

# **Student Database Management System**

## **A PROJECT REPORT**

*Submitted by*

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*in partial fulfilment for the award of the degree*

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## BONAFIDE CERTIFICATE

Certified that this project report titled “**STUDENT DATABASE MANAGEMENT SYSTEM**” is the bonafide work of “**Sudiksha Ghosh - RA1911033010038**”, who carried out the project work under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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**Sudiksha Ghosh**

# CHAPTER 1

## INTRODUCTION ABOUT THE PLATFORMS USED

### 1.1 MySQL

MySQL is a fast, easy-to-use RDBMS being used for many small and big businesses. MySQL is developed, marketed and supported by MySQL AB, which is a Swedish company. MySQL is becoming so popular because of many good reasons:

- MySQL is released under an open-source license. So you have nothing to pay to use it.
- MySQL is a very powerful program in its own right. It handles a large subset of the functionality of the most expensive and powerful database packages.
- MySQL uses a standard form of the well-known SQL data language.
- MySQL works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.
- MySQL works very quickly and works well even with large data sets.
- MySQL supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this (if your operating system can handle it) to a theoretical limit of 8 million terabytes (TB).
- MySQL is very friendly to PHP, the most appreciated language for web development.
- MySQL is customizable. The open-source GPL license allows programmers to modify the MySQL software to fit their own specific environments.

# **CHAPTER 2**

## **TOOLS USED**

### **2.1 MySql Workbench**

- MySQL Workbench is a visual database design tool that integrates SQL development, administration, database design, creation and maintenance into a single integrated development environment for the MySQL database system. It is the successor to DBDesigner 4 from fabFORCE.net and replaces the previous package of software, MySQL GUI Tools Bundle.

### **2.2 Visual Studio Code**

Visual Studio Code is a code editor in layman's terms. Visual Studio Code is "a free editor that helps the programmer write code, helps in debugging and corrects the code using the Intelli- sense method". In normal terms, it facilitates users to write the code in an easy manner.

### **2.3 Web Browsers**

Any web browser will suffice.

### **2.4 GitHub**

GitHub Inc. is a Git-based version control web hosting service. It's primarily utilised in computer programming. It has all of Git's distributed version control and source code management features, as well as those of its own.

## **ABSTRACT**

Student Database Management System is a software which is helpful for the students as well as the authorities. This system deals with the various activities related to the student records.

Students form an essential part of any institution. However, institutions find it difficult to maintain records of so many students of the organization in one stretch. It would generally involve a lot of paperwork. It would also be difficult to find the information regarding one student based on name or roll no. The issue of data redundancy may also occur. Hence, a relational database management system to maintain the records of all the students will provide an efficient and convenient method to access records in an organized manner.

In this software, we can register as a user and this user can be of 2 types, student and administrator. Administrators would have the power to add a new user, edit details or delete records and users. This admin can edit or delete marks. The marks are visible to all the users. This system will make it easier to manage students' reports, results and examination details, all in one place. It will also help save time and effort. The interface will be user friendly and easy to understand. The information of any student will be just one click away.

# **CHAPTER 3**

## **INTRODUCTION**

Student Management System deals with all kinds of student details, academic-related reports, college details, course details, curriculum, batch details and other resource-related details too. It tracks all the details of a student from the day one to the end of his course which can be used for all reporting purposes, tracking of attendance, progress in the course, completed semesters years, coming semester year curriculum details, exam details, project or any other assignment details, final exam result etc.

In the case of a manual system, they need a lot of time, manpower etc. Here almost all work is computerized. So the accuracy is maintained. Maintaining backup is very easy. It can do within a few minutes. Our system has two types of accessing modes, administrator and user. The student management system is managed by an administrator. It is the job of the administrator to insert updates and monitor the whole process. When a user logs in to the system. He/she would only view the details of the student. He/she can't perform any changes. Our system has seven modules, they are administrator, student, course, department, exam, attendance, and section.

The student management system is an automated version of the manual Student Management System. It can handle all details about a student. The details include college details, subject details, student personnel details, academic details, exam details etc.

### **3.1 PROPOSED SOLUTION**

There are many software development companies that offer student management systems for schools in the market. It was observed from those models, that there are features that this project can adopt and implement. One of them will be with the addition of a new course or class, or even upgrading of students to the next level, the school administrator can easily register all of them within a particular class into the new one using just a page and not have to register one at a time. This feature helps administrators to save time as well as increase their efficiency. This design can facilitate us to explore all the activities happening in the college, even we can get to know which faculty is assigned to which course, the current status of a student, attendance percentage of a student and upcoming requirements of a student.



### **3.2OBJECTIVE**

The proposed system is intended to make life easy. The main purpose of the project is to build an integrated student database system to facilitate easy access to records of students across departments. The main objective is to develop a robust Student Database Management System. The proposed system is also intended to allow students to view their results online. This will go a long way to help students decide on what courses to register for. The proposed system is intended to manage specific information of students such as personal details, course details and exam details etc. It manages all the information about Profiles, Students, Fees, and Profiles. The project is totally built at the administrative end and thus only the administrator is guaranteed access.

# CHAPTER 4

## DESIGN

### 4.1 ENTITY-RELATIONSHIP DIAGRAM

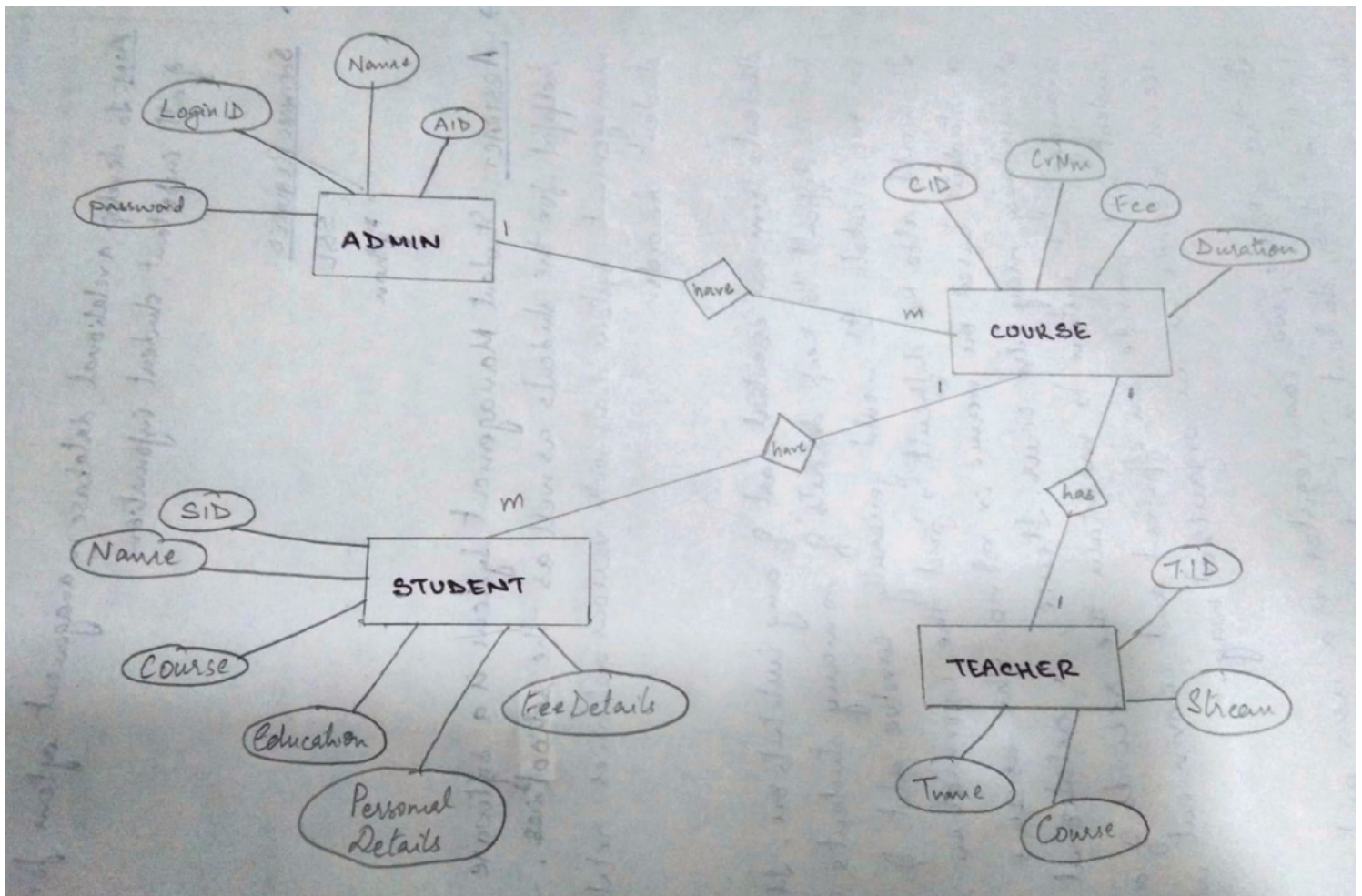


Figure 4.1

# **CHAPTER 5**

## **IMPLEMENTATION**

## Creating Tables with Constraints and Keys

C: > Users > Sudiksha Ghosh > TABLE Admin.sql

Run on active connection | Select block

```
1 CREATE TABLE Admin
2
3 (
4     AID VARCHAR(10) PRIMARY KEY,
5     Loginid VARCHAR(30) NOT NULL,
6     Passwrd VARCHAR(30) NOT NULL,
7     Name VARCHAR(30)
8 );
9 EXEC sp_help Admin;
```

**RESULTS** CTRL+ALT+R

	Column_name	Type	Computed	Length	Prec
1	AID	varchar	no	10	
2	Loginid	varchar	no	30	
3	Passwrd	varchar	no	30	
4	Name	varchar	no	30	

**MESSAGES** CTRL+ALT+Y

No views with schema binding reference table 'Admin'.  
Total execution time: 00:00:01.283

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL SQL CONSOLE: MESSAGES

No problems have been detected in the workspace.

Filter (e.g. text, \*\*/\*.ts, !\*\*/node\_modules/\*\*)

C: > Users > Sudiksha Ghosh > TABLE Student.sql

Run on active connection | Select block

```
1 CREATE TABLE Student
2 (
3     SID VARCHAR(10) PRIMARY KEY,
4     Name VARCHAR(30) NOT NULL,
5     CID VARCHAR(10) NOT NULL,
6     PHONE VARCHAR(10),
7     CGPA VARCHAR(10)
8 );
9 EXEC sp_help Student;
```

**RESULTS** CTRL+ALT+R

	Column_name	Type	Computed	Length	Prec	Scale	Nullable
1	SID	varchar	no	10			no
2	Name	varchar	no	30			no
3	CID	varchar	no	10			no
4	PHONE	varchar	no	10			yes
5	CGPA	varchar	no	10			yes

**MESSAGES** CTRL+ALT+Y

No views with schema binding reference table 'Student'.  
Total execution time: 00:00:00.433

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL SQL CONSOLE: MESSAGES

No problems have been detected in the workspace.

Filter (e.g. text, \*\*/\*.ts, !\*\*/node\_modules/\*\*)

TABLE Crs.sql X

C: > Users > Sudiksha Ghosh > TABLE Crs.sql

Run on active connection | Select block

```
1 CREATE TABLE Course
2 (
3     CID VARCHAR(10) PRIMARY KEY,
4     DURATION VARCHAR(10) NOT NULL,
5     CNAME VARCHAR(30),
6     FEES VARCHAR(10)
7 );
8 EXEC sp_help Course;
```

**RESULTS** CTRL+ALT+R

	Column_name	Type	Computed	Length	Prec
1	CID	varchar	no	10	
2	DURATION	varchar	no	10	
3	CNAME	varchar	no	30	
4	FEES	varchar	no	10	

**MESSAGES** CTRL+ALT+Y

No foreign keys reference table 'Course', or you do not have permissions on referencing tables.  
No views with schema binding reference table 'Course'.

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL SQL CONSOLE: MESSAGES

No problems have been detected in the workspace.

Filter (e.g. text, \*\*/\*.ts, !\*\*/node\_modules/\*\*)

C: > Users > Sudiksha Ghosh > TABLE TCHR.sql

Run on active connection | Select block

```
1 CREATE TABLE TCHR
2 (
3     TID VARCHAR(10) PRIMARY KEY,
4     TName VARCHAR(30) NOT NULL,
5     dept VARCHAR(30) NOT NULL,
6     CRS VARCHAR(30)
7 );
8 EXEC sp_help TCHR;
```

**RESULTS** CTRL+ALT+R

	Column_name	Type	Computed	Length	Prec
1	TID	varchar	no	10	
2	TName	varchar	no	30	
3	dept	varchar	no	30	
4	CRS	varchar	no	30	

**MESSAGES** CTRL+ALT+Y

No views with schema binding reference table 'TCHR'.  
Total execution time: 00:00:00.468

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL SQL CONSOLE: MESSAGES

No problems have been detected in the workspace.

Filter (e.g. text, \*\*/\*.ts, !\*\*/node\_modules/\*\*)

## Altering Table and Adding Constraints

The screenshot shows the SQL Server Enterprise Manager interface. The left pane displays the script `ALTER TABLE Admin` with the following SQL commands:

```
1 ALTER TABLE Admin
2 ALTER COLUMN Name VARCHAR(30) NOT NULL;
3
4 EXEC sp_help Admin;
```

The right pane shows the results of the execution. The `sp_help` command returns the structure of the `Admin` table:

Column_name	Type	Computed	Length	Prec	Scale	Nullable
AID	varchar	no	10			no
Loginid	varchar	no	30			no
Passwrd	varchar	no	30			no
Name	varchar	no	30			no

The bottom pane shows the messages:

No views with schema binding reference table 'Admin'.  
Total execution time: 00:00:00.834

The screenshot shows the SQL Server Enterprise Manager interface. The left pane displays the script `ALTER TABLE Student` with the following SQL commands:

```
1 ALTER TABLE Student
2 ADD CONSTRAINT cns UNIQUE(PHONE);
3
4 EXEC sp_help Student;
```

The right pane shows the results of the execution. The `sp_help` command returns the structure of the `Student` table:

index_name	index_description	index_keys
1 cns	nonclustered, unique, unique key...	PHONE

The bottom pane shows the messages:

No views with schema binding reference table 'Student'.  
Total execution time: 00:00:00.834

The screenshot shows the SQL Server Enterprise Manager interface. The left pane displays the script `ALTER TABLE COURSE` with the following SQL commands:

```
1 ALTER TABLE COURSE
2 ADD CONSTRAINT CHK CHECK(DURATION BETWEEN 3 AND 5);
3
```

The right pane shows the results of the execution. The `sp_help` command returns the structure of the `COURSE` table:

index_name	index_description	index_keys
1 cns	nonclustered, unique, unique key...	PHONE

The bottom pane shows the messages:

No views with schema binding reference table 'COURSE'.  
Total execution time: 00:00:00.834

## Adding Foreign Keys

The screenshot shows the SQL Server Enterprise Manager interface. The left pane displays the file explorer with the file 'ALTER TABLE Student.sql' selected. The right pane shows the 'RESULTS' tab with a table of constraint information.

SQL Script:

```
1 ALTER TABLE Student
2 ADD CONSTRAINT FK_FKEY FOREIGN KEY(CID) REFERENCES COURSE(CID);
3
4 EXEC sp_help Student;
```

RESULTS:

	constraint_type	constraint_name	d...	u...	status_enabled	s...	constraint_keys
1	FOREIGN KEY	FKEY	N	N...	Enabled	I...	CID
2							REFERENCES m...

MESSAGES:

Total execution time: 00:00:01.439

Filter (e.g. text, \*\*/\*.ts, !\*\*/node\_modules/\*\*)

## Dropping Constraints

The screenshot shows the SQL Server Enterprise Manager interface. The left pane displays the file explorer with the file 'ALTER TABLE Student.sql' selected. The right pane shows the 'RESULTS' tab with a message indicating the successful execution of the query.

SQL Script:

```
1 ALTER TABLE Student DROP CONSTRAINT cns;
```

RESULTS:

[12:17:54 am] Started executing query at Line 1  
Commands completed successfully.  
Total execution time: 00:00:00.174

Filter (e.g. text, \*\*/\*.ts, !\*\*/node\_modules/\*\*)

## Insert Data into Admin

C: > Users > Sudiksha Ghosh > INSERT Admin.sql

▶ Run on active connection | Select block

1 INSERT INTO Admin VALUES('AD101','SG2343','1234','SUDIKSHA');

2 INSERT INTO Admin VALUES('AD102','AP4587','0090','ARJUN');

3

4 SELECT \* FROM Admin;

RESULTS

CTRL+ALT+R

	AID	Loginid	Passwrđ	Name	
1	AD101	SG2343	1234	SUDIKSHA	
2	AD102	AP4587	0090	ARJUN	

## Insert Data into Student

C: > Users > Sudiksha Ghosh > INSERT Studnt.sql

▶ Run on active connection | Select block

1 INSERT INTO Studnt VALUES('S038','ANCHAL','MB102','9899075','9.4');

2 INSERT INTO Studnt VALUES('S042','ANIRUD','CS101','9895737','9');

3 INSERT INTO Studnt VALUES('S074','PRANAV','MB102','9738292','8.2');

4 INSERT INTO Studnt VALUES('S056','MRIDU','CH102','9378295','9.8');

5 INSERT INTO Studnt VALUES('S065','HARSH','CS105','9799078','9.4');

6

7 SELECT \* FROM Studnt;

RESULTS

CTRL+ALT+R

	SID	Name	CID	PHONE	CGPA	
1	S038	ANCHAL	MB102	9899075	9.4	
2	S042	ANIRUD	CS101	9895737	9	
3	S056	MRIDU	CH102	9378295	9.8	
4	S065	HARSH	CS105	9799078	9.4	
5	S074	PRANAV	MB102	9738292	8.2	

MESSAGES

CTRL+ALT+Y

(1 row affected)  
(5 rows affected)  
Total execution time: 00:00:00.140

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

SQL CONSOLE

Filter (e.g. text, \*\*/\*.ts, !\*\*/node\_modules/\*\*)

No problems have been detected in the workspace.

## Insert Data into COURSE

C: > Users > Sudiksha Ghosh > INSERT COURSE.sql

▶ Run on active connection | Select block

1 INSERT INTO COURSE VALUES('MB102','3','MATHS','20000');

2 INSERT INTO COURSE VALUES('CS101','4','C++','35000');

3 INSERT INTO COURSE VALUES('CS105','5','AI','60000');

4 INSERT INTO COURSE VALUES('PY101','3','PHYSICS','30000');

5 INSERT INTO COURSE VALUES('CH102','3','CHEM','20000');

6

7 SELECT \* FROM COURSE;

RESULTS

CTRL+ALT+R

	CID	DURATION	CNAME	FEES	
1	CH102	3	CHEM	20000	
2	CS101	4	C++	35000	
3	CS105	5	AI	60000	
4	MB102	3	MATHS	20000	
5	PY101	3	PHYSICS	30000	

MESSAGES

CTRL+ALT+Y

(1 row affected)  
(5 rows affected)  
Total execution time: 00:00:00.100

## Insert Data into Teacher

C: > Users > Sudiksha Ghosh > INSERT TCHR.sql

Run on active connection | Select block

```
1 INSERT INTO TCHR VALUES('T038','SASI','CS','C++');
2 INSERT INTO TCHR VALUES('T042','JEVASUDHA','SCIENCE','MATHS');
3 INSERT INTO TCHR VALUES('T054','SUNDARAM','CS','AI');
4 INSERT INTO TCHR VALUES('T102','BHARGABI','SCIENCE','CHEM');
5 INSERT INTO TCHR VALUES('T076','SENTHIL','SCIENCE','PHY');
6 INSERT INTO TCHR VALUES('T045','REKHA','CS','C++');
7
8 SELECT * FROM TCHR;
```

**RESULTS** CTRL+ALT+R

	TID	TName	dept	CRS
1	T038	SASI	CS	C++
2	T042	JEVASUDHA	SCIENCE	MATHS
3	T045	REKHA	CS	C++
4	T054	SUNDARAM	CS	AI
5	T076	SENTHIL	SCIENCE	PHY
6	T102	BHARGABI	SCIENCE	CHEM

**MESSAGES** CTRL+ALT+Y

(1 row affected)  
(6 rows affected)  
Total execution time: 00:00:00.176

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL SQL CONSOLE

Filter (e.g. text, \*\*/\*.ts, !\*\*/node\_modules/\*\*)

No problems have been detected in the workspace.

## Applying Different Manipulation Techniques Update Statement

Run on active connection | Select block

```
1 UPDATE Admin SET AID='AD103' WHERE Loginid ='SG2343'
2 SELECT * FROM Admin;
```

**RESULTS** CTRL+ALT+R

	AID	Loginid	Passwr	Name
1	AD102	AP4587	0090	ARJUN
2	AD103	SG2343	1234	SUDI KSHA

**MESSAGES** CTRL+ALT+Y

(1 row affected)  
(2 rows affected)  
Total execution time: 00:00:00.017

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL SQL CONSOLE

Filter (e.g. text, \*\*/\*.ts, !\*\*/node\_modules/\*\*)

No problems have been detected in the workspace.

Run on active connection | Select block

```
1 UPDATE TCHR SET dept='MATHS' WHERE TID ='T042'
2 SELECT * FROM TCHR;
```

**RESULTS** CTRL+ALT+R

	TID	TName	dept	CRS
1	T038	SASI	CS	C++
2	T042	JEVASUDHA	MATHS	MATHS
3	T045	REKHA	CS	C++
4	T054	SUNDARAM	CS	AI
5	T076	SENTHIL	SCIENCE	PHY
6	T102	BHARGABI	SCIENCE	CHEM

**MESSAGES** CTRL+ALT+Y

(1 row affected)  
(6 rows affected)  
Total execution time: 00:00:00.062

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL SQL CONSOLE

Filter (e.g. text, \*\*/\*.ts, !\*\*/node\_modules/\*\*)

No problems have been detected in the workspace.



## Delete Statement

▷ Run on active connection | ≡ Select block

```
DELETE FROM TCHR WHERE TName='REKHA' AND TID='T045';  
SELECT * FROM TCHR;
```

▲ RESULTS

	TID	TName	dept	CRS
1	T038	SASI	CS	C++
2	T042	JEYASUDHA	MATHS	MATHS
3	T054	SUNDARAM	CS	AI
4	T076	SENTHIL	SCIENCE	PHY
5	T102	BHARGABI	SCIENCE	CHEM

▲ MESSAGES

(1 row affected)  
(5 rows affected)  
Total execution time: 00:00:00.094

## Select Statement

▷ Run on active connection | ≡ Select block

```
SELECT SID, Name, PHONE FROM Studnt;
```

▲ RESULTS

	SID	Name	PHONE
1	S038	ANCHAL	9899075
2	S042	ANIRUD	9895737
3	S056	MRIDU	9378295
4	S065	HARSH	9799078
5	S074	PRANAV	9738292

## **CHAPTER 6**

### **CONCLUSION**

As we have seen in this project, the process of creating a userfriendly and straightforward platform that facilitates the administrator's job is one filled with complexity. From understanding user requirements to system design and finally system prototype and finalization, every step requires in-depth understanding and commitment towards achieving the objectives of the project. Although the student database management module is not fully integrated into the system and used in real-time, the system prototype demonstrates easy navigation and data are stored in a systematic way. Overall, efficiency has improved and work processes simplified. Although all the objectives have been met, the system still has room for improvement. The system is robust and flexible enough for future upgrades using advanced technology and devices.

## REFERENCES

- [1] <https://www.w3schools.com/php/>
- [2] <https://www.w3schools.com/mysql/>
- [3] [https://www.w3schools.com/html/html\\_css.asp](https://www.w3schools.com/html/html_css.asp)