enter DSA Marks: 27
```

```
Student No: 10
Enter Roll No: 10
Enter PF Marks: 89
Enter OOP Marks: 74
Enter DSA Marks: 58
```

Output::

```
Student No: 11
Enter Roll No: 11
Enter PF Marks: 95
Enter OOP Marks: 85
Enter DSA Marks: 75
```

```
Student No: 12
Enter Roll No: 12
Enter PF Marks: 65
Enter OOP Marks: 85
Enter DSA Marks: 74
```

```
Student No: 13
Enter Roll No: 13
Enter PF Marks: 58
Enter OOP Marks: 74
Enter DSA Marks: 59
```

```
Student No: 14
Enter Roll No: 14
Enter PF Marks: 85
Enter OOP Marks: 75
Enter DSA Marks: 47
```

```
Student No: 15
Enter Roll No: 15
Enter PF Marks: 24
Enter OOP Marks: 75
Enter DSA Marks: 92
```

```
Student No: 16
Enter Roll No: 16
Enter PF Marks: 85
Enter OOP Marks: 74
Enter DSA Marks: 65
```

```
Student No: 17
Enter Roll No: 17
Enter PF Marks: 95
Enter OOP Marks: 74
Enter DSA Marks: 52
```

```
Student No: 18
Enter Roll No: 18
Enter PF Marks: 75
Enter OOP Marks: 45
Enter DSA Marks: 85
```

```
Student No: 19
Enter Roll No: 19
Enter PF Marks: 90
Enter OOP Marks: 45
Enter DSA Marks: 71
```

```
Student No: 20
Enter Roll No: 20
Enter PF Marks: 99
Enter OOP Marks: 71
Enter DSA Marks: 85
```

Output::

```
Student No: 21
Enter Roll No: 21
Enter PF Marks: 100
Enter OOP Marks: 45
Enter DSA Marks: 28
```

```
Student No: 22
Enter Roll No: 22
Enter PF Marks: 46
Enter OOP Marks: 85
Enter DSA Marks: 21
```

```
Student No: 23
Enter Roll No: 23
Enter PF Marks: 74
Enter OOP Marks: 15
Enter DSA Marks: 24
```

```
Student No: 24
Enter Roll No: 24
Enter PF Marks: 74
Enter OOP Marks: 12
Enter DSA Marks: 52
```

```
Student No: 25
Enter Roll No: 25
Enter PF Marks: 91
Enter OOP Marks: 50
Enter DSA Marks: 24
```

```
Student No: 26
Enter Roll No: 26
Enter PF Marks: 20
Enter OOP Marks: 14
Enter DSA Marks: 71
```

```
Student No: 27
Enter Roll No: 27
Enter PF Marks: 50
Enter OOP Marks: 75
Enter DSA Marks: 85
```

```
Student No: 28
Enter Roll No: 28
Enter PF Marks: 95
Enter OOP Marks: 75
Enter DSA Marks: 82
```

```
Student No: 29
Enter Roll No: 29
Enter PF Marks: 74
Enter OOP Marks: 51
Enter DSA Marks: 98
```

```
Student No: 30
Enter Roll No: 30
Enter PF Marks: 75
Enter OOP Marks: 84
Enter DSA Marks: 76
```

When Record Found:

```
● ● ●  
Enter RollNo For Search Record: 25  
Record Found..  
PF Marks: 91  
OOP Marks: 50  
DSA Marks: 24  
Total Marks: 165  
Percentage: 55
```

When Roll No are Record Not Found :

```
● ● ●  
Enter RollNo For Search Record: 100  
RollNo are Record Not Found!
```

[Click here to Get this code on GitHub](#)

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