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1) #include <bits/stdc++.h>

Using namespace std;

#define N 100

struct student
{
int roll_no;
string firstname;
string lastname;
string dob;

Student() {
}
student(int roll_no, string firstname,
string lastname, string dob)
{
this→roll_no = roll_no;
this→ firstname = firstname;
this→ lastname = lastname;
this→ dob = dob;
}
};

bool compareTwoStudents(student a,
student b {
return a.firstname < b.firstname;
}

```
void displayBasedOnSortedfirstName
(vector< student > students)
  {
   sort (students. begin( ),
students.end(), compareTwoStudents);

  for (int i=0 ; i<N ; i++)
  {
    cout <<students[i]. roll_no <<endl;;
    cout << students[i]. firstname <<endl;;
    cout << students[i]. last name<<endl;
    cout<<Studeub[i]. dob<< endl;
    }
  }
String
searchByRollNumber (vector< student >
students, int roll_no) {
  string dob;

  for(int i = 0 ; i<N ; i++)
    {
      if (students[i].roll_no == = roll_no)
      { dob = students[i].dob;
      break;
    }
    }
  returndob;
}
```

```
    Student students =
    Student (roll_num, firstname, lastname,
dob);
        students.push_back(student);
    }

// fetch DOB for given roll number
    int roll_to_search;
    cin >> roll_to_search;
    string dob =
    SearchByRollNumber (students,
roll_to_search);
    cout << dob << endl;
// Display students sorted by
    firstnames
    -- displayBasedOnSortedFirstName
    (students);
// Delete student with given rollnumber
    int roll_to_delete;
    cin >> roll_to_delete;
    deleteDataforRollNumber (students,
    roll_to_delete);
    return 0;
}
```

Time complexity for searching O(N)
Time complexity for sorting O(NlogN)

2)

```
#include<iostream>

using namespace std;

int multiply (int x, int y)
        {
          if (y==0)
          {
            return 0;
          }
        if (y>0)
          {
            return ( x + multiply (x, y-1));
          }
        }

int divide( int x, int y)
        {
          if ( y==0 )
            {
              print ("Error!! Divisible by 0");
              exit (-1);
            }
        int sign = 1;
        if (x*y<0)
          {
            sign -1;
          }
        if (x<0)
        { x= -1* x;

        }
```

```
if(y<0)
  { y = -1*y;
  }
int quotient=0;

while(x>=y)
  {
    x=x-y;
    quotient++;
  }
  Return sign* quotient;
}
int main()
  {
    cout << multiply(-5,-10)<<endl;
    cout << divide (10,-3)<<endl;

    return 0;
}
```