**Ex: 10 FRIEND CLASS Dt:**

**Aim:**

**Create a class teacher {teacher name, ID, department, subject currently handled} and student class{student name, regno, subjects, teacher, marks(midterm1, midterm2, assignment), log}such that the teacher class id made a friend of student class. Allow the teacher class to update the student information like marks and also maintain an entry in the student class log field every time an updation takes place. This log should maintain the details like teacher code, updated fields etc.,**

**Program:**

#include<iostream>

#include<conio.h>

#include<string.h>

using namespace std;

int f=0;

class teacher;

class student

{char student\_name[20];

char reg\_no[10];

char subject\_name[3][20];

int marks[3][2];

public:

void inp()

{cout<<"NAME \t"; cin>>student\_name;

cout<<"REG\_NO \t"; cin>>reg\_no;

for(int i=1;i<=3;i++)

{ strcpy(subject\_name[i],subject[i]); }

cout<<"MARKS \n";

for(int i=1;i<=3;i++)

{ cout<<subject\_name[i]<<"\n";

for(int j=1;j<=2;j++)

{ cout<<"MID\_TERM"<<j<<"\t"; cin>>marks[i][j]; }

}

}

char subject[3][20];

void display()

{ cout<<"\n NAME \t"<<student\_name;

cout<<"\n REG\_NO \t"<<reg\_no;

cout<<"MARKS \n";

for(int i=1;i<=3;i++)

{ cout<<subject\_name[i]<<"\n";

for(int j=1;j<=2;j++)

{ cout<<"MID\_TERM"<<j<<"\t"<<marks[i][j]; }

}

}

friend class teacher;

};

class teacher

{char teacher\_name[20];

char id[20];

char department[20];

char subject\_name[20];

public:

void inp()

{

cout<<"NAME \t"; cin>>teacher\_name;

cout<<"ID \t"; cin>>id;

cout<<"DEPARTMENT \t"; cin>>department;

cout<<"SUBJECT\_NAME \t"; cin>>subject\_name;

}

void update(student \*s);

void comp(char u[20],char p[20])

{ if((strcmp(teacher\_name,u)==0) && (strcmp(subject\_name,p)==0))

{ f=1; }

}

};

int main()

{teacher t[3];

student s[3];

char sub[3][20]; int i;

cout<<"SUBJECTS\_NAME \n";

for(int i=1;i<=3;i++)

{ cin>>sub[i]; }

for(int i=1;i<=3;i++)

{ for(int j=1;j<=3;j++)

{ strcpy(s[i].subject[j],sub[j]); }

} system("CLS");

cout<<"TEACHER REGISTRATION \n";

for(int i=1;i<=3;i++)

{ cout<<i<<"\n";

t[i].inp();

}system("CLS");

cout<<"\n STUDENT REGISTRATION \n";

for(int i=1;i<=3;i++)

{ cout<<i<<"\n";

s[i].inp(); system("CLS");

}

char u[20],p[20];

cout<<"FACUILTY\_LOGIN \n";

cout<<"USERNAME \t"; cin>>u;

cout<<"SUBJECT\_NAME \t"; cin>>p;

for(i=1;i<=3;i++)

{ t[i].comp(u,p);

if(f==1)

{break;}

}system("CLS");

t[i].update(s); system("CLS");

cout<<"STUDENT INFO \n";

for(int i=1;i<=3;i++)

{ s[i].display(); }

getch();

return 0;

}

void teacher::update(student \*s)

{ int i,j,x,ch;

cout<<"WELCOME \n";

for(i=1;i<=3;i++)

{ for(j=1;j<=3;j++)

{ if(strcmp(subject\_name,s[i].subject\_name[j])==0)

{ cout<<"\n"<<s[i].student\_name<<"\n";

cout<<"MARKS \n";

for(x=1;x<=2;x++)

{ cout<<"\n MIDTERM"<<x<<"\t"<<s[i].marks[i][x]<<"\n";

cout<<"1. UPDATE \n 2. NEXT \n"; cin>>ch;

if(ch==1)

{ cout<<"MIDTERM"<<x<<"\t"; cin>>s[i].marks[i][x]; }

}

}

}

}

}

**Sample Input-Output:**

**SUBJECT NAME**

**LINUX OOPS DSA**

**TEACHER REGISTRATION**

**1.**

**NAME ABC**

**ID A@1**

**DEPARTM ENT CSE**

**SUBJECT DSA**

**2.**

**NAME XYZ**

**ID X@1**

**DEPARTMENT CSE**

**SUBJECT LINUX**

**3.**

**NAME ESC**

**ID E@1**

**DEPARTMENT CSE**

**SUBJECT OOPS**

**STUDENT REGISTRATION**

**1**

**NAME YUVRAJ**

**REG\_NO 123**

**MARKS**

**DSA MID\_TERM 1 13 MID\_TERM 2 12**

**LINUX MID\_TERM 1 13 MID\_TERM 2 12**

**OOPS MID\_TERM 1 13 MID\_TERM 2 12**

**2**

**NAME ESC**

**REG\_NO 122**

**MARKS**

**DSA MID\_TERM 1 13 MID\_TERM 2 12**

**LINUX MID\_TERM 1 13 MID\_TERM 2 12**

**OOPS MID\_TERM 1 13 MID\_TERM 2 12**

**3**

**NAME XYZ**

**REG\_NO 121**

**MARKS**

**DSA MID\_TERM 1 13 MID\_TERM 2 12**

**LINUX MID\_TERM 1 13 MID\_TERM 2 12**

**OOPS MID\_TERM 1 13 MID\_TERM 2 12**

**FACUILTY\_LOGIN**

**USERNAME ESC**

**SUBJECT OOPS**

**WELCOME**

**YUVRAJ**

**MIDTERM1 13**

**1 UPDATE 2 NEXT 1**

**MIDTERM1 20**

**MIDTERM2 12**

**1 UPDATE 2 NEXT 2**

**ESC**

**MIDTERM1 13**

**1 UPDATE 2 NEXT 2**

**MIDTERM2 12**

**1 UPDATE 2 NEXT 2**

**XYZ**

**MIDTERM1 13**

**1 UPDATE 2 NEXT 2**

**MIDTERM2 12**

**1 UPDATE 2 NEXT 2**

**STUDENT INFO**

**NAME YUVRAJ REG\_NO 123**

**DSA MID\_TERM 1 20 MID\_TERM 2 12**

**LINUX MID\_TERM 1 13 MID\_TERM 2 12**

**OOPS MID\_TERM 1 13 MID\_TERM 2 12**

**NAME ESC REG\_NO 122**

**DSA MID\_TERM 1 13 MID\_TERM 2 12**

**LINUX MID\_TERM 1 13 MID\_TERM 2 12**

**OOPS MID\_TERM 1 13 MID\_TERM 2 12**

**NAME XYZ REG\_NO 121**

**DSA MID\_TERM 1 13 MID\_TERM 2 12**

**LINUX MID\_TERM 1 13 MID\_TERM 2 12**

**OOPS MID\_TERM 1 13 MID\_TERM 2 12**