

C O M P U T E R
P R O J E C T

STUDENT DATABASE

MANAGEMENT SYSTEM

A B A S E
D E N T
A S E

VIDUR
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**STUDENT DATABASE
MANAGEMENT SYSTEM**

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STUDENT DATABASE MANAGEMENT SYSTEM

CERTIFICATE

This is to certify that "Student Database Management System" computer science project is developed by Vidur Sharma, Vishesh Balani and Yatharth under my supervision in the computer lab of Delhi Public School, R.K.Puram in the session 2014-2015. The work done by them is original.

Ms. ROMI SHARMA

Computer Science Teacher

Date: _____

STUDENT DATABASE MANAGEMENT SYSTEM

INTRODUCTION

The Project aims at providing a convenient platform to store and perform operations on students' marks and keep track of their performance in school examinations. Moreover, it provides a comprehensive report card of every student in the database. Some of the salient features of this program are:

- STORE MARKS IN ALL SUBJECTS FOR THE + 2 CLASSES
- OVERALL CLASS PERFORMANCE REPORTS
- PERFORMANCE COMPARISON AGAINST PEERS
- SINGLE-LINE REPORTS OF EVERY STUDENT
- GENERATE COMPREHENSIVE REPORT CARDS FOR STUDENTS
- SEARCH FOR A STUDENT IN EXISTING DATABASE
- UPDATE/MODIFY AN ENTRY IN THE DATABASE

PROJECT BY
VIDUR SHARMA
VISHESH BALANI
YATHARTH

TEACHER'S SIGNATURE

STUDENT DATABASE MANAGEMENT SYSTEM

SOURCE CODE

```
/*
Project Name :Student Database Academic Performance System
Developed By :Vidur Sharma, Vishesh Balani and Yatharth
Class-Section :XII-I
School :Delhi Public School, R.K.Puram
Last Updated :10-December-2014
*/
```

```
#include<fstream.h>
#include<conio.h>
#include<stdio.h>
#include<ctype.h>
#include<string.h>
#include<iomanip.h>
#include<math.h>

struct Date
{
    int dd,mm,yy;
};

class Student
{
    long int admno;
    int rollno;
    char name[30];
    char cl [10];
    Date dob;
    char subject[5][40];
    float th[5],pr[3];
    float total, avg, shigh[5] , savg[5];
    char remark [150];
}
```

STUDENT DATABASE MANAGEMENT SYSTEM

```
public:  
    Student();  
    void Enter();  
    void Update();  
    void Display ();  
    void Show();  
    void setHighest(float h[], float a []);  
    int getrollno()  
    {return rollno;}  
    int getadmno()  
    {return admno;}  
    void setadmno(long no)  
    {admnno=no;}  
    char *getname()  
    {return name;}  
    float getth1()  
    {return th[0];}  
    float getth2()  
    {return th[1];}  
    float getth3()  
    {return (th[2]+pr[0]);}  
    float getth4()  
    {return (th[3]+pr[1]);}  
    float getth5()  
    {return (th[4]+pr[2]);}  
};  
  
void Student::setHighest(float h[], float a[])  
{  
  
    for(int i=0;i<5; i++)  
    {  
        shigh[i]=h[i];  
        savg[i]=ceil(a[i]);  
    }  
}
```

STUDENT DATABASE MANAGEMENT SYSTEM

```
Student::Student()
{
    admno=0;
    rollno=0;
    strcpy(name, "/0");
    strcpy(cl, "/0");
    dob.dd=0, dob.mm=0, dob.yy=0;
    for (int i=0; i<5; i++)
    {
        th[i]=0;
        if(i>1)
            pr[i-2]=0;
    }
    strcpy(subject[0],"English");
    strcpy(subject[1],"Maths");
    strcpy(subject[2],"Physics");
    strcpy(subject[3],"Chemistry");
    strcpy(subject[4],"Computer Science");

    total=0;
    avg=0;
    strcpy(remark,"/0");
}

void Student::Show()
{
    cout<<"\n"<<setw(10)<<cl<<setw(10)<<admno<<setw(10)<<roll-
no<<setw(20)<<name<<setw(10)<<ceil(avg);
}

void Student::Enter()
{
    int n;
    cout<<"\n\t Student Details Entry Form";
    cout<<"\n\t -----";
    cout<<"\n\t ADM No. \t\t:<<admno;
```

STUDENT DATABASE MANAGEMENT SYSTEM

```

do
{
    cout<<"\n\t Roll No.\t\t";
    cin>>rollno;
    if(rollno<1 || rollno>100)
    {
        n=0;
        cout<<"\t Invalid Roll No. Please Re-Enter";
    }
    else
        n=1;
}while(n==0);
cout<<"\t Name\t\t\t";
gets(name);
cout<<"\t Class (XII A..XI C...etc):";
gets(cl);
cout<<"\t Date of Birth{DD>MM>YY}:";
cin>>dob.dd;
cout<<"\t           ";
cin>>dob.mm;
cout<<"\t           ";
cin>>dob.yy;
total=0;
for(int i=0; i<5; i++)
{
    cout<<"\n\t Subject "<<(i+1)<<" "<<subject[i];
    cout<<"\n\t Theory Marks:";
    cin>>th[i];
    total+=th[i];
    if(i>1)
    {
        cout<<"\t Practical Marks:";
        cin>>pr[i-2];
        total+=pr[i-2];
    }
}

avg=total/5;
cout<<"\t Teacher Remarks:";
gets(remark);
}

```

STUDENT DATABASE MANAGEMENT SYSTEM

```

void Student::Update()
{
    cout<<"\n\t Student Details Entry Form";
    cout<<"\n\t -----";
    cout<<"\n\t ADM No. \t\t:<<admno;
    cout<<"\n\t Roll No. \t\t:<<rollno;
    cout<<"\n\t Name\t\t\t:<<name;
    cout<<"\n\t Class \t\t\t:<<cl;
    cout<<"\n\t Date of Birth. \t";
    cout<<dob.dd<<"/<<dob.mm<<"/<<dob.yy<<endl;
    total = 0;
    for(int i=0; i<5; i++)
    {
        cout<<"\t Subject "<<(i+1)<<" "<<subject[i];
        cout<<"\n\t Theory Marks : ";
        cin>>th[i];
        total +=th[i];
        if(i>1)
        {
            cout<<":\t Practical Marks : ";
            cin>>pr[i-2];
            total +=pr[i-2];
        }
    }
    avg=total/5;
    cout<<"\t Teacher Remarks : ";
    gets(remark);
}

void Student::Display()
{
    clrscr();
    gotoxy(30,2);
    cout<<"Delhi Public School";
    gotoxy(30,3);
    cout<<"R.K.Puram, New Delhi";
    gotoxy(35,5);
}

```

STUDENT DATABASE MANAGEMENT SYSTEM

```
cout<<"Result Sheet";
gotoxy(1,6);
cout<<-----
<<-----;
gotoxy(1,7);
cout<<"Name";
gotoxy(10,7);
cout<<name;
gotoxy(50,7);
cout<<"ADM No.:";
gotoxy(60,7);
cout<<admno;
gotoxy(1,8);
cout<<"Class:";
gotoxy(10,8);
cout<<cl;
gotoxy(50,8);
cout<<"Roll No.:";
gotoxy(60,8);
cout<<rollno;
gotoxy(1,9);
cout<<"DOB:";
gotoxy(10,9);
cout<<dob.dd<<" / "<<dob.mm<<" / "<<dob.yy;
gotoxy(1,10);
cout<<-----
<<-----;
gotoxy(1,11);
cout<<"Subject";
gotoxy(25,11);
cout<<"Theory";
gotoxy(35,11);
cout<<"Practical";
gotoxy(48,11);
cout<<"Total";
gotoxy(60,11);
cout<<"Section";
gotoxy(70,11);
cout<<"Section";
```

STUDENT DATABASE MANAGEMENT SYSTEM

```
gotoxy(48,12);
cout<<"M.M.100";
gotoxy(60,12);
cout<<"Highest";
gotoxy(70,12);
cout<<"Average";
gotoxy(1,13);
cout<<"-----"
<<"-----";
for(int i=0; i<5; i++)
{
    gotoxy(1,14+i);
    cout<<subject[i];
    gotoxy(25,14+i);
    if(th[i] == -1)
        cout<<"ABS";
    else
        cout<<th[i];
    if(i>1)
    {
        gotoxy(35,14+i);
        if(pr[i-2] == -1)
            cout<<"ABS";
        else
            cout<<pr[i-2];
        gotoxy(48,14+i);
        if(th[i] == -1 || pr[i-2] == -1)
            cout<<"ABS";
        else
            cout<<th[i]+pr[i-2];
    }
    else
    {
        gotoxy(48,14+i);
        if(th[i]== -1)
            cout<<"ABS";
        else
            cout<<th[i];
    }
}
```

STUDENT DATABASE MANAGEMENT SYSTEM

```

gotoxy(60,14+i);
cout<<shigh[i];
gotoxy(70,14+i);
cout<<savg[i];
}
gotoxy(1,19);
cout<<"-----";
<<"-----";
gotoxy(48,20);
cout<<"Total: "<<total;
gotoxy(48,21);
cout<<"Avg: "<<ceil(avg);
gotoxy(1,22);
cout<<"-----";
<<"-----";
gotoxy(1,23);
cout<<"Teacher Remarks : "<<remark;
gotoxy(1,24);
cout<<"-----";
<<"-----";
}

int getnew_admno()
{
    fstream F("Student.dat",ios::binary | ios::in);
    Student s1;
    int admno=0;
    // File pointer move at end of file
    F.seekg(0,ios::end);
    //CHECK IF ANY RECORD EXISTS OR NOT
    if(F.tellg()>0)
    {
        //Move File pointer to the beginning of last record
        F.seekg(F.tellg() - sizeof(s1));
        // Read last record
        F.read((char*)&s1,sizeof(s1));
        //set new adm no = last adm no + 1
        admno = s1.getadmno() + 1;
    }
}

```

STUDENT DATABASE MANAGEMENT SYSTEM

```
else
{
    admno = 1001;
}
F.close();
return admno;
}

void stud_add()
{
    fstream F;
    Student snew;
    long ano = getnew_admno();
    snew.setadmno(ano);
    F.open("Student.dat",ios::binary | ios::app);
    snew.Enter();
    F.write((char*)&snew,sizeof(snew));
    F.close();
}

void stud_search()
{
    int ch, x, found=0;
    char name[30];
    Student s1;
    do
    {
        clrscr();
        cout<<"Please select a choice:";
        cout<<"\n 1.search by Roll no"<<"\n 2.search by name";
        cout<<"\n 3.search by ADMNO"<<"\n Enter choice[1-3] :";
        cin>>ch;
        switch(ch)
        {
            case 1: cout<<"\n Enter Roll no to be searched:";
                      cin>>x;
                      break;
```

STUDENT DATABASE MANAGEMENT SYSTEM

```
case 2: cout<<"\n please enter name to tbe searched:";  
        gets(name);  
        break;  
case 3: cout<<"\n Enter ADMNO to be searched:";  
        cin>>x;  
        break;  
default:cout<<"\n invalid choice! ";  
}  
  
}while(ch<1 || ch>3);  
  
ifstream F;  
F.open("Student.dat",ios::in | ios::binary);  
  
while(F.read((char*)&s1, sizeof(s1)))  
{  
    if(ch==1)  
    {  
        if(x==s1.getrollno())  
        {  
            found = 1;  
            s1.Display();  
            break;  
        }  
    }  
    else if(ch==2)  
    {  
        if (!strcmpi(name, s1.getname()))  
        {  
            s1.Display();  
            found++;  
        }  
    }  
    else  
    {  
        if (x==s1.getadmno())  
        {  
            found=1;  
            s1.Display();  
            break;  
        }  
    }  
}
```

STUDENT DATABASE MANAGEMENT SYSTEM

```
void stud_delete()
{
    Student s1;
    fstream f1,f2;
    f1.open("Student.dat",ios::in | ios::binary);
    f2.open("Temp.dat",ios::out | ios::binary);
    long admno;
    char ch;int found=0;
    cout<<"\n Please Enter the ADMNO to be deleted from records";
    cin>>admno;
    while (f1.read((char*)&s1, sizeof(s1)))
    {
        if (!(s1.getadmno() == admno))
            f2.write((char*)&s1, sizeof(s1));
        else
        {
            found++;
            s1.Show();
            cout<<"\n Are you sure you want to delete this record?(Y/N)";
            cin>>ch;
            if(tolower(ch)=='n')
                f2.write((char*)&s1,sizeof(s1));
            else
                cout<<"\n Deleted successfully!";
        }
    }
    f1.close();
    f2.close();
    remove("Student.dat");
    rename("Temp.dat","Student.dat");
    if (!found)
        cout<<"No record matches";
}
```

STUDENT DATABASE MANAGEMENT SYSTEM

```

void stud_report()
{
    fstream F;
    clrscr();
    F.open("Student.dat",ios::in|ios::binary);
    Student s1;
    int n=0;

    cout<<"\n-----" <<"-----";
    cout<<"\n" <<setw(10)<<"Class" <<setw(10)<<"Adm-
no" <<setw(10)<<"Rollno" <<setw(20)<<"Name" <<setw(10)<<"Average";
    cout<<"\n-----" <<"-----";
    while(F.read((char*)&s1,sizeof(s1)))
    {
        s1.Show();
        n++;
        if(n%20==0)
            getch();
        //TO PAUSE AFTER 20 RECORDS
    }
    if(n==0)
        cout<<"\n Record not Found !!!";
    cout<<"\n-----" <<"-----";
    F.close();
}

void FinalUpdate()
{
    float stot[5]={0,0,0,0,0};
    float avg[5]={0,0,0,0,0};
    float high[5]={0,0,0,0,0};
    int count=0;
    fstream f("Student.dat",ios::in|ios::binary);
    Student s1;
    while(f.read((char*)&s1,sizeof(s1)))
    {
}

```

STUDENT DATABASE MANAGEMENT SYSTEM

```
stot[0]+=s1.getth1();
stot[1]+=s1.getth2();
stot[2]+=s1.getth3();
stot[3]+=s1.getth4();
stot[4]+=s1.getth5();
if(high[0]<s1.getth1())
    high[0]=s1.getth1();
if(high[1]<s1.getth2())
    high[1]=s1.getth2();
if(high[2]<s1.getth3())
    high[2]=s1.getth3();
if(high[3]<s1.getth4())
    high[3]=s1.getth4();
if(high[4]<s1.getth5())
    high[4]=s1.getth5();
count++;
}
f.close();

for(int i=0; i<5; i++)
{
    avg[i]=stot[i]/count;
}
fstream File("Student.dat",ios::in|ios::out|ios::binary);
while(File.read((char*)&s1,sizeof(s1)))
{
    s1.setHighest(high,avg);
    File.seekp(File.tellg()-sizeof(s1));
    File.write((char*)&s1,sizeof(s1));
}
File.close();
}

void menu()
{
int ch;
```

STUDENT DATABASE MANAGEMENT SYSTEM

```
do
{
    clrscr();
    FinalUpdate();
    cout<<"\n\t Main menu";
    cout<<"\n\t -----";
    cout<<"\n\t 1. Add Record";
    cout<<"\n\t 2. Search Record";
    cout<<"\n\t 3. Modify Record";
    cout<<"\n\t 4. Delete Record";
    cout<<"\n\t 5. Report";
    cout<<"\n\t 6. Exit";
    cout<<"\n\t Enter Choice[1-6]:";
    cin>>ch;
    switch(ch)
    {
        case 1:stud_add();
        break;
        case 2:stud_search();
        break;
        case 3:stud_modify();
        break;
        case 4:stud_delete();
        break;
        case 5:stud_report();
        break;
        case 6:cout<<"\n\t Quitting..Press Enter";
        break;
        default:cout<<"\n\t Invalid Choice!";
        break;
    }
    getch();
}while(ch!=6);
}
```

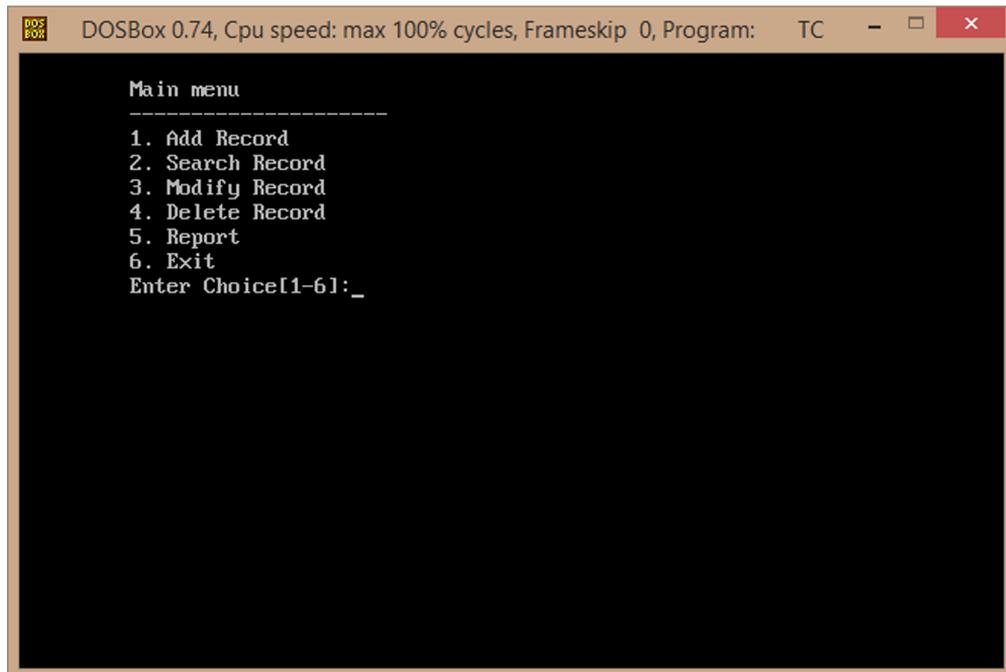
STUDENT DATABASE MANAGEMENT SYSTEM

```
void main()
{
    clrscr();
    menu();
    cout<<"Have a nice day ";
    getch();
}
```

```
/*
Project Name :Student Database Academic Performance System
Developed By :Vidur Sharma, Vishesh Balani and Yatharth
Class-Section :XII-I
School      :Delhi Public School, R.K.Puram
Last Updated :10-December-2014
*/
```

STUDENT DATABASE MANAGEMENT SYSTEM

OUTPUTS



Main menu

1. Add Record
2. Search Record
3. Modify Record
4. Delete Record
5. Report
6. Exit

Enter Choice[1-6]: 1

Student Details Entry Form

ADM No.	:1002
Roll No.	:21
Name	:Harsh Kumar
Class (XII A..XI C...etc)	:XII A
Date of Birth{DD>MM>YY}	:12
	8
	97

Subject 1 English
Theory Marks:75

Subject 2 Maths
Theory Marks:

STUDENT DATABASE MANAGEMENT SYSTEM

Roll No. :21
 Name :Harsh Kumar
 Class (XII A..XI C...etc):XII A
 Date of Birth(DD>MM>YY):12
 8
 97

Subject 1 English
 Theory Marks:75

Subject 2 Maths
 Theory Marks:88

Subject 3 Physics
 Theory Marks:58
 Practical Marks:27

Subject 4 Chemistry
 Theory Marks:60
 Practical Marks:24

Subject 5 Computer Science
 Theory Marks:65
 Practical Marks:29
 Teacher Remarks:Good! Keep it up.

Main menu

- 1. Add Record
- 2. Search Record
- 3. Modify Record
- 4. Delete Record
- 5. Report
- 6. Exit

Enter Choice[1-6]:2

Please select a choice:

- 1.search by Roll no
- 2.search by name
- 3.search by ADMNO

Enter choice[1-3] :1

Please select a choice:

- 1.search by Roll no
- 2.search by name
- 3.search by ADMNO

Enter choice[1-3] :1

Enter Roll no to be searched:43

Record does not exist !!!!

Please select a choice:

- 1.search by Roll no
- 2.search by name
- 3.search by ADMNO

Enter choice[1-3] :1

Enter Roll no to be searched:21

20

STUDENT DATABASE MANAGEMENT SYSTEM

DOSBox 0.74, Cpu speed: max 100% cycles, Frameskip 0, Program: TC						
Name	Harsh Kumar	ADM No.:	1002	Section		
Class:	XII A	Roll No.:	21	Highest		Average
DOB:	12 / 8 / 97					
Subject	Theory	Practical	Total M.M.100	Section Highest	Section Average	
English	75		75	98	88	
Maths	88		88	99	93	
Physics	58	27	85	85	83	
Chemistry	60	24	84	87	85	
Computer Science	65	29	94	98	95	
			Total: 426			
			Agg: 86			
Teacher Remarks : Good! Keep it up.						

Main menu

1. Add Record
2. Search Record
3. Modify Record
4. Delete Record
5. Report
6. Exit

Enter Choice[1-6]:1

Student Details Entry Form

ADM No.	:1003
Roll No.	:45
Name	:Vinay Gopal
Class (XII A..XI C...etc):	XI F
Date of Birth(DD>MM>YY):	9
	98

Subject 1 English
Theory Marks:80

Subject 2 Maths
Theory Marks:95

Subject 3 Physics
Theory Marks:60
Practical Marks:15

Subject 4 Chemistry
Theory Marks:49
Practical Marks:20

Subject 5 Computer Science
Theory Marks:68
Practical Marks:30

Teacher Remarks:Doing well, can excel..

Please select a choice:

- 1.search by Roll no
- 2.search by name
- 3.search by ADMNO

Enter choice[1-3] :3

Enter ADMNO to be searched:1003_

STUDENT DATABASE MANAGEMENT SYSTEM

Result Sheet							
Name	Nalib Sia Shivesh			ADM No.:	1003		
Class:	XII A			Roll No.:	45		
DOB:	12 / 12 / 98						
Subject	Theory	Practical	Total M.M.100	Section Highest	Section Average		
English	98		98	98	88		
Maths	99		99	99	93		
Physics	59	25	84	85	83		
Chemistry	56	27	83	87	85		
Computer Science	65	28	93	98	95		
						Total: 457	
						Agg: 92	
Teacher Remarks : Can do much better							

Main menu

1. Add Record
2. Search Record
3. Modify Record
4. Delete Record
5. Report
6. Exit

Enter Choice[1-6]:4

Please Enter the ADMNO to be deleted from records:1003

XI F 1003 45 Vinay Gopal 84

Are you sure you want to delete this record?(Y/N)

Main menu

1. Add Record
2. Search Record
3. Modify Record
4. Delete Record
5. Report
6. Exit

Enter Choice[1-6]:4

Please Enter the ADMNO to be deleted from records:1003

No record matches_

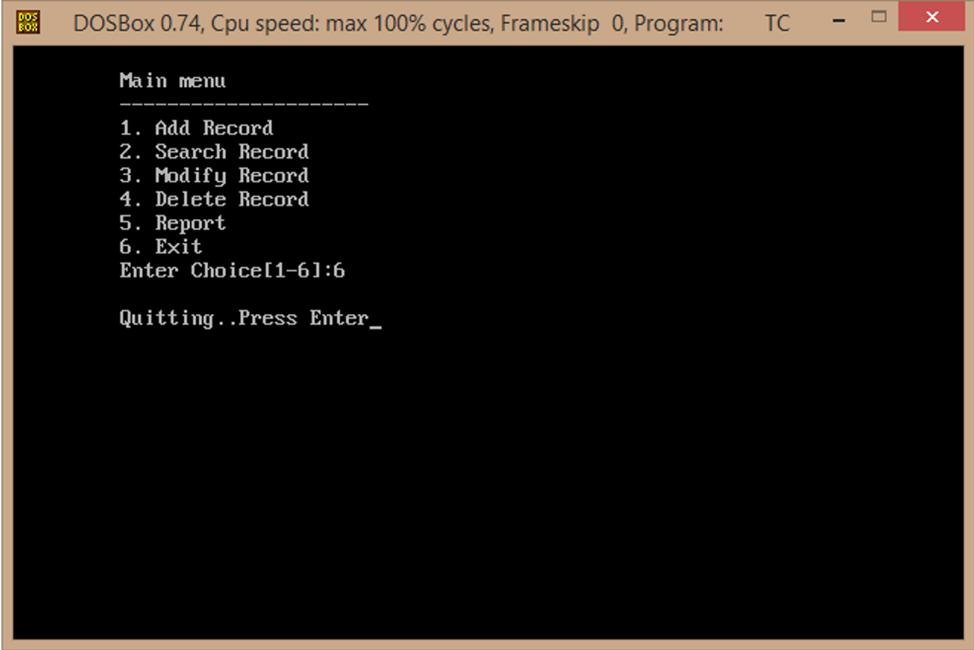
Main menu

1. Add Record
2. Search Record
3. Modify Record
4. Delete Record
5. Report
6. Exit

Enter Choice[1-6]:5_

STUDENT DATABASE MANAGEMENT SYSTEM

Class	Admno	Rollno	Name	Average
XII A	1001	25	Ravi Kumar	89
XII A	1002	21	Harsh Kumar	86



DOSBox 0.74, Cpu speed: max 100% cycles, Frameskip 0, Program: TC - x

Main menu

- 1. Add Record
- 2. Search Record
- 3. Modify Record
- 4. Delete Record
- 5. Report
- 6. Exit

Enter Choice[1-6]:6

Quitting..Press Enter_

STUDENT DATABASE MANAGEMENT SYSTEM

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It gives me great pleasure to express my gratitude towards my computer teacher Mrs. Romi Sharma, for her guidance, support and encouragement throughout the duration of the project. I would also like to thank my Principal, Dr. D.R. Saini for his support. I would also like to thank the staff of Computer Lab V for their help, without which the successful completion of the project would not have been possible.

REFERENCES

- *Class Notes , DPS RKP
- *Jumping into C++ , Alex Allain
- *www.cprogramming.com

CURRENT LIMITATIONS

- Only records of +2 class students can be stored
- Program designed with respect to the science stream only
- Co-curricular activities not kept track of