1. ABSTRACT

This Project is basically aimed in providing latest technologies & trends to the College sector service, so that college can store there student's records like details of student, attendance & semester marks which can be viewed by Administrator It is a comprehensive student information management system developed from the ground up to fulfill the needs of independent Colleges as they guide their students to success. The Education Edge integrated information management system connects operations in the College environment Admissions and Registration, Marks Reports, Attendance Reports, Course Details, Semester details. This reduces data error and ensures that information is always up-to-date throughout the College.

Manual Process of this requires a lot many of records to maintain. College authorities need to take care to store each and every student details and also there examination details .Manual process requires man power. Existing System is manual process .Data Security is not provided in this system. Integrating data is also a problem in this system .It is not User friendly system.

Proposed system is windows application. In this application student details are maintained efficiently admin has a facility to view the student details, edit the details .semester details and marks details are also maintained in this system. This has an enhanced facility.It is a fast, affordable, low-risk solution with easy implementation and lower maintenance and operational costs.

During a college management system the entities are student, admission, time table, lectures subjects, student marks, tuition fee. Also each particular entity has its own particular attribute which are again divided further by multi-valued, single valued, simple and composite

The aim of this thesis is to examine the relationship between different attributes and the student, faculty overall satisfaction with the college administration. It tries to uncover the most influential attributes for the formation of student and faculty satisfaction.

2. REQUIREMENTS SPECIFICATION

The project has six major entities namely Administrator, student, course, faculty, attendance,

internal marks. The Administrator table consists of Admin id, user name and password. The

student table consists of student Id, first name, last name, mobile no, address date of birth

The course has the following attributes course_id, course name, course description, start and end

date of the course for which the student has registered. The faculty has the following attributes

the user id to uniquely identify each faculty, faculty name, password for the secure and private

access, their address and email

The attendance has the following attributes attendance id, course id to identify the course and the

student id which uniquely identify the individual student. The relationships are formed between

different modules in our project we have total five relations one is between the student and

courses modules as reserves and the second one is between the faculty and course as "assigned"

and third one is between the attendance and faculty as "maintains" and fourth is between the

administrator and the course as "enters" and the final is between administrator and student as

adds.

For the application development we have two phases as front end and the back end the front end

consists of HTML, CSS and PHP and backend as the SQL tables which stores the information

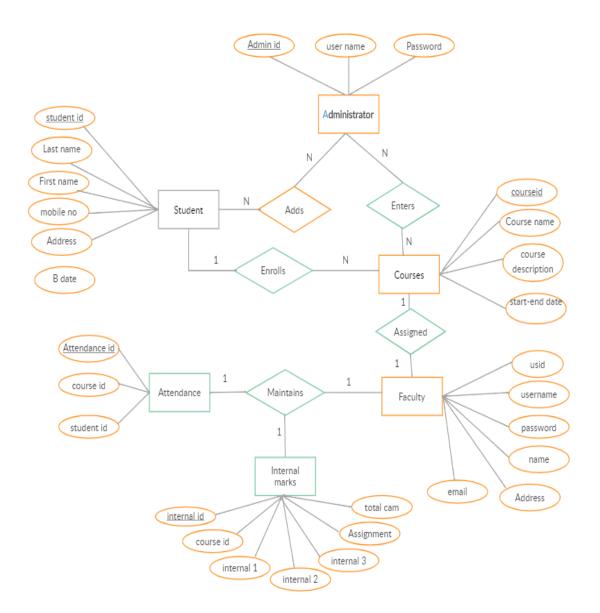
from the student and faculty entered in the front end and saves information safely.

Hardware Requirements: Processor, Pentium-IV, Ram 1 GB Hard disk - 20 GB

This are the prerequisites needed for the hotel college management system.

2

3. ER DIAGRAM



A G

Explanation:

Entity-Relationship(ER) model is based on the notion of real world entities and relationships among them. While formulating real world scenario into the database model the ER model creates entity set, relationship set general attributes and constraints.

Entity- An entity in an ER model is a real world entity having properties called attributes. Every attribute is defined by its set of values called domain.

From the above ER diagram the entities are

- 1. Administrator
- 2. Courses
- 3. Faculty
- 4. Attendance
- 5. Student
- 6. Internal marks

Relationship – The logical association among entities is called relationships. Relationships are mapped with entities in various ways. Mapping cardinalities define the number of association between two entities.

From the above ER diagram the following relationships are:

- 1. N number of students enrolls for a single course results in the relationship **many to one** relationship.
- 2. faculty maintains the attendance i.e. one faculty can maintain one attendance report in **one to one** relationship.
- 3. one student can be enrolls by N number of courses in **one to many** relationship.

Primary Key: The PRIMARY KEY constraint uniquely identifies each record in a database table. Primary keys must contain UNIQUE values, and cannot contain NULL values. A table can have only one primary key, which may consists of single or multiple fields. From the above ER diagram the primary keys are

- 1. student_id from the student entity is a primary key.
- 2. course_id from the courses entity
- 3. admin_id from the administrator entity
- 4. faculty_id from the faculty entity
- 5. Internal_id form the internal marks entity
- 6. attendance_id is the primary key for the attendance entity

These are the following primary keys from the above ER diagram.

Weak entity: In a relational database, a weak entity is an entity that cannot be uniquely identified by its attributes alone; therefore, it must use a foreign key in conjunction with its attributes to create a f primary key.

From the above ER diagram the weak entity is Internal marks which has the foreign key as course_id and primary key as internal_id.

4.Table Design with Integrity Constraints

Integrity constraints are set of rules. It is used to maintain the quality of information.

1. **Not null**: Ensures that a column cannot have a NULL values.

```
createtablestudent(
student_idvarchar(4)NOTNULL,
first namevarchar(255)NOTNULL,
last namevarchar(255)NOTNULL,
addressvarchar(30)NOTNULL,
DOBdateNOTNULL);
Output:
Command(s) completed successfully.
2. Unique: Ensures that all values in column are different.
createtablefaculty(
us idvarchar(4)NOTNULL,
usernamevarchar(255)NOTNULL,
passwordvarchar(255)NOTNULL,
namevarchar(30)NOTNULL,
addressvarchar(20)NOTNULL,
emailvarchar(20),
unique(us id),
);
```

Output:

Command(s) completed successfully.

3. **Primary Key**: A combination of a not null and unique.

```
createtableadministrator(
admin idvarchar(4)NOTNULL,
user namevarchar(255)NOTNULL,
passwordvarchar(255)NOTNULL,
primarykey(admin id));
Output:
Command(s) completed successfully.
4. Foreign Key: Uniquely identifies a row/record in another table.
createtableattendance(
attendance idvarchar(255)NOTNULL,
course idvarchar(255)NOTNULL,
student_idvarchar(255)NOTNULL,
primarykey(attendance_id),
foreignkey(course_id)referencesstudent(student_id)
);
Output:
Command(s) completed successfully.
5. Check: Ensures that all values in column are satisfying a specific condition.
createtableinternal marks(
internal_idvarchar(255),
course_idvarchar(255),
```

```
internal_1int,
internal 2int,
internal 3int,
assignmentint,
total_markint,
check(internal_1>=0),
check(internal_2>=0),
check(internal_3>=0));
Output:
Command(s) completed successfully.
6. Default: Sets a default value to column when no value is assigned.
createtablecourse(
course_idvarchar(255),
course_namevarchar(255),
start_enddatedefault'0/0/0'
);
Output:
Command(s) completed successfully.
```

5. DDL QUERIES

1.1.Create table

```
createtablecourse(
course_idvarchar(255),
course_namevarchar(255),
start_enddatedefault'0/0/0'
);
Output
Table created.
1.2. Create table
createtablefaculty(
us_idvarchar(4)NOTNULL,
usernamevarchar(255)NOTNULL,
passwordvarchar(255)NOTNULL,
namevarchar(30)NOTNULL,
addressvarchar(20)NOTNULL,
emailvarchar(20),
unique(us_id),
);
Output
Table created.
1.3. Create table
createtableinternal_marks(
internal_idvarchar(255),
course_idvarchar(255),
internal lint,
```

```
internal_2int,
internal 3int,
assignmentint,
total_markint,
check(internal_1>=0),
check(internal_2>=0),
check(internal_3>=0));
Output
Table created.
1.4.create table
createtablecourse(
course_idvarchar(255),
course namevarchar(255),
start enddatedefault'0/0/0'
);
Output
Table created.
1.5.Create table
createtableadministrator(
admin_idvarchar(4)NOTNULL,
user_namevarchar(255)NOTNULL,
passwordvarchar(255)NOTNULL,
primarykey(admin_id));
```

Output

```
Table created.
2.1 Alter table
altertablecourseADDvalueint;
Output
Table altered.
2.2 modify table
altertablecourse modifyvalueint;
2.3 drop
altertablecoursedropcolumnvalue;
Output
Table altered.
3.drop table
droptablecourse;
Output
Table drop.
```

6.DML QUERIES

INSERT

```
SQL> insert into course values(CA01,'dbms','2017-05-03');
1 row created.
SQL> insert into hotel values('CA02','pos','2017-05-01');
1 row created.
SQL> insert into hotel values('CA03','SIA,'2017-08-05');
1 row created.
SQL> select distinct course id from course;
Course id
______
CA01
CA02
CA03
SQL> select * from course where course id =CA01;
Course_id
                 course_name start_date
                 -----
_____
                                    _____
CA01
                 dbms
                                    2017-05-11
SQL> select * from internal marks where internal 1 <0;
no rows selected
```

SQL> select * from internal_marks where internal_2 >50;

internal_id	course_id	internal_	_1 internal_2	internal_3
IN02	CA02	61	97	89

SQL>select * from internal where internal_1 between 50 and 100;

internal_idco	urse_id	internal_1	internal_2	internal_3
IN02	CA02	61	97	89
IN03	CA03	71	77	92
INO4	CA04	53	67	76

SQL>select * from internal where internal_1 in (61,71);

internal_idco	urse_id	internal_1	internal_2	internal_3
IN02	CA02	61	97	89
IN03	CA03	71	77	92

String operations:

SQL> select * from student where first_name like '%h';

Student_idfi	rst_namelast_name	address	DOB
ST_01	harishkumar	#102	03-05-1998
ST_02	ganeshnithya	#103	09-03-1998

SQL> select * from student where first_name like 'h%';

Student_idfi:	rst_namelast_nam	ne address	DOB	
ST_01	harishkumar	#102	03-05-1998	

SQL> select * from student where first_name like '%h%';

Student_idfirst_namelast_name		address	DOB	
ST_01	harishkumar	#102	03-05-1998	
ST_02	ganeshnithya	#101	02-12-1998	
ST_03	hariharan	#104	06-12-1998	

Arithmetic operations:

SQL> select internal_id,course_id,internal_1+2 from internal;

internal_id	course_id	internal_1
IN02	CA02	64
IN03	CA03	73
INO4	CA04	55

SQL> select internal_id,course_id,internal_1-2 from internal;

internal_idco	urse_id	internal_1
IN02	CA02	60
IN03	CA03	69
INO4	CA04	51

SQL> select internal id, course id, internal 1*1 from internal;

internal_idcourse_id		internal_1
IN02	CA02	62
IN03	CA03	71
INO4	CA04	53

CONDITION CLAUSE

SQL>select * from internal where internal l='IN02 and internal 1>61;

internal_idco	urse_id	internal_1	internal_2	internal_3
INO2	CA02	61	97	89

RENAME

SQL> select internal_id, course_id as id, internal_1*1 from internal;

internal_id	id	internal_1
IN02	CA02	62
IN03	CA03	71
INO4	CA04	53

SQL> select internal_id as I_ID, course_id ,internal_1*1 from internal;

I_id	course_id	internal_1
IN02	CA02	62
IN03	CA03	71
IN04	CA04	53

UPDATE

SQL> update student set DOB='31-07-1997' where ST_ID='SA01';

1 row updated

SQL> update internal set internal_1=100 where internal_2<50;

1 row updated

Sql> update student set last_name='kumar.R' where first_name='harish';

DELETE

Sql> delete from student where Student_id='ST_ID';

1 row deleted

1 row updated

ORDER BY CLAUSE

sql> select from internal order by internal 1;

internal_idco	urse_id	internal_1	internal_2	internal_3
INO4	CA04	53	67	76
IN02	CA02	61	97	89
IN03	CA03	71	77	92

```
sql> select from internal order by internal_1 asc;
```

internal_id	course_id	internal_1	internal_2	internal_3
INO4	CA04	53	67	76
IN02	CA02	61	97	89
IN03	CA03	71	77	92

sql> select from internal order by internal 1 desc;

internal_id	course_id	internal_1	internal_2	internal_3
IN03	CA03	71	77	92
IN02	CA02	61	97	89
INO4	CA04	53	67	76

AGGREGATION functions

61.6666666

SET OPERATION

Union

sql>select student_id from student
union
selectstudent_id from attendance

student_id

ST01

ST01

ST02

ST02

ST03

ST04

ST04

ST05

ST05

ST06

ST06

ST07

ST08

ST08

INTERSECTION

SQL>Select student_id from student
Intersection
Select student_id from attendance

```
Student id
_____
ST01
ST02
ST03
ST04
ST05
ST06
ST07
ST08
EXCEPT
SQL>select internal 1 from internal marks
Except
Select internal 2 from internal marks
Internal 1
-----
68
89
56
IN
SQL> select * from internal where internal_1 in (61,71);
internal_idcourse_id internal_1 internal_2 internal_3
______
                            97
          CA02 61
IN02
                                        89
```

77

92

CA03 71

IN03

NOT IN

SQL> select * from internal where internal_1 not in (61,71);

internal_idco	urse_id	internal_1	internal_2	internal_3
IN02	CA02	81	97	89
IN03	CA03	21	77	92
INO4	CA04	99	98	87

NATURAL JOIN

Sql>select student.student_id, faculty_id

From student

Inner join faculty on student.student_id=student.faculty_id

Student_idfaculty_id

ST01	FA04
ST02	FA05
ST03	FA01
ST04	FA02
ST05	FA07
ST07	FA06

Group by

Sql>select s.student_id,m.internal_1
from student s,internal_mark m
group by student_id

student_id	internal_1
ST01	56
ST01	54
ST02	71
ST02	99
ST03	99
ST03	87
ST04	76
ST04	87
ST05	98
ST05	75

GROUP BY having clause

Sql>select s.student_id,m.internal_1
from student s,internal_mark m
group by student_id
having internal_1>50;

student_id	internal_1
ST01	56
ST01	54
ST02	71
ST03	87

ST04	76
ST04	87
ST05	98
ST05	75

AGGREGATION WITH GROUP BY

Sql>select student.student_id, faculty_id
From student
Group by student_id
Having count(*)>1;

Student_idfaculty_id

ST01	FA04
ST02	FA05
ST03	FA01
ST04	FA02
ST05	FA07
ST07	FA06

7. SUB QUERIES

```
sql>select * from student
where
student id=(select student id
from student
wherestudent_id=ST01);
output
student_id first_name last_name address dob
             harish kumar #201 1998-05-03
ST01
Sql>Select count(*)
From ( select * from
studentfirst name like 'h%');
OUTPUT
count(*)
_____
3
Sql>Select student id, avg(internal mark)
From student
Group by student id
Having avg(internal_mark)>(select avg(internal_mark)
```

From student); OUTPUT Student_id avg(internal_mark) _____ ST01 97.7 ST02 99.9 ST03 86.7 ST04 87.6 ST05 87.5 ST06 99.9 ST07 97.8 sql>select (selectavg(internal_mark) from internal) as avg_mark; avg mark _____ 99.7 87.7 78.9 77.8 87.9

78.8

8.SQL FUNCTIONS

1. Concat: The CONCAT() function adds two or more expressions together
<pre>Select concat(FirstName," ",LastName) as Name from Student;</pre>
Output:
Name
Harish Kumar
VarunDatta
KaulSidha
2.Lower: The LOWER() function converts a string to lower-case.
SELECT LOWER(FirstName) AS LowercaseFirstName
FROM Student;
Output:
Number of Records: 91
LowercaseCustomerName
varun
harish
aayush

3. Reverse: The REVERSE() function reverses a string and returns the result.
SELECT REVERSE(FirstName)
FROM Student;
Output:
Number of Records: 3
nuraV
hsiraH
luaK
4. Substring: The SUBSTRING() function extracts some characters from a string
SELECT SUBSTRING(FirstName, 1, 3) AS ExtractString
FROM Student;
Output:
Number of Records: 3
ExtractString
Var
Har

```
Aay
```

5. Abs: The ABS() function returns the absolute value of a number.

```
SELECT Abs(-243.5) AS AbsNum;
```

Output:

```
Number of Records: 1
```

AbsNum

243.5

6.Ceiling/floor: The CEILING() function returns the smallest integer value that is >= a number.

```
SELECT CEILING(25) AS CeilValue;
```

Output:

Number of Records: 1

CeilValue

26

7.Current Timestamp: The CURRENT_TIMESTAMP function returns the current date and time, in a 'YYYY-MM-DD hh:mm:ss.mmm' format.

```
SELECT CURRENT TIMESTAMP;
Output:
Number of Records: 1
2018-10-09 01:47:36.477
8.Dateadd: The DATEADD() function adds a time/date interval to a date and then returns the
date.
SELECT DATEADD(year, 1, '2017/08/25') AS DateAdd;
Output:
Number of Records: 1
DateAdd
2018-08-25 00:00:00.000
9.Datediff: The DATEDIFF() function returns the difference between two dates.
SELECT DATEDIFF (year, '2017/08/25', '2011/08/25') AS DateDiff;
Output:
Number of Records: 1
DATEDIFF("2017-06-25", "2017-06-15")
10
10.Getdate: The GETDATE() function returns the current database system date and time, in a
'YYYY-MM-DD hh:mm:ss.mmm' format.
```

SELECT GETDATE();

Output: 2018-10-09 01:41:41.943

9. VIEWS

In SQL, a view is a virtual table based on the result-set of an SQL statement.

A view contains rows and columns, just like a real table. The fields in a view are fields from one or more real tables in the database.

You can add SQL functions, WHERE, and JOIN statements to a view and present the data as if the data were coming from one single table.

CREATE VIEW Syntax

CREATE VIEW view_name AS

SELECT column1, column2, ...

FROM table_name

WHERE condition;

1.CREATE VIEW StudentList AS

SELECT FirstName, LastName

FROM Student;

OUTPUT:

You have made changes to the database.

2.CREATE VIEW AdmissionList AS

SELECT CourseName, StudentName

FROM Admission;

OUTPUT:

You have made changes to the database.

3.CREATE VIEW Lectures AS

SELECT Subject, Lecture

FROM Lectures;

OUTPUT:

You have made changes to the database.

4.CREATE VIEW AdmissionList AS

SELECT FirstName

FROM Admission;

OUTPUT:

You have made changes to the database.

5.CREATE VIEW Subjects AS

SELECT CourseName

FROM Subject;

OUTPUT:

You have made changes to the database.

10. NORMALISATION

Normalization is a process of organizing the data in database to avoid data redundancy, insertion anomaly, update anomaly & deletion anomaly.

The most commonly used normal forms:

First normal form(1NF)

Second normal form(2NF)

Third normal form(3NF)

Boyce &Codd normal form (BCNF)

First normal form (1NF):

As per the rule of first normal form, an attribute (column) of a table cannot hold multiple values. It should hold only atomic values.

Example: Suppose a college wants to store the names and contact details of its students. It creates a table that looks like this:

stu_idstu_namestu_addressstu_mobile

101	Herschel	New Delhi	8912312390
102	Jon	Kanpur	8812121212
			9900012222
103	Ron	Chennai	7778881212

This table is not in 1NF as the rule says "each attribute of a table must have atomic (single) values", the emp mobile values for employees Jon & Lester violates that rule.

To make the table complies with 1NF we should have the data like this:

stu_idstu_namestu_addressstu_mobile

101	Herschel	New Delhi	8912312390
102	Jon	Kanpur	8812121212
102	Jon	Kanpur	9900012222
103	Ron	Chennai	7778881212

Second normal form (2NF):

A table is said to be in 2NF if both the following conditions hold:

-Table is in 1NF (First normal form)

-No non-prime attribute is dependent on the proper subset of any candidate key of table.

An attribute that is not part of any candidate key is known as non-prime attribute.

Example: Suppose a school wants to store the data of teachers and the subjects they teach. They create a table that looks like this: Since a teacher can teach more than one subjects, the table can have multiple rows for a same teacher.

teacher_id	subject	teacher_age
111	Maths	38
111	Physics	38
222	Biology	38
333	Physics	40

Candidate Keys: {teacher_id, subject}

Non prime attribute: teacher_age

To make the table complies with 2NF we can break it in two tables like this:

teacher_subjet table:

teacher_id	subject
111	Maths
111	Physics
222	Biology
333	Physics

teacher_details table:

teacher_idteacher_age

111	38
222	38
333	40

Now the tables comply with Second normal form (2NF).

Third Normal form (3NF)

A table design is said to be in 3NF if both the following conditions hold:

-Table must be in 2NF

-Transitive functional dependency of non-prime attribute on any super key should be removed.

-An attribute that is not part of any candidate key is known as non-prime attribute.

In other words 3NF can be explained like this: A table is in 3NF if it is in 2NF and for each functional dependency X-> Y at least one of the following conditions hold:

-X is a super key of table

-Y is a prime attribute of table

An attribute that is a part of one of the candidate keys is known as prime attribute.

Example: Suppose a college wants to store the complete address of each student, they create a table named stu_details that looks like this:

stu_id	stu_name	stu_zip	stu_state
1001	John	282005	UP
1002	Ajeet	222008	TN
1006	Lora	282007	TN
1101	Lilly	292008	UK

Super keys: {stu_id}, {stu_id, stu_name}, {stu_id, stu_name, stu_zip}...so on

Candidate Keys: {stu_id}

Non-prime attributes: all attributes except emp_id are non-prime as they are not part of any candidate keys.

To make this table complies with 3NF we have to break the table into two tables to remove the transitive dependency:

Student table:

stu_id	stu_name	stu_zip
1001	John	282005
1002	Ajeet	222008
1003	Lora	282007
1101	LillY	292008

Student_zip table:

stu_zip	stu_state
282005	UP
222002	TN
282007	TN
292008	UK

Boyce Codd normal form (BCNF)

It is an advance version of 3NF that's why it is also referred as 3.5NF. BCNF is stricter than 3NF. A table complies with BCNF if it is in 3NF and for every functional dependency X->Y, X should be the super key of the table.

Example: Suppose there is a college wherein students are in more than one department. They store the data like this:

stu_id	stu_nationality	stu_dept	dept_type
1001	Austrain	Production and planning	D001
1001	Austrain	file	D001
1002	Amerian	design and technical support	D134
1102	American	Purchasing department	D134

Functional dependencies in the table above:

stu_id ->stu_nationality

stu_dept -> {dept_type}

Candidate key: {stu_id, stu_dept}

To make the table comply with BCNF we can break the table in three tables like this:

$stu_nationality\ table:$

stu_idstu_nationality

1001 Austrian

1002 American

stu_dept table:

stu_deptdept_type

Production and planning D001

Stores D001

design and technical support D134

Purchasing department D134

emp_dept_mapping table:

stu_idstu_dept

1001 Production and planning

1001 stores

1002 design and technical support

Purchasing department 1002

Functional dependencies:

stu_id ->stu_nationality

stu_dept -> {dept_type}

Candidate keys:

For first table: stu_id

For second table: stu_dept

For third table: {stu_id, stu_dept}

This is now in BCNF as in both the functional dependencies left side part is a key.

11.APPLICATION DEVELOPMENT

PHP and MySQL Development

PHP is a fast and feature-rich open source scripting language used to develop Web Applications or Internet / Intranet Applications.

MySQL is a powerful open source database server built based on a relational database management system (RDBMS) and is capable of handling a large concurrent database connection.

When combined together, talented PHP and MySQL developers can build very powerful and scalable Web / Internet / Intranet Applications.

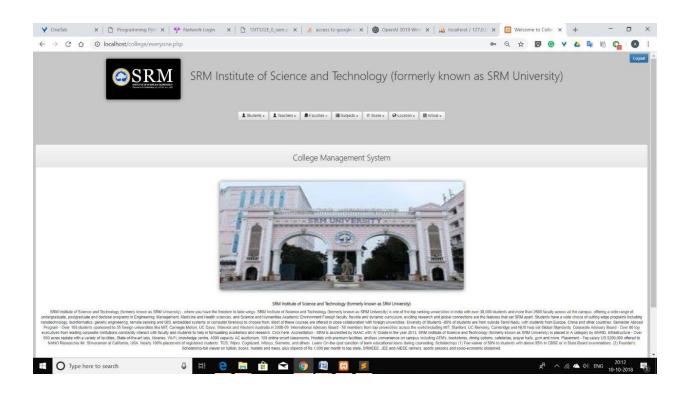
PHP and MySQL are referred to as development tools.

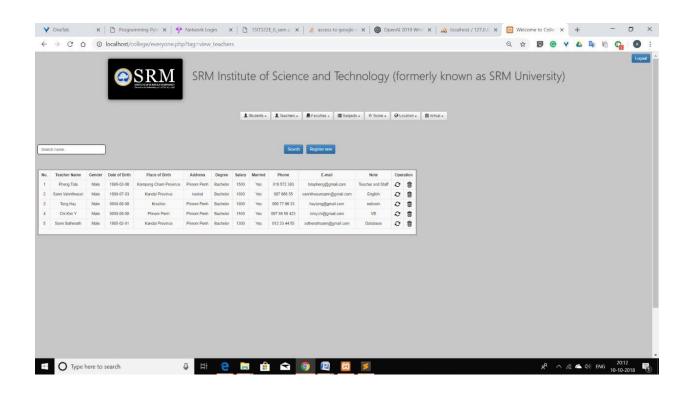
PHP and MySQL are Open Source, meaning that they are free development tools, and there is a large community of dedicated volunteer programmers who contribute to make improvements and are continuously adding features to it. The development tools and database servers that require licensing costs have limited programming resources compared to open source development tools, which have an enormous and fast growing dedicated and knowledgeable community that extends around the world.

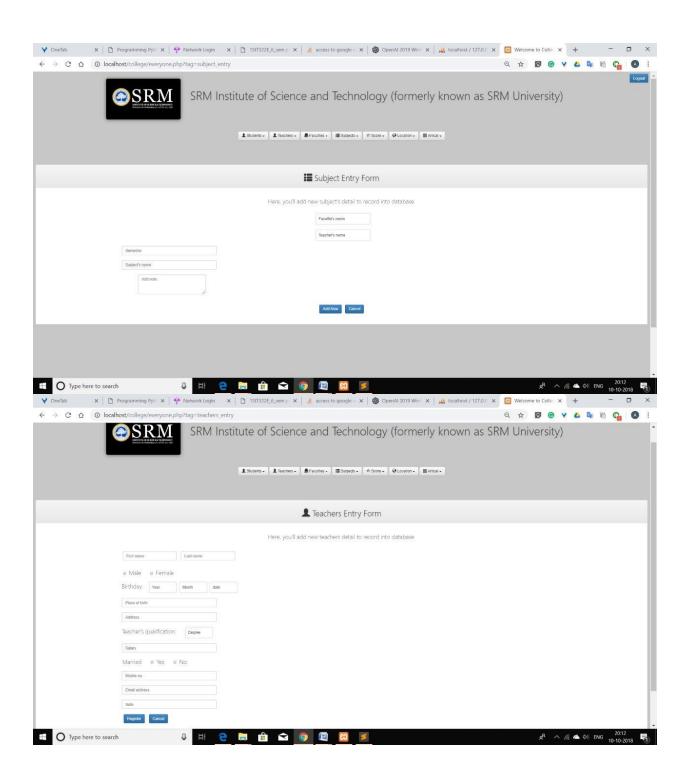
There has been disagreement about which tool is better. Naturally, the developer who is more familiar with one tool over the other will stand behind the tool that he or she has experience with.

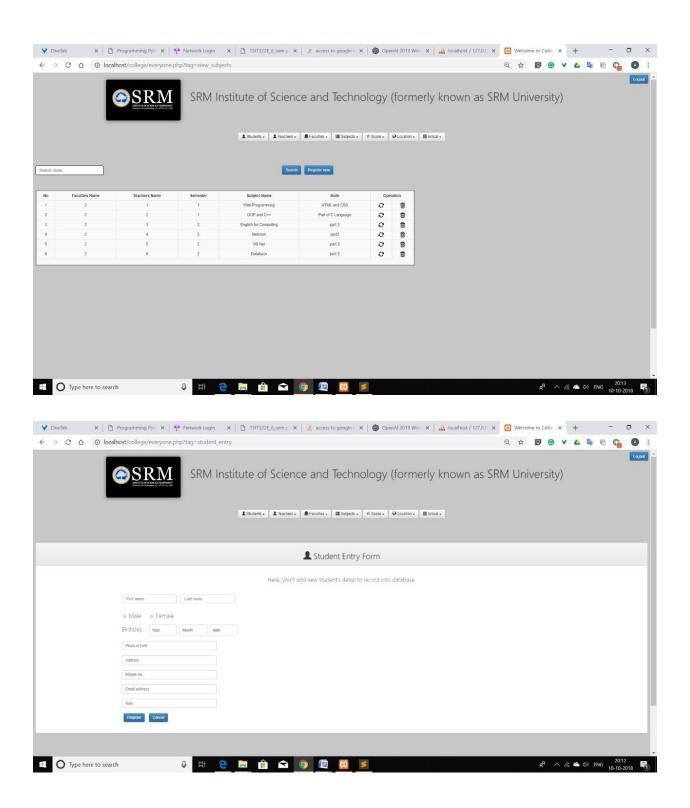
With our experience, we have found that, PHP and MySQL are the best development tools. When developed correctly, applications can be built with clean and simple usability, complex functionality, speed, power and scalability.

Tools Used: The tools used in making the project are HTML5, CSS3, JavaScriptTechniqueused: Bootstrap, PHP, MySQL for database creation management, PHP development environment provided by xampp and PhPMyAdmin and JQuery.









12. Conclusion

College management system is an integrated web application that handles various academic and non academic activities of a College/Academic Institute. The system can access by every students/faculties/employees of the institution through internet connected computers or internet enabled mobile devices with the aid of his user name and password. Every user will have a customized home page with his/her profile management facilities. Through links that displays in the home page the user can access different options of the website assigned to him. Though the system allows access to every one there is a significant security risk involved in this project. To tackle this problem we suggest a modular structure in the proposed system and a complete isolation of the financial and administrative modules from the public portal. Only trusted IPs can access these modules. Web services will interact to the financial and administrative modules to fetch necessary information to display in the public portal. Although a standard password policy will be followed in the designing of the system to prevent the possibilities of malicious activities of itching users. Aself driven module in the proposed system will accomplish the automated tasks such as Email Alerts, SMS alerts, Notifications to the administrator etc.