```cpp
//database for a Computer Science department.

#include <iostream>
#include<string.h>
using namespace std;

// Structure for Student .
struct Student {
    int rollNo;
    string name;
    string section;
    string password;
    int noofstudents[250];
};

// Structure for Section .
struct Section {
    string section_name;
    int noofsections[5];
};

// Structure for Admin .
struct Admin {
    string name;
    string designation;
    string password;
};
 //  functions declarations.
void addAdmin(Admin admins[], int& numAdmins);
```

```cpp
void updateAdmin(Admin admins[], int numAdmins);

void viewAdmins(Admin admins[], int numAdmins);

Admin takingname(Admin x);

void changepassword(Admin& y) ;

Student takingname(Student x);

void changepass(Student& y);

void displaystudentdata(Student display);

void viewStudents(Student students[], int numStudents);

void updateStudent(Student students[], int numStudents);

void addStudent(Student students[], int& numStudents);




int main()
{
    Admin a,b,c,d;       //struct Admin variables.
    Student e,f,g,h;        //struct Student variables.
     Admin admins[5]; // array to hold up to 10 admins
    int numAdmins = 0; // current number of admins
     Student students[250];
    int numStudents = 0;
    int option,option1,option2,option3,choice,choice1;       //simple declarations for scanning.
 do{
    cout<<"Welcome to the Department of Computer Science"<<endl<<"-------------------------------------------------------------------------------------------------------------------"<<endl<<endl;

    cout<<"Press 1 to login as Admin."<<endl<<"Press 2 to login as Student."<<endl;

    cout<<endl;

    cout<<"Enter your option: ";

    cin>>option;
```

```cpp
    //means login as Admin.

   if(option==1)

{

      c = takingname(a); //calling function of making Admin data. and storing it in new struct variable.

       cout<<endl;

      changepassword(c); //calling function of changing password of Admin and sending argument c in wich Admin data is save.

       cout<<endl;

   cout<<"Press 1 to add/update/view admins."<<endl<<"Press 2 to add/update/view students."<<endl<<"Press 3 To Go To Main Menue ."<<endl<<"Press 0 to logout."<<endl;

   cout<<endl;

   cout<<"Your option : ";

   cin>>option1;

   if(option1==1) // AS upper if 1 so there is (Press 1 to add/update/view admins) for that it is used to take it seprately.

   {

         cout<<endl;

    do {

      cout << "1. Add admin" << endl;

      cout << "2. Update admin" << endl;

      cout << "3. View admins" << endl;

      cout << "4. Exit" << endl;

      cout << "Enter your choice: ";

      cin >> choice;

      switch (choice) {

        case 1:

          addAdmin(admins, numAdmins);     // function call to add admin.

          char check;

         do{
```

```cpp
                    cout<<"Do You Want To Add Another Admin (Y/N):";
        cin>>check;
        if(check == 'y'||check=='Y')
        {
                addAdmin(admins, numAdmins);
                }
                else if(check=='n'||check=='N')
                {
                        break;
                }
                }
                while (check!='y'||check!='Y');
        break;
    case 2:
        updateAdmin(admins, numAdmins);  //function call to  update Admin .
        break;
    case 3:
        viewAdmins(admins, numAdmins);   //function call to view admin.
        break;
    case 4:
        cout << "Exiting..." << endl;
        break;
    default:
        cout << "Invalid choice." << endl;
        break;
  }
}
    while (choice != 4);
    }
```

```cpp
else if(option1==2)
    {

do {
        cout<<endl;
    cout << "Select an option:" << endl;
    cout << "1. Add student" << endl;
    cout << "2. Update student" << endl;
    cout << "3. View all students" << endl;
    cout << "4. Exit" << endl;
    cout << "Enter your choice: ";
    cin >> choice1;

    switch (choice1) {
      case 1:
        addStudent(students, numStudents);  //function call to add student .
         char check1;
       do{
                        cout<<"Do You Want To Add Another Admin (Y/N):";
        cin>>check1;
        if(check1 == 'y'||check1 =='Y')
        {
                addStudent(students, numStudents) ;
                        }
                        else if(check1=='n'||check1=='N')
                        {
                                break;
                        }
```

```cpp
                    }
                    while (check1!='y'||check1!='Y');
                    break;

        case 2:
            updateStudent(students, numStudents);  //function call to update student .
            break;
        case 3:
            viewStudents(students, numStudents);   //function call to view student .
            break;
        case 4:
            cout << "Goodbye!" << endl;
            break;
        default:
            cout << "Invalid choice. Please try again." << endl;
            break;
    if(option1==0)
    {
            break;


        }
    }
    } while (choice != 4);
}

                }


//means login as Student(condition).
    else if(option==2)
    {
```

```cpp
        g = takingname(e);//calling function of making  Student data. and storing it in new struct
variable.

     cout<<endl;

     changepass(g);//calling function of changing password of Student and sending argument g in wich
Student data is save.

     cout<<endl;

   do{

        cout<<endl;

         cout<<"Press 1 to see your information."<<endl<<"Press 2 To Go To Main Menue
."<<endl<<"Press 0 to logout."<<endl;

        cout<<endl;

   cout<<"Your option : ";

   cin>>option2;//taking option to see information or to logout.

   if(option2 == 1)//here option 1 is for seeing the information of student by himself.

   {

       displaystudentdata(g);//calling function to display data of the student.

           }

           else if(option2 == 0)//here option 2 is for logout.

           {

                   break;

           }


   }

       while(option2 == 1);//while condition.
}
}
while(option1 == 3 || option2 == 2);

}
```

```cpp
// Function to add admin data
void addAdmin(Admin admins[], int& numAdmins) {
    if (numAdmins < 6) { // limit to 5 admins
        Admin admin;
        string pass,pass1;
        cout << "Enter admin name: ";
        cin >> admin.name;
        cout<<"enter your designation (faculty, staff):";
        cin>>admin.designation;
        cout<<"Enter your default password : ";
        cin>>pass;
        do{
            if(pass!="admin123")
        {
            cout<<"Wrong password ! try again :";
            cin>>pass;
            }
            }
            while(pass != "admin123");

            cout<<"Change your password :";
            cin>>pass1;
    cout << "Re-enter password: ";
    cin >> admin.password;
    do{
            if(pass1!= admin.password)
        {
            cout<<"Wrong password ! try again :";
            cin>>admin.password;
```

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                }}
                while(pass1!= admin.password);
        admins[numAdmins++] = admin;
        cout << "Admin added successfully!" << endl;
    } else {
        cout << "Maximum number of admins reached." << endl;
    }
}


// Function to update admin data
void updateAdmin(Admin admins[], int numAdmins) {
    string name;
    cout << "Enter admin name to update: ";
    cin >> name;
    for (int i = 0; i < numAdmins; i++) {
        if (admins[i].name == name) {
            cout << "Enter new admin name: ";
            cin >> admins[i].name;
            cout<<"enter your designation (faculty, staff):";
            cin>>admins[i]. designation;
            cout << "Enter new admin password: ";
            cin >> admins[i].password;
            cout << "Admin updated successfully!" << endl;
            return;
        }
    }
    cout << "Admin not found." << endl;
}
```

```cpp
// Function to view admin data
void viewAdmins(Admin admins[], int numAdmins) {

    if (numAdmins == 0) {

        cout << "No admins found." << endl;

    } else {

        cout << "Admins:" << endl;

        for (int i = 0; i < numAdmins; i++) {

            cout << "Name: " << admins[i].name << endl;

            cout<<"designation (faculty, staff) : "<<admins[i].designation<<endl;

            cout << "Password: " << admins[i].password << endl;

            cout << endl;

        }

    }

}


//Making Admin Data Through function.
Admin takingname(Admin x)
{

    string password="admin";

    cout<<"Enter your default user_name: ";

    cin.ignore(25,'\n');

    getline(cin,x.name);

    cout<<"designation (faculty, staff) :";

    cin>>x.designation;

    cout<<"Enter your default Password :";

    cin>>x.password;

    do{

        if(password != x.password)

        {
```

```cpp
        cout<<"Please input the correct password"<<endl;

        cout<<"password : ";

        cin>>x.password;

    }}

    while(password != x.password);

    //x.noofadmins[0] = 1;

    return x;     //returning function. whenever we return a function in structure we take the data type of
the structure name.

}


//Now Changing Password for Admin after first login.

void changepassword(Admin& y)   //here & is used to take adress of admin.

{

    string pass1, pass2;

    string password="admin";

     cout<<"---------------"<<endl;

    cout<<"  WELCOME :)"<<endl;

     cout<<"---------------"<<endl;

    cout<<endl;

    cout<<"You must change your password"<<endl;

    cout<<endl;

    cout<<"New password: ";

    cin>>pass1;

    cout<<"Confirm new password: ";

    cin>>pass2;

   do{

    if(pass1!=pass2)

    {

            cout<<endl;
```

```cpp
        cout<<"error! Please enter again"<<endl;

        cout<<endl;

        cout<<"Confirm new password: ";

        cin>>pass2;

    }

            }

    while(pass1!=pass2);


    y.password=pass2;

    cout<<"Your password has been changed."<<endl;

}
////Making Student Data Through function.

Student takingname(Student x)

{

    string password="student123";

    cout<<"rollNo : ";

    cin>>x.rollNo;

    cout<<"Passward :";

    cin>>x.password;

    do{

            if(password != x.password)

    {

        cout<<"Please input the correct password"<<endl;

        cout<<"password : ";

        cin>>x.password;

    }}

    while(password != x.password);

   // x.noofadmins[0] = 1;

    return x; //returning function.
```

```cpp
}


////Now Changing Password for student after first login.
void changepass(Student& y)
{
    string pass1, pass2;
    cout<<"name :";
    cin>>y.name;
    cout<<"section (A,B,C,D):";
    cin>>y.section;
    cout<<endl;
    cout<<"---------------"<<endl;
    cout<<"  WELCOME :)"<<endl;
    cout<<"---------------"<<endl;
    cout<<endl;
    cout<<"You must change your password"<<endl;
    cout<<endl;
    cout<<"New password: ";
    cin>>pass1;
    cout<<"Confirm new password: ";
    cin>>pass2;
    do{
      if(pass1!=pass2)
    {
        cout<<"error! Please enter again"<<endl;
        cout<<"Confirm new password: ";
        cin>>pass2;
    }}
    while(pass1!=pass2);
```

```cpp
    y.password=pass2;

    cout<<"Your password has been changed."<<endl;

}


//Displaying the student data.

void displaystudentdata(Student display)

{

        cout<<endl;

        cout<<"Now displaying data of the student "<<endl;

        cout<<endl;

        cout<<"name :"<<display.name<<endl;

        cout<<"roll number :"<<display.rollNo<<endl;

        cout<<"section :"<<display.section<<endl;

}

void addStudent(Student students[], int& numStudents) {

    cout << "Enter name: ";

    cin >> students[numStudents].name;

    cout << "Enter rollno: ";

    cin >> students[numStudents].rollNo;

    cout << "Enter section: ";

    cin >> students[numStudents].section[5];

        for(int i=0;i<5;i++)

        {

        if(students[numStudents].section[i]>50)

        {

                cout<<"Limit Exceeded Add In Another Section"<<endl;

                }}

    cout << "Enter Password: ";

    cin >> students[numStudents].password;
```

```cpp
    numStudents++;

    cout << "Student added successfully!" << endl;

}


void updateStudent(Student students[], int numStudents) {

    int id;

    bool found = false;

    cout << "Enter the rollnumber of the student to update: ";

    cin >> id ;

    for (int i = 0; i < numStudents; i++) {

        if (students[i].rollNo == id )

                        {

            cout << "Enter new name: ";

            cin >> students[i].name;

            cout << "Enter new rollnumber: ";

            cin >> students[i].rollNo;

            cout << "Enter new password: ";

            cin >> students[i].password;

            found = true;

            cout << "Student updated successfully!" << endl;

            break;

        }

    }

    if (!found) {

        cout << "Student not found." << endl;

    }

}


void viewStudents(Student students[], int numStudents) {
```

```cpp
    for (int i = 0; i < numStudents; i++) {

        cout << "Name: " << students[i].name << endl;

        cout << "Roll number: " << students[i].rollNo << endl;

        cout << "Section: " << students[i].section[5]<< endl;

        cout << "password: " << students[i].password << endl;

        cout << endl;

    }

}
```

```
Welcome to the Department of Computer Science
---------------------------------------------------

Press 1 to login as Admin.
Press 2 to login as Student.

Enter your option: 1
Enter your default user_name: admin
designation (faculty, staff) :staff
Enter your default Password :admin

---------------
  WELCOME :)
---------------

You must change your password

New password: admin1
Confirm new password: admin1
Your password has been changed.

Press 1 to add/update/view admins.
Press 2 to add/update/view students.
Press 3 To Go To Main Menue .
Press 0 to logout.

Your option : 1

1. Add admin
2. Update admin
3. View admins
4. Exit
Enter your choice: 1
Enter admin name: asad
enter your designation (faculty, staff):staff
Enter your default password : admin123
Change your password :asad1
Re-enter password: asad1
Admin added successfully!
Do You Want To Add Another Admin (Y/N):n
1. Add admin
2. Update admin
3. View admins
4. Exit
Enter your choice: 3
Admins:
Name: asad
designation (faculty, staff) : staff
Password: asad1
```

Adding and viewing admin.

```
Enter your choice: 2
Enter admin name to update: asad
Enter new admin name: nouman
enter your designation (faculty, staff):faculty
Enter new admin password: asaq
Admin updated successfully!
1. Add admin
2. Update admin
3. View admins
4. Exit
Enter your choice: 3
Admins:
Name: nouman
designation (faculty, staff) : faculty
Password: asaq
```

Updatind admin

```
Welcome to the Department of Computer Science
-----------------------------------------------

Press 1 to login as Admin.
Press 2 to login as Student.

Enter your option: 2
rollNo : 12
Passward :student123

name :nouman
section (A,B,C,D):D

--------------
  WELCOME :)
--------------

You must change your password

New password: nomi
Confirm new password: nomi
Your password has been changed.


Press 1 to see your information.
Press 2 To Go To Main Menue .
Press 0 to logout.

Your option :
1

Now displaying data of the student

name :nouman
roll number :12
section :D
```

Adding and updating and viewing student.

```
Your option : 2

Select an option:
1. Add student
2. Update student
3. View all students
4. Exit
Enter your choice: 1
Enter name: junaid
Enter rollno: 22
Enter section: A
Enter Password: 123
Student added successfully!
Do You Want To Add Another Admin (Y/N):n

Select an option:
1. Add student
2. Update student
3. View all students
4. Exit
Enter your choice: 3
Name: junaid
Roll number: 22
Section: A
password: 123


Select an option:
1. Add student
2. Update student
3. View all students
4. Exit
Enter your choice: 2
Enter the rollnumber of the student to update: 22
Enter new name: junaidsaeed
Enter new rollnumber: 21
Enter new password: 345
Student updated successfully!
```

student entering and viewing his data