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1) Abstract:

a) Introduction:

Attendance Management System is a software developed for daily student attendance in schools, colleges and institutes. It allows the faculty to access the attendance information of a particular student in a particular class. The information is sorted by the operators, which will be provided by the teacher for a particular class. This system will also help in evaluating attendance eligibility criteria of a student.

b) <u>Purpose</u>:

The purpose of developing attendance management system is to computerize the traditional way of taking attendance. Another purpose for developing this software is to generate the report automatically at the end of the session or in between the session

c) Scope:

The scope of the project is the system on which the software is installed, i.e. the project is developed as a desktop application, and it will work for a particular institute. But later on the project can be modified to operate it online.

d) Tools and Technologies used:

Backend: MySQL

Frontend: JAVA

e) Overview or Problem Definition:

Attendance Management System basically has two main modules for proper functioning:

- i) First module is admin which has the right for creating space for new batch. Any entry of new faculty, updation in subject if necessary and sending notice is done by the admin.
- ii) Second module is handled by the user which can be a faulty or an operator. User has a right of making daily attendance, generating report.

Attendance can be taken in two ways:

- i) On the basis of Subject and month.
- ii) On the basis of Class.

2) List of Abbreviations:

f_id - Faculty ID

fF_name - Faculty First Name

fL_name - Faculty Last Name

f_email - Faculty Email ID

d_id - Department ID

d_name - Department Name

c_id - Course ID

c_name - Course Name

s_id - Student ID

f_name - Student First Name

I_name - Student Last Name

dob - Date of Birth

att_date - Attendance Date

s_time - Start Time

e_time - End Time

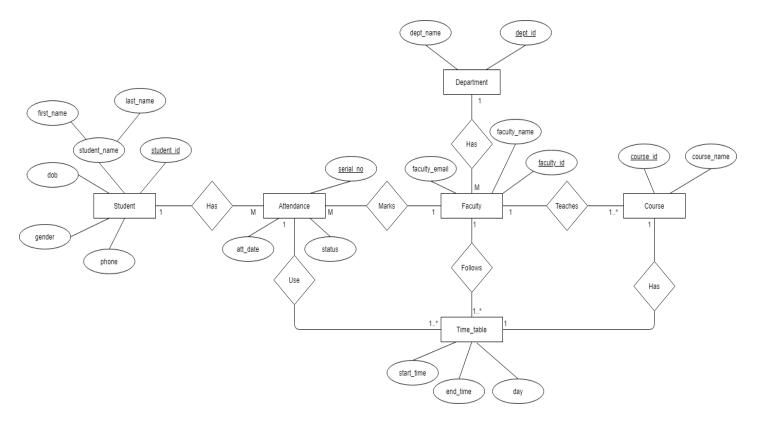
3) List of Figures:

- 5.1 ER Diagram For Attendance Management System
- 6.1 Schema Diagram For Attendance Management System

4) List of Tables:

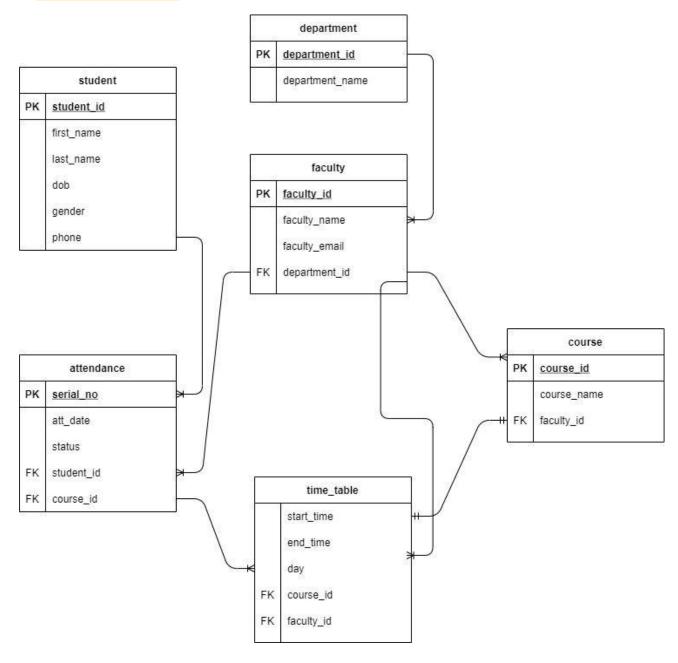
- Faculty
- Student
- Course
- Attendance
- Department
- Time Table

5) Database Design: ER Diagram



5.1 ER Diagram For Attendance Management System

6) Database Schema:



6.1 Schema Diagram For Attendance Management System

7) **DDL Commands**:

```
mysql> use attendance management;
Database changed
mysql> show tables;
+----+
| Tables in attendance management |
+----+
| faculty
+----+
1 row in set (0.03 sec)
mysql> desc faculty;
+----+
| Field | Type | Null | Key | Default | Extra |
+----+
| f id | int | NO | PRI | NULL | |
| fF name | varchar(15) | NO | NULL |
| fL name | varchar(15) | YES | NULL |
| f email | varchar(35) | YES | NULL | |
+----+
4 rows in set (0.02 sec)
mysql> create table department(d_id int, d_name varchar(35) not null, constraint
d pk primary key(d id));
Query OK, 0 rows affected (0.08 sec)
```

```
mysql> alter table faculty add column d id int;
Query OK, 0 rows affected (0.07 sec)
Records: 0 Duplicates: 0 Warnings: 0
mysql> alter table faculty add constraint f fk foreign key(d id) references
department(d id);
Query OK, 5 rows affected (0.14 sec)
Records: 5 Duplicates: 0 Warnings: 0
mysql> desc faculty;
+----+
| Field | Type | Null | Key | Default | Extra |
+----+
| f id | int | NO | PRI | NULL | |
| fF name | varchar(15) | NO | NULL |
| fL name | varchar(15) | YES | NULL |
| f email | varchar(35) | YES | NULL | |
| d id | int | YES | MUL | NULL | |
+----+
5 rows in set (0.01 sec)
mysql> desc department;
+----+
| Field | Type | Null | Key | Default | Extra |
```

+----+

mysql> create table course(c_id int, c_name varchar(35), f_id int, constraint c_pk primary key(c_id), constraint c_fk foreign key(f_id) references faculty(f_id));

Query OK, 0 rows affected (0.10 sec)

mysql> desc course;

mysql> create table student(s_id int, f_name varchar(15) not null, l_name varchar(15), dob date not null, gender char not null, phone int not null, constraint check_gender check(gender='M' or gender='F'), constraint s_pk primary key(s_id));

Query OK, 0 rows affected (0.04 sec)

mysql> create table attendance(serial_no int auto_increment, att_date date not null, status char not null, s_id int, c_id int, constraint a_pk primary key(serial_no), constraint check_status check(status='P' or status='A'), constraint a_fk1 foreign key(s_id) references student(s_id), constraint a_fk2 foreign key(c_id) references course(c_id));

Query OK, 0 rows affected (0.07 sec)

mysql> desc attendance;
+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+
| serial no | int | NO | PRI | NULL | auto increment |

mysql> create table time_table(s_time time not null, e_time time not null, day varchar(20) not null, c_id int not null, f_id int not null, constraint t_fk1 foreign key(c_id) references course(c_id), constraint t_fk2 foreign key(f_id) references faculty(f_id), constraint check_day check(day='Monday' or day='Tuesday' or day='Wednesday' or day='Thursday' or day='Friday' or day='Saturday' or day='Sunday'));

Query OK, 0 rows affected (0.09 sec)

```
mysql> commit;
Query OK, 0 rows affected (0.00 sec)
mysgl> alter table student modify column phone int(10);
Query OK, 0 rows affected, 1 warning (0.08 sec)
Records: 0 Duplicates: 0 Warnings: 1
mysql> alter table student modify column phone int(15);
Query OK, 0 rows affected, 1 warning (0.04 sec)
Records: 0 Duplicates: 0 Warnings: 1
mysql> desc student;
+----+
| Field | Type | Null | Key | Default | Extra |
+----+
s id int NO PRI NULL |
| f name | varchar(15) | NO | NULL | |
| I name | varchar(15) | YES | NULL |
| dob | date | NO | NULL | |
gender | char(1) | NO | NULL | |
| phone | int | YES | NULL | |
+----+
```

6 rows in set (0.01 sec)

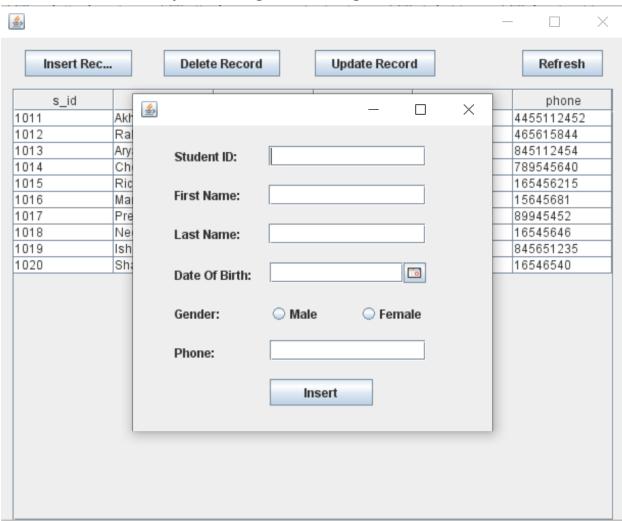
mysql> alter table student modify column phone bigint;

Query OK, 0 rows affected (0.08 sec)

Records: 0 Duplicates: 0 Warnings: 0

8) DML along with the results of the queries:

Note: Insert, Delete, Update Using FrontEnd eg.,



mysql> insert into department values(001, 'CSE');

Query OK, 1 row affected (0.01 sec)

mysql> select * from faculty;
+----+
| f_id | fF_name | fL_name | f_email | d_id |
+----+

```
| 101 | lalit | kulkarni | lalitkulkarni@mitwpu.edu.in
                                             NULL
| 102 | vaishali | suryawanshi | vaishalisuryawanshi@mitwpu.edu.in | NULL |
| 103 | sajida | shigalkar | sajidashigalkar@mitwpu.edu.in | NULL |
| 104 | ruhi | patankar | ruhipatankar@mitwpu.edu.in | NULL |
| 105 | sampada | kale | sampadakale@mitwpu.edu.in | NULL |
+----+
5 rows in set (0.02 sec)
mysql> update faculty set d id=001;
Query OK, 5 rows affected (0.01 sec)
Rows matched: 5 Changed: 5 Warnings: 0
mysql> select * from faculty;
+----+
| f_id | fF_name | fL_name | f email
                                         | d id |
+----+
| 101 | lalit | kulkarni | lalitkulkarni@mitwpu.edu.in | 1 |
| 102 | vaishali | suryawanshi | vaishalisuryawanshi@mitwpu.edu.in |
| 103 | sajida | shigalkar | sajidashigalkar@mitwpu.edu.in |
                                                  1 |
| 104 | ruhi | patankar | ruhipatankar@mitwpu.edu.in | 1 |
| 105 | sampada | kale | sampadakale@mitwpu.edu.in | 1 |
+----+
5 rows in set (0.00 sec)
```

```
mysql> select d name from department d inner join faculty f where f.d id= d.d id
and f.fF_name='lalit';
+----+
d name
+----+
| CSE |
+----+
1 row in set (0.00 sec)
mysql> insert into student values(1032191369, 'Mustafa', 'Mokashi', '2001-08-07',
'm', 7026713017);
Query OK, 1 row affected (0.01 sec)
mysql> select * from student;
+-----+
s id | f name | I name | dob | gender | phone |
+-----+
| 1032191369 | Mustafa | Mokashi | 2001-08-07 | m | 7026713017 |
+-----+
1 row in set (0.00 sec)
mysql> insert into course values(311, 'Computer Networks', 101);
Query OK, 1 row affected (0.03 sec)
mysql> insert into course values(312, 'Database Management System', 102);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into course values(313, 'Software Modelling & Design', 103);
Query OK, 1 row affected (0.01 sec)
mysql> insert into course values(314, 'Theory of Computation', 104);
Query OK, 1 row affected (0.01 sec)
mysql> select * from course;
+----+
cid c name
                        | f id |
+----+
| 311 | Computer Networks
                          | 101 |
| 312 | Database Management System | 102 |
| 313 | Software Modelling & Design | 103 |
| 314 | Theory of Computation
+----+
4 rows in set (0.00 sec)
mysql> insert into time table values('08:00', '08:50', 'Monday', 314, 104);
Query OK, 1 row affected (0.01 sec)
mysql> insert into time table values('09:00', '09:50', 'Monday', 312, 102);
Query OK, 1 row affected (0.01 sec)
mysql> insert into time table values('10:00', '10:50', 'Monday', 311, 101);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into time table values('08:00', '08:50', 'Tuesday', 312, 102);
Query OK, 1 row affected (0.01 sec)
mysql> insert into time table values('09:00', '09:50', 'Tuesday', 311, 101);
Query OK, 1 row affected (0.01 sec)
mysql> insert into time table values('08:00', '08:50', 'Wednesday', 313, 103);
Query OK, 1 row affected (0.01 sec)
mysql> insert into time table values('09:00', '09:50', 'Wednesday', 314, 104);
Query OK, 1 row affected (0.01 sec)
mysql> insert into time table values('08:00', '08:50', 'Thursday', 312, 102);
Query OK, 1 row affected (0.01 sec)
mysql> insert into time table values('09:00', '09:50', 'Thursday', 313, 103);
Query OK, 1 row affected (0.01 sec)
mysql> insert into time table values('08:00', '08:50', 'Friday', 311, 101);
Query OK, 1 row affected (0.01 sec)
mysgl> insert into time table values('09:00', '09:50', 'Friday', 314, 104);
Query OK, 1 row affected (0.01 sec)
mysql> insert into time table values('10:00', '10:50', 'Friday', 313, 103);
```

Query OK, 1 row affected (0.01 sec)

```
mysql> select * from time table;
+----+
s time e time day cid fid
+----+
| 08:00:00 | 08:50:00 | Monday | 314 | 104 |
| 09:00:00 | 09:50:00 | Monday | 312 | 102 |
| 10:00:00 | 10:50:00 | Monday | 311 | 101 |
| 08:00:00 | 08:50:00 | Tuesday | 312 | 102 |
| 09:00:00 | 09:50:00 | Tuesday | 311 | 101 |
| 08:00:00 | 08:50:00 | Wednesday | 313 | 103 |
| 09:00:00 | 09:50:00 | Wednesday | 314 | 104 |
| 08:00:00 | 08:50:00 | Thursday | 312 | 102 |
| 09:00:00 | 09:50:00 | Thursday | 313 | 103 |
| 08:00:00 | 08:50:00 | Friday | 311 | 101 |
| 09:00:00 | 09:50:00 | Friday | 314 | 104 |
| 10:00:00 | 10:50:00 | Friday | 313 | 103 |
+----+
12 rows in set (0.00 sec)
mysgl> insert into attendance(att_date, status, s_id, c_id) values('2021-09-30', 'P',
1032191369, 312);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from attendance;
+----+
| serial_no | att_date | status | s_id | c_id |
+----+
   1 | 2021-09-30 | P | 1032191369 | 312 |
+----+
1 row in set (0.00 sec)
mysql> select a.*,c.c name from attendance a inner join course c where
a.c id=c.c id;
+-----+
| serial_no | att_date | status | s_id | c_id | c_name
+-----+
   1 | 2021-09-30 | P | 1032191369 | 312 | Database Management System
+-----+
```

1 row in set (0.00 sec)

9) DCL Commands:

```
mysql> create user "faculty"@"localhost" identified by "pass123";
Query OK, 0 rows affected (0.05 sec)
mysql> grant insert, delete, update, select on attendance management.* to
"faculty"@"localhost";
Query OK, 0 rows affected (0.02 sec)
mysql> create user "admin"@"localhost" identified by "admin123";
Query OK, 0 rows affected (0.07 sec)
mysql> grant all privileges on attendance management.* to
"admin"@"localhost";
Query OK, 0 rows affected (0.02 sec)
mysgl> revoke delete on attendance management.* from "faculty"@"localhost";
Query OK, 0 rows affected (0.01 sec)
mysql> grant execute on procedure getstudent to "faculty"@"localhost";
Query OK, 0 rows affected (0.01 sec)
mysgl> grant execute on procedure defaulterlist to "faculty"@"localhost";
Query OK, 0 rows affected (0.01 sec)
mysql> grant execute on procedure absentlist to "faculty"@"localhost";
```

Query OK, 0 rows affected (0.01 sec) mysgl> grant execute on procedure presentlist to "faculty"@"localhost"; Query OK, 0 rows affected (0.01 sec) mysql> show grants for 'faculty'@'localhost'; | Grants for faculty@localhost +-----+ | GRANT USAGE ON *.* TO `faculty`@`localhost` | GRANT SELECT, INSERT, UPDATE ON 'attendance management'.* TO `faculty`@`localhost` | GRANT EXECUTE ON PROCEDURE `attendance management`. `absentlist` TO `faculty`@`localhost` | GRANT EXECUTE ON PROCEDURE 'attendance management'.'defaulterlist' TO `faculty`@`localhost` | | GRANT EXECUTE ON PROCEDURE 'attendance management'. 'getstudent' TO `faculty`@`localhost` | | GRANT EXECUTE ON PROCEDURE 'attendance management'.'presentlist' TO `faculty`@`localhost` | 6 rows in set (0.01 sec) mysgl> show grants for 'admin'@'localhost'; +-----+ | Grants for admin@localhost

```
GRANT USAGE ON *.* TO `admin`@`localhost`
| GRANT ALL PRIVILEGES ON `attendance_management`.* TO `admin`@`localhost`
2 rows in set (0.00 sec)
10) Triggers:
mysql> create trigger pa_no_trig1
  -> after insert on student
  -> for each row
  -> begin
  -> insert into pa_no
  -> set stud_id=new.s_id,
  -> present=0,
  -> absent=0;
  -> end//
Query OK, 0 rows affected (0.02 sec)
mysql> create trigger pa no trig2
  -> after insert on attendance
  -> for each row
  -> if(new.status='P')
  -> then
  -> update pa_no
```

```
-> set present=present+1 where stud_id=new.s_id;
-> end if;
-> end//
Query OK, 0 rows affected (0.04 sec)

mysql> create trigger pa_no_trig3
-> after insert on attendance
-> for each row
-> if(new.status='A')
-> then
-> update pa_no
-> set absent=absent+1 where stud_id=new.s_id;
-> end if;
-> end//
Query OK, 0 rows affected (0.03 sec)
```

11) PL SQL Procedures and Functions:

mysql> create procedure updatepercent() -> begin -> declare done int default 0; -> declare p1 int; -> declare a1 int; -> declare id int; -> declare pa select cursor for select stud id, present, absent from pa no; -> declare continue handler for not found set done=1; -> open pa select; -> repeat -> fetch pa select into id, p1, a1; -> update pa no -> set percentage=(p1/(p1+a1))*100 where stud_id=id; -> until done -> end repeat; -> close pa select; -> end// Query OK, 0 rows affected (0.02 sec) mysql> create procedure getstudent(in sidd int) -> begin -> select s.s id as Student ID, s.f name as First Name, s.l name as Last Name, s.phone as Phone Number, p.percentage as Attendance Percentage from student s inner join pa no p where p.stud id=sidd and s.s id=sidd;

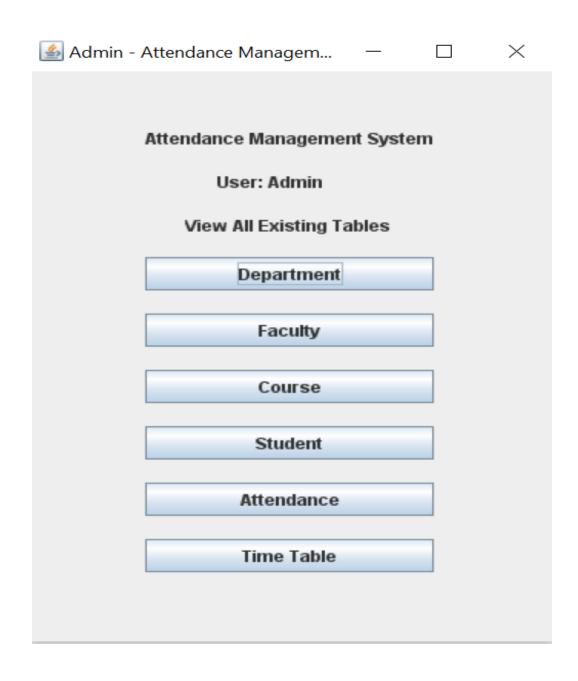
```
-> end//
Query OK, 0 rows affected (0.01 sec)
mysql> create procedure defaulterlist()
  -> begin
  -> select s.s id as Student ID, s.f name as First Name, s.l name as Last Name,
s.phone as Phone Number, p.percentage as Attendance Percentage from student
s inner join pa no p where p.percentage<80 and p.stud id=s.s id;
  -> end//
Query OK, 0 rows affected (0.01 sec)
mysql> create procedure presentlist(in atdat date, in coid int)
  -> begin
  -> select s.s id as Student ID, s.f name as First Name, s.l name as Last Name,
a.status as Status from student s inner join attendance a where a.att date=atdat
and a.status='P' and a.c id=coid and a.s id=s.s id;
  -> end//
Query OK, 0 rows affected (0.01 sec)
mysql> create procedure absentlist(in atdat date, in coid int)
  -> begin
  -> select s.s id as Student ID, s.f name as First Name, s.l name as Last Name,
a.status as Status from student s inner join attendance a where a.att date=atdat
and a.status='A' and a.c id=coid and a.s id=s.s id;
  -> end//
Query OK, 0 rows affected (0.01 sec)
```

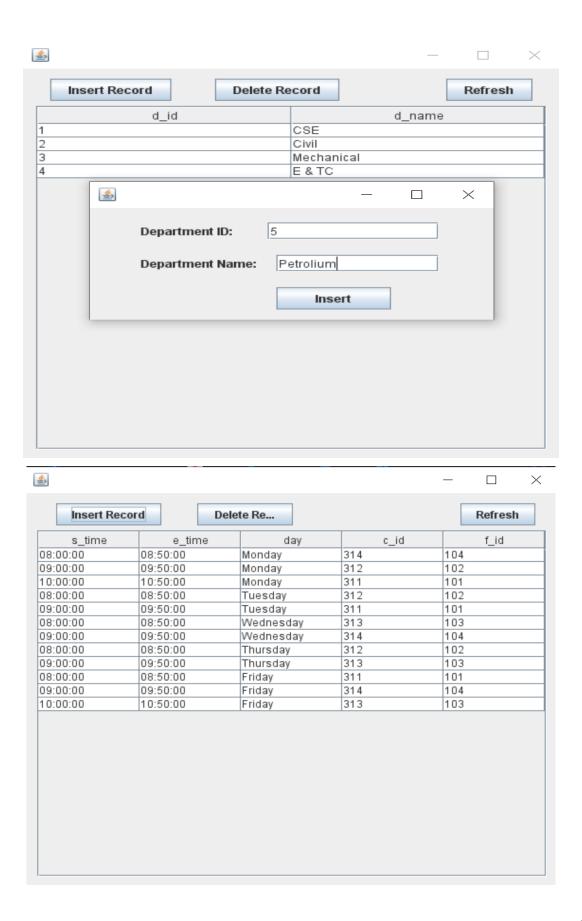
12) Frontend GUI Screenshots:

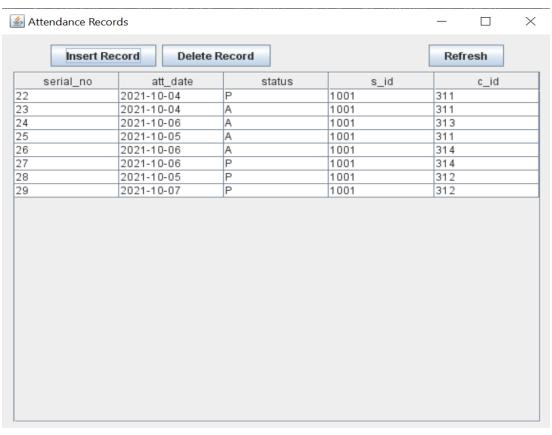
➤ Login Page:

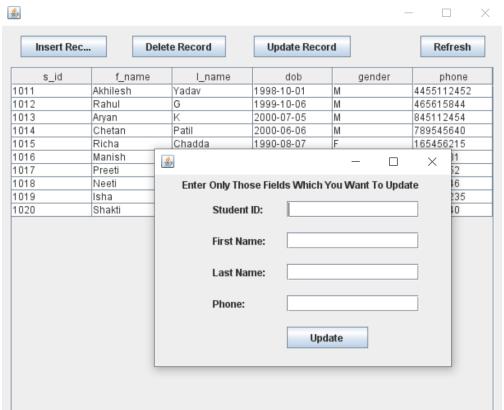
<u>\$</u>			_		×	
Attendance Management System						
	Username					
	Password					
	Reset		Login			

> Admin Interface:

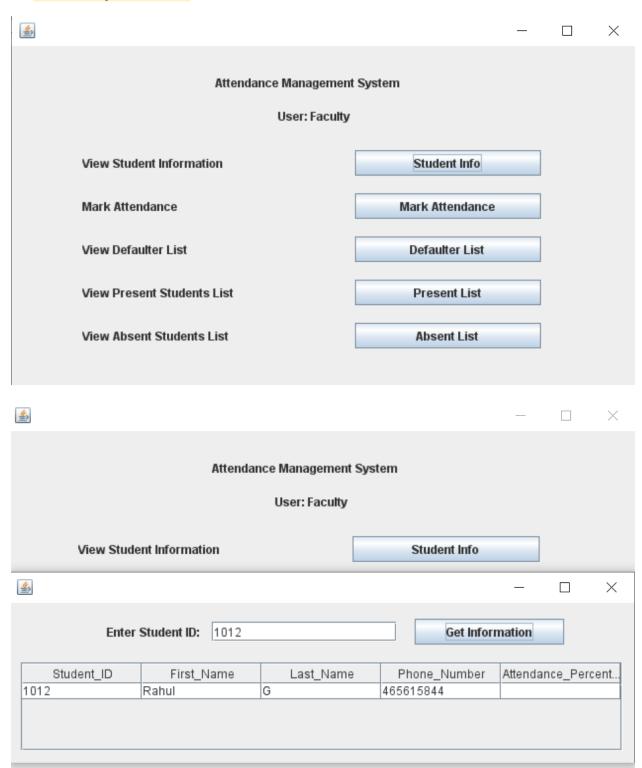


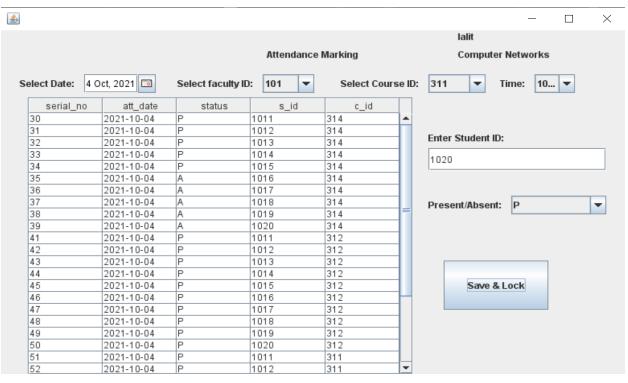


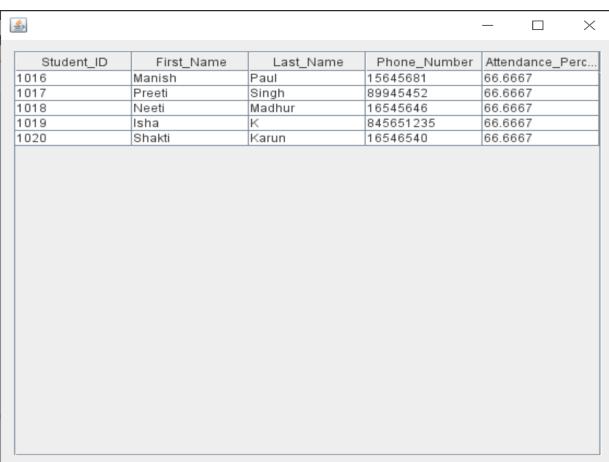


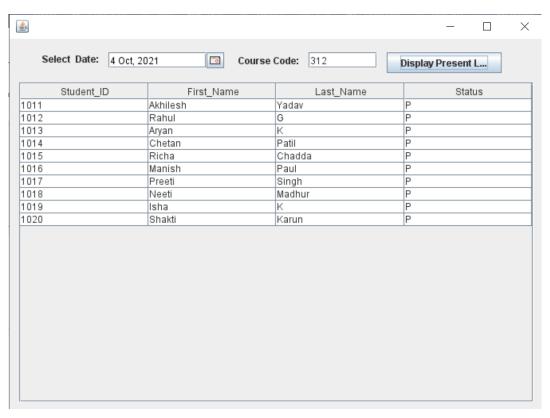


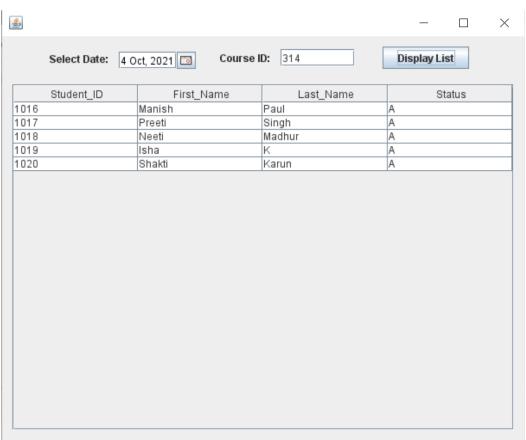
> Faculty Interface:











13) Conclusion:

The Attendance Management System helps the user to work with the attendance, fees, course update. It reduces the amount of manual data entry and gives greater efficiency. The user interface of it is very friendly and can be easily used by anyone. It also decreases the amount of the time taken to write details. All the details can be seen only by verified users. The Attendance management system is a solution to all the problems related to attendance, fee status. It is performing all the tasks accurately and is doing the work for which it is made and this system can be implemented in various colleges and schools.

14) References in IEEE Format:

→ Connecting to a MySQL Database - Apache NetBeans-

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→ JFrame (Java Platform SE 7) - Oracle Help Center

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→ Designing a Swing GUI in NetBeans IDE

https://netbeans.apache.org/kb/docs/java/quickstart-gui.html

→ How to Create a JDBC Application in NetBeans | Developer.com

https://www.developer.com/database/creating-a-jdbc-application-in-netbeans-a-step-by-step-guide/