



**AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH
(AIUB)**

Department of Computer Science and Information

PROJECT REPORT

**PROJECT TITLE
SCHOOL MANAGEMENT SYSTEM**

Submitted By:

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ADVANCE DATABASE MANAGEMENT SYSTEM

SUBMITTED TO:

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ASSISTANT PROFESSOR

FACULTY OF COMPUTER SCIENCE AND ENGINEERING

DEPARTMENT OF SCIENCE AND TECHNOLOGY

SEMESTER: SUMMER 2019-2020

Database Schema Diagram:

Table 1: STUDENT_INFO

Serial No	Column	Type	Length	Precision	Nullable
01	ST_ID	NUMBER	22	6	NO
02	SNAME	VARCHAR2	10		YES
03	FNAME	VARCHAR2	10		YES
04	MNAME	VARCHAR2	10		YES
05	T_ID	NUMBER	22	5	YES
06	PASSING_YEAR	NUMBER	22	4	YES

Table 2: TEACHER_INFO

Serial No	Column	Type	Length	Precision	Nullable
01	T_ID	NUMBER	22	6	NO
02	TNAME	VARCHAR2	10		YES
03	CNAME	VARCHAR2	10		YES

Table 3: STUDENT_COURSE

Serial No	Column	Type	Length	Precision	Nullable
01	ST_ID	NUMBER	22	6	YES
02	CNAME	VARCHAR2	10		YES
03	T_ID	NUMBER	22	8	YES
04	C_RESULT	NUMBER	22	3	YES

Table 4: GRADE

Serial No	Column	Type	Length	Precision	Nullable
01	LOW_NUMBER	NUMBER	22	3	YES
02	HIGH_NUMBER	NUMBER	22	3	YES
03	GPA	NUMBER	22		YES
04	C_GRADE	VARCHAR2	10		YES

Table 5: LOGIN

Serial No	Column	Type	Length	Precision	Nullable
01	USER_ID	NUMBER	22	8	NO
02	PASSWORD	VARCHAR2	8		YES
03	STATUS	VARCHAR2	10		YES

SQL commands for table creation:**For STUDENT_INFO Table:**

Create sequence st_sq start with 10001
 increment by 1
 minvalue 10001
 maxvalue 19999;

```
CREATE TABLE STUDENT_INFO
(ST_ID NUMBER(6) PRIMARY KEY,
 SNAME VARCHAR2(10),
 FNAME VARCHAR2(10),
 MNAME VARCHAR2(10),
 T_ID NUMBER(8),
 PASSING_YEAR NUMBER(4));
```

```

INSERT INTO STUDENT_INFO
VALUES(st_sq.nextval,'AFNAN','HARUN','BILKIS',3810004,2016);
INSERT INTO STUDENT_INFO
VALUES(st_sq.nextval,'JAHID','KALAM','FATEM',3810001,2017);
INSERT INTO STUDENT_INFO
VALUES(st_sq.nextval,'SAYMA','SAIFUL','FARBIN',3810006,2015);
INSERT INTO STUDENT_INFO
VALUES(st_sq.nextval,'KARIM','RAHIM','RAHIMA',3810004,2017);
INSERT INTO STUDENT_INFO
VALUES(st_sq.nextval,'ARIF','RIAJ','TAMANNA',3810009,2017);
INSERT INTO STUDENT_INFO
VALUES(st_sq.nextval,'RAYHAN','MUNSI','OHI',3810004,2016);
INSERT INTO STUDENT_INFO
VALUES(st_sq.nextval,'RAFI','SANTO','RUMA',3810007,2015);
INSERT INTO STUDENT_INFO
VALUES(st_sq.nextval,'AKBAR','SOJON','AYESHA',3810008,2018);
INSERT INTO STUDENT_INFO
VALUES(st_sq.nextval,'NISHAT','DURJOY','EVA',3810001,2017);
INSERT INTO STUDENT_INFO
VALUES(st_sq.nextval,'RAJU','SAKIL','BRISTY',3810003,2017);

```

For TEACHER_INFO Table:

```

Create sequence t_sq start with 3810001
increment by 1
minvalue 3810001
maxvalue 3819999;

```

```

CREATE TABLE TEACHER_INFO
(T_ID NUMBER(8) PRIMARY KEY,
TNAME VARCHAR2(10),
CNAME VARCHAR2(10));

```

```

INSERT INTO TEACHER_INFO VALUES(t_sq.nextval,'KANIJ','MATH');
INSERT INTO TEACHER_INFO VALUES(t_sq.nextval,'FATEMA','BANGLA');
INSERT INTO TEACHER_INFO VALUES(t_sq.nextval,'SUSMITA','MATH');
INSERT INTO TEACHER_INFO VALUES(t_sq.nextval,'ALIN','BANGLA');
INSERT INTO TEACHER_INFO VALUES(t_sq.nextval,'RAKIB','BANGLA');
INSERT INTO TEACHER_INFO VALUES(t_sq.nextval,'ABID','MATH');
INSERT INTO TEACHER_INFO VALUES(t_sq.nextval,'RAHAD','MATH');
INSERT INTO TEACHER_INFO VALUES(t_sq.nextval,'AKBAR','ENGLISH');
INSERT INTO TEACHER_INFO VALUES(t_sq.nextval,'HRIDOY','ENGLISH');
INSERT INTO TEACHER_INFO VALUES(t_sq.nextval,'RAKIB','ENGLISH');

```

For STUDENT_COURSE Table:

```
CREATE TABLE STUDENT_COURSE
(ST_ID NUMBER(6),
CNAME VARCHAR2(10),
T_ID NUMBER(8),
C_RESULT NUMBER(3));
```

```
INSERT INTO STUDENT_COURSE VALUES(10001,'BANGLA',3810004,87);
INSERT INTO STUDENT_COURSE VALUES(10001,'MATH',3810001,93);
INSERT INTO STUDENT_COURSE VALUES(10001,'ENGLISH',3810008,69);
INSERT INTO STUDENT_COURSE VALUES(10002,'BANGLA',3810004,49);
INSERT INTO STUDENT_COURSE VALUES(10002,'MATH',3810001,49);
INSERT INTO STUDENT_COURSE VALUES(10002,'ENGLISH',3810008,93);
INSERT INTO STUDENT_COURSE VALUES(10003,'BANGLA',3810004,75);
INSERT INTO STUDENT_COURSE VALUES(10003,'MATH',3810001,50);
INSERT INTO STUDENT_COURSE VALUES(10003,'ENGLISH',3810008,64);
INSERT INTO STUDENT_COURSE VALUES(10004,'BANGLA',3810004,85);
INSERT INTO STUDENT_COURSE VALUES(10004,'MATH',3810001,37);
INSERT INTO STUDENT_COURSE VALUES(10004,'ENGLISH',3810008,47);
INSERT INTO STUDENT_COURSE VALUES(10005,'BANGLA',3810004,75);
INSERT INTO STUDENT_COURSE VALUES(10005,'MATH',3810001,72);
INSERT INTO STUDENT_COURSE VALUES(10005,'ENGLISH',3810008,94);
INSERT INTO STUDENT_COURSE VALUES(10006,'BANGLA',3810004,60);
INSERT INTO STUDENT_COURSE VALUES(10006,'MATH',3810001,29);
INSERT INTO STUDENT_COURSE VALUES(10006,'ENGLISH',3810008,37);
INSERT INTO STUDENT_COURSE VALUES(10007,'BANGLA',3810004,58);
INSERT INTO STUDENT_COURSE VALUES(10007,'MATH',3810001,92);
INSERT INTO STUDENT_COURSE VALUES(10007,'ENGLISH',3810008,67);
INSERT INTO STUDENT_COURSE VALUES(10008,'BANGLA',3810004,84);
INSERT INTO STUDENT_COURSE VALUES(10008,'MATH',3810001,94);
INSERT INTO STUDENT_COURSE VALUES(10008,'ENGLISH',3810008,61);
INSERT INTO STUDENT_COURSE VALUES(10009,'BANGLA',3810004,59);
INSERT INTO STUDENT_COURSE VALUES(10009,'MATH',3810001,59);
INSERT INTO STUDENT_COURSE VALUES(10009,'ENGLISH',3810008,96);
INSERT INTO STUDENT_COURSE VALUES(10010,'BANGLA',3810004,67);
INSERT INTO STUDENT_COURSE VALUES(10010,'MATH',3810001,98);
INSERT INTO STUDENT_COURSE VALUES(10010,'ENGLISH',3810008,45);
```

For GRADE Table:

```
CREATE TABLE GRADE
  ( LOW_NUMBER NUMBER(3),
    HI_NUMBER NUMBER(3),
    GPA NUMBER,
    GRADE VARCHAR2(2));

INSERT INTO GRADE VALUES (0,32,0.00,'F');
INSERT INTO GRADE VALUES (33,39,1.00,'D');
INSERT INTO GRADE VALUES (40,49,2.00,'C');
INSERT INTO GRADE VALUES (50,59,3.00,'B');
INSERT INTO GRADE VALUES (60,69,3.50,'A-');
INSERT INTO GRADE VALUES (70,79,4.00,'A');
INSERT INTO GRADE VALUES (80,100,5.00,'A+');
```

For LOGIN Table:

```
CREATE TABLE LOGIN
  ( USER_ID NUMBER(8) PRIMARY KEY,
    PASSWORD VARCHAR2(8),
    STATUS VARCHAR2(10));

INSERT INTO LOGIN VALUES (10001,'RUP4AF','ACTIVE');
INSERT INTO LOGIN VALUES (10002,'NHB4LL','ACTIVE');
INSERT INTO LOGIN VALUES (10003,'BIF9KG','ACTIVE');
INSERT INTO LOGIN VALUES (10004,'LNX3JK','ACTIVE');
INSERT INTO LOGIN VALUES (10005,'PZF7BK','ACTIVE');
INSERT INTO LOGIN VALUES (10006,'LPM0CF','ACTIVE');
INSERT INTO LOGIN VALUES (10007,'LPM6IK','ACTIVE');
INSERT INTO LOGIN VALUES (10008,'DFG5BJ','ACTIVE');
INSERT INTO LOGIN VALUES (10009,'MKL0VK','ACTIVE');
INSERT INTO LOGIN VALUES (10010,'MNB1FG','ACTIVE');
INSERT INTO LOGIN VALUES (3810001,'PUY6HU','ACTIVE');
INSERT INTO LOGIN VALUES (3810002,'MLN0KJ','ACTIVE');
INSERT INTO LOGIN VALUES (3810003,'MNB4BV','ACTIVE');
INSERT INTO LOGIN VALUES (3810004,'BVC8HJ','ACTIVE');
INSERT INTO LOGIN VALUES (3810005,'EDS6KL','ACTIVE');
INSERT INTO LOGIN VALUES (3810006,'PLR0OH','ACTIVE');
INSERT INTO LOGIN VALUES (3810007,'ZML4HG','ACTIVE');
INSERT INTO LOGIN VALUES (3810008,'PLM6GU','ACTIVE');
INSERT INTO LOGIN VALUES (3810009,'CNK4IO','ACTIVE');
INSERT INTO LOGIN VALUES (3810010,'OLP9OP','ACTIVE');
INSERT INTO LOGIN VALUES (111,'AD','ACTIVE');
```

```
COMMIT;
```

Screenshot of Sample Data:

STUDENT_INFO:

ST_ID	SNAME	FNAME	MNAME	T_ID	PASSING_YEAR
10001	AFNAN	HARUN	BILKIS	3810004	2016
10002	JAHID	KALAM	FATEM	3810001	2017
10003	SAYMA	SAIFUL	FARBIN	3810006	2015
10004	KARIM	RAHIM	RAHIMA	3810004	2017
10005	ARIF	RIAJ	TAMANNA	3810009	2017
10006	RAYHAN	MUNSI	OHI	3810004	2016
10007	RAFI	SANTO	RUMA	3810007	2015
10008	AKBAR	SOJON	AYESHA	3810008	2018
10009	NISHAT	DURJOY	EVA	3810001	2017
10010	RAJU	SAKIL	BRISTY	3810003	2017

TEACHER_INFO:

ST_ID	CNAME	T_ID	C_RESULT
10001	BANGLA	3810004	87
10001	MATH	3810001	93
10001	ENGLISH	3810008	69
10002	BANGLA	3810004	49
10002	MATH	3810001	49
10002	ENGLISH	3810008	93
10003	BANGLA	3810004	75
10003	MATH	3810001	50
10003	ENGLISH	3810008	64
10004	BANGLA	3810004	85
10004	MATH	3810001	37
10004	ENGLISH	3810008	47
10005	BANGLA	3810004	75
10005	MATH	3810001	72
10005	ENGLISH	3810008	94
10006	BANGLA	3810004	60
10006	MATH	3810001	29
10006	ENGLISH	3810008	37
10007	BANGLA	3810004	58
10007	MATH	3810001	92
10007	ENGLISH	3810008	67
10008	BANGLA	3810004	84
10008	MATH	3810001	94
10008	ENGLISH	3810008	61

STUDENT_COURSE:

T_ID	TNAME	CNAME
3810001	KANIJ	MATH
3810002	FATEMA	BANGLA
3810003	SUSMITA	MATH
3810004	ALIN	BANGLA
3810005	RAKIB	BANGLA
3810006	ABID	MATH
3810007	RAHAD	MATH
3810008	AKBAR	ENGLISH
3810009	HRIDOY	ENGLISH
3810010	RAKIB	ENGLISH

GRADE:

LOW_NUMBER	HIGH_NUMBER	GPA	C_GRADE
0	32	0	F
33	39	1	D
40	49	2	C
50	59	3	B
60	69	3.5	A-
70	79	4	A
80	100	5	A+

LOGIN:

USER_ID	PASSWORD	STATUS
10001	RUP4AF	ACTIVE
10002	NHB4LL	ACTIVE
10003	BIF9KG	ACTIVE
10004	LNK3JK	ACTIVE
10005	PZF7BK	ACTIVE
10006	LPM0CF	ACTIVE
10007	LPM6IK	ACTIVE
10008	DFG5BJ	ACTIVE
10009	MKL0VK	ACTIVE
10010	MNB1FG	ACTIVE
3810001	PUY6HU	ACTIVE
3810002	MLN0KJ	ACTIVE
3810003	MNB4BV	ACTIVE
3810004	BVC8HJ	ACTIVE
3810005	EDS6KL	ACTIVE
3810006	PLR0OH	ACTIVE
3810007	ZML4HG	ACTIVE
3810008	PLM6GU	ACTIVE
3810009	CNK4IO	ACTIVE
3810010	OLP9OP	ACTIVE

Related Queries:

1. select st_id, sname from student_info where st_id in (select st_id from student_course where c_result<33)

Ans:

ST_ID	SNAME
10006	RAYHAN

2. select student_info.st_id, sname, cname, c_grade from student_info, student_course, grade where student_info.st_id= student_course.st_id and c_result between low_number and high_number

Ans:

ST_ID	SNAME	CNAME	GRADE
10001	AFNAN	ENGLISH	A-
10001	AFNAN	BANGLA	A+
10001	AFNAN	MATH	A+
10002	JAHDID	BANGLA	C
10002	JAHDID	MATH	C
10002	JAHDID	ENGLISH	A+
10003	SAYMA	MATH	B
10003	SAYMA	ENGLISH	A-
10003	SAYMA	BANGLA	A
10004	KARIM	MATH	D
10004	KARIM	ENGLISH	C
10004	KARIM	BANGLA	A+
10005	ARIF	MATH	A
10005	ARIF	BANGLA	A
10005	ARIF	ENGLISH	A+
10006	RAYHAN	MATH	F
10006	RAYHAN	ENGLISH	D
10006	RAYHAN	BANGLA	A-
10007	RAFI	BANGLA	B
10007	RAFI	ENGLISH	A-

3. select st_id,sname,tname from student_info,teacher_info where student_info.t_id=teacher_info.t_id order by st_id

Ans:

ST_ID	SNAME	TNAME
10001	AFNAN	ALIN
10002	JAHDID	KANIJ
10003	SAYMA	ABID
10004	KARIM	ALIN
10005	ARIF	HRIDOY
10006	RAYHAN	ALIN
10007	RAFI	RAHAD
10008	AKBAR	AKBAR
10009	NISHAT	KANIJ
10010	RAJU	SUSMITA

4. select student_info.st_id, sname,tname from student_info, teacher_info, student_course where student_info.t_id= teacher_info.t_id and student_info.st_id= student_course.st_id and c_result<50 order by st_id

Ans:

ST_ID	SNAME	TNAME
10002	JAHDID	KANIJ
10002	JAHDID	KANIJ
10004	KARIM	ALIN
10004	KARIM	ALIN
10006	RAYHAN	ALIN
10006	RAYHAN	ALIN
10010	RAJU	SUSMITA

5. select avg(gpa) from student_info,student_course,grade where c_result between low_number and hi_number and student_info.st_id=student_course.st_id and sname='AFNAN'

Ans:

AVG(GPA)
4.5

6. select sname, student_course.cname, tname from student_info, teacher_info, student_course where student_info.st_id= student_course.st_id and student_course.t_id= teacher_info.t_id order by student_info.st_id

Ans:

SNAME	CNAME	TNAME
AFNAN	BANGLA	ALIN
AFNAN	MATH	KANIJ
AFNAN	ENGLISH	AKBAR
JAHID	ENGLISH	AKBAR
JAHID	BANGLA	ALIN
JAHID	MATH	KANIJ
SAYMA	BANGLA	ALIN
SAYMA	ENGLISH	AKBAR
SAYMA	MATH	KANIJ
KARIM	BANGLA	ALIN
KARIM	MATH	KANIJ
KARIM	ENGLISH	AKBAR
ARIF	MATH	KANIJ
ARIF	BANGLA	ALIN
ARIF	ENGLISH	AKBAR
RAYHAN	BANGLA	ALIN
RAYHAN	ENGLISH	AKBAR
RAYHAN	MATH	KANIJ
RAFI	BANGLA	ALIN
RAFI	ENGLISH	AKBAR
RAFI	MATH	KANIJ

7. select user_id, password from login,student_info where st_id=user_id and sname='RAFI'

Ans:

USER_ID	PASSWORD
10007	LPM6IK

8. update login set password='rafi1234' where user_id=(select st_id from student_info where sname='RAFI')

Ans:

1 row(s) updated.

9. update login set status='DEACTIVE' where user_id in (select student_info.st_id from student_info,student_course where student_info.st_id=student_course.st_id and c_result<40)

Ans:

2 row(s) updated.

USER_ID	PASSWORD	STATUS
10001	RUP4AF	ACTIVE
10002	NHB4LL	ACTIVE
10003	BIF9KG	ACTIVE
10004	LNK3JK	DEACTIVE
10005	PZF7BK	ACTIVE
10006	LPM0CF	DEACTIVE
10007	rafi1234	ACTIVE
10008	DFG5BJ	ACTIVE
10009	MKLOVK	ACTIVE
10010	MNB1FG	ACTIVE

10. select student_info.st_id,round(avg(gpa),2) as cgpa from student_info,student_course,grade where student_info.st_id=student_course.st_id and c_result between low_number and hi_number group by student_info.st_id order by student_info.st_id

Ans:

ST_ID	CGPA
10001	4.5
10002	3
10003	3.5
10004	2.67
10005	4.33
10006	1.5
10007	3.83
10008	4.5
10009	3.67
10010	3.5

11.select student_info.st_id,round(avg(gpa),2) as cgpa from student_info,student_course,grade where student_info.st_id=student_course.st_id and c_result between low_number and hi_number group by student_info.st_id having avg(gpa)>=3 order by student_info.st_id

Ans:

ST_ID	CGPA
10001	4.5
10002	3
10003	3.5
10005	4.33
10007	3.83
10008	4.5
10009	3.67
10010	3.5

TRIGGER

1. Validate Info to add a new Student.

```
create or replace trigger st_id_tigger
before insert on student_info
for each row
declare
c number(2):=0;
begin
select count(*) into c from student_info where :old.st_id=:new.st_id;
if c=0 then
Raise_application_error(-20111, 'Duplicate Id');
end if;
end;
```

2. Validate Info to add a new Teacher.

```
create or replace trigger t_id_tigger
before insert on teacher_info
for each row
declare
c number(2):=0;
begin
select count(*) into c from teacher_info where :old.t_id=:new.t_id;
if c=0 then
Raise_application_error(-20111, 'Duplicate Id');
end if;
end;
```

3. Result insert check

```
create or replace trigger result_check
before insert or update on student_course
for each row
Begin
if (:new.c_result <0) then
Raise_application_error(-20115,'Marks can not be negetive');
else
dbms_output.put_line('insert Successfully');
end if;
end;
```


4. Check Activity Time

```
create or replace trigger time_check
before insert or delete or update on login
begin
if (to_char(SYSDATE,'HH24') not between '08' and '16') and (to_char(SYSDATE,'D') not
between '1' and '5') then
Raise_application_error(-20754,'Not working hour');
end if;
end;
```

5. Validate new pass

```
create or replace trigger new_pass_tigger
before update of password on login
for each row
declare
c number(4):=0;
begin
select length(:new.password) into c from login;
if c<9 then
Raise_application_error(-20111, 'Short Password');
end if;
end;
```

Function

1. Grade Calculator

```
create or replace function grade_check(num student_course.c_result%type)
return float
is
rgrade float(5);
begin
select grade into rgrade from Grade where num between low_number and hi_number;
return rgrade;
end;
```

2. Total Mark Calculator

```
create or replace function total_number(id student_info.st_id%type)
return number
is
total number(5);
begin
select sum(c_result) into total from student_course where st_id=id;
return total;
end;
```

3. Check Password

```
create or replace function CheckPassword(uname login.user_id%type,pass
login.password%type)
return boolean
is
c number(2);
begin
c:=0;
select count(*) into c from login where user_id=uname and password=pass;
if c!=0 then
return true;
else
return false;
end if;
end;
```

PROCEDURE

1.Insert_result

```
create or replace procedure insert_result(student_id student_course.st_id%type,
course_name student_course.cname%type, teacher_id student_course.t_id%type, result
student_course.c_result%type)
is
begin
Insert into student_course values (student_id, course_name , teacher_id, result);
end;
```

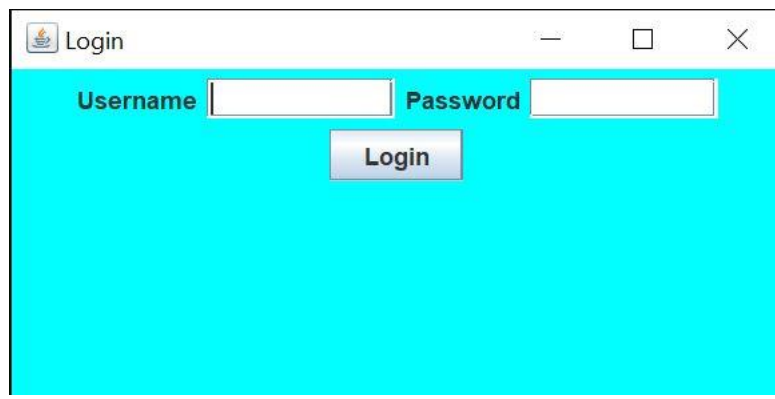
2.Update Result

```
create or replace procedure Update_result (student_id student_course.st_id%type, result
student_course.c_result%type)
is
begin
update student_course set c_result=result where st_id=student_id;
end;
```

3.Get bonus


```
create or replace procedure Bonus(course_name student_course.cname%type, teacher_id
student_course.t_id%type)
is
i number(4);
result student_course.c_result%type;
Cursor c Is select st_id from student_course where cname=course_name and
t_id=teacher_id;
begin
for i in c loop
select c_result into result from student_course where st_id=i.st_id and
cname=course_name and t_id=teacher_id;
if(result>70) then
    result:=result+5;
else
    result:=result+10;
end if;
update student_course set c_result=result where st_id=i.st_id and cname=course_name
and t_id=teacher_id;
end loop;
end;
```

Interface ScreenShot



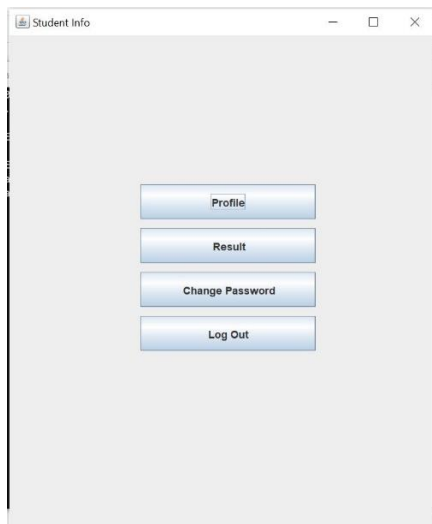
A screenshot of a 'Login' window. It has a title bar with a small icon and the text 'Login'. The window has a blue background. There are two input fields: 'Username' and 'Password'. Below them is a 'Login' button.

if pass is wrong



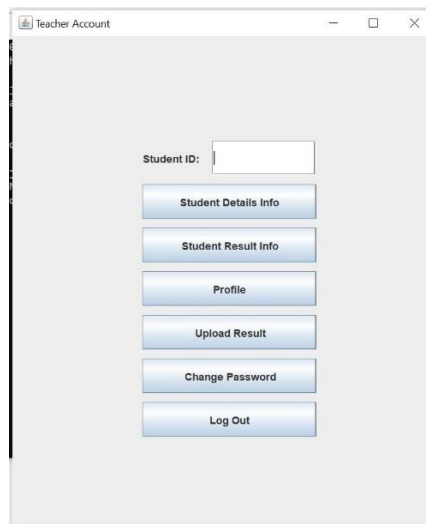
A screenshot of the 'Login' window with a modal error message. The 'Username' field contains '10015' and the 'Password' field contains '.....'. A 'Login' button is visible. Overlaid on the window is a 'Failed!!' dialog box with a red 'X' icon and the text 'Login failed!'. There is an 'OK' button at the bottom of the dialog.

If user length is 5



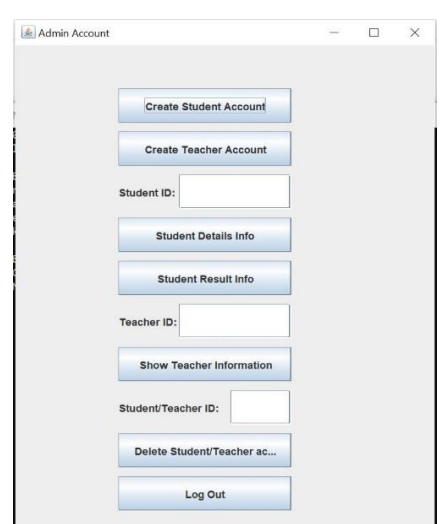
A screenshot of the 'Student Info' window. It has a title bar with a small icon and the text 'Student Info'. The window has a light gray background. There are five buttons: 'Profile', 'Result', 'Change Password', and 'Log Out'.

If pass length is 9



A screenshot of the 'Teacher Account' window. It has a title bar with a small icon and the text 'Teacher Account'. The window has a light gray background. There is a 'Student ID:' label followed by an input field. Below it are five buttons: 'Student Details Info', 'Student Result Info', 'Profile', 'Upload Result', and 'Log Out'.

Else



A screenshot of the 'Admin Account' window. It has a title bar with a small icon and the text 'Admin Account'. The window has a light gray background. There are several buttons: 'Create Student Account', 'Create Teacher Account', 'Student ID:' followed by an input field, 'Student Details Info', 'Student Result Info', 'Teacher ID:' followed by an input field, 'Show Teacher Information', 'Student/Teacher ID:' followed by an input field, 'Delete Student/Teacher ac...', and 'Log Out'.