

MAULANA ABUL KALAM AZAD
UNIVERSITY OF TECHNOLOGY,
WEST BENGAL



DBMS Project Report Based on Student Record keeping System

Submitted by:

Name of the Student

Roll No.

Monodip Biswas

10000220062

Retam Paul

10000220055

Anwesha Das

10000220056

ER Diagram of Student Record keeping system Database :



Entities:

```
mysql> show tables;
+-----+
| Tables_in_Proj |
+-----+
| EXAM           |
| FEES           |
| RESULTS        |
| SCHOLARSHIP    |
| STREAM         |
| STREAM_Details |
| STUDENT        |
+-----+
7 rows in set (0.01 sec)
```

1. STUDENT:

```
mysql> desc STUDENT;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| RegNo          | varchar(20)   | NO   | PRI | NULL    |       |
| RollNo         | varchar(20)   | NO   |     | NULL    |       |
| Student_Name   | varchar(30)   | NO   |     | NULL    |       |
| Address        | varchar(20)   | NO   |     | NULL    |       |
| Year           | int           | NO   |     | NULL    |       |
| Semester       | int           | NO   |     | NULL    |       |
| DeptCode       | varchar(4)    | NO   | MUL | NULL    |       |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.68 sec)

mysql> select * from STUDENT;
+-----+-----+-----+-----+-----+-----+-----+
| RegNo          | RollNo        | Student_Name | Address   | Year | Semester | DeptCode |
+-----+-----+-----+-----+-----+-----+-----+
| 201000100220002 | 10000220055 | Retam Paul   | Bankura  | 1    | 2        | CSE      |
| 201000100220003 | 10000220056 | Anwesha Das  | Uttara para | 4    | 7        | EE       |
| 201000100220009 | 10000220062 | Monodip Biswas | Bandel   | 2    | 4        | IT       |
+-----+-----+-----+-----+-----+-----+-----+
```

2. STREAM:

```
mysql> desc STREAM;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Stream_ID  | varchar(4) | NO   | PRI | NULL    |       |
| Stream_Name | varchar(40) | NO   |     | NULL    |       |
| HOD        | varchar(4) | NO   |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> select * from STREAM;
+-----+-----+-----+
| Stream_ID | Stream_Name | HOD |
+-----+-----+-----+
| CSE       | Computer Science and Engineerng | F101 |
| ECE       | Electronics Communication Engineering | F901 |
| EE        | Electrical Engineering | F202 |
| IT        | Information Technology | F506 |
+-----+-----+-----+
4 rows in set (0.00 sec)
```

3. STREAM_Details:

```
mysql> desc STREAM_Details;
+-----+-----+-----+-----+-----+-----+
| Field      | Type      | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Stream_ID  | varchar(4) | NO   | MUL | NULL    |       |
| Subject_Name | varchar(20) | NO   |     | NULL    |       |
| Subject_Code | varchar(6) | NO   |     | NULL    |       |
| Course_duration | int | NO   |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql> select * from STREAM_Details;
+-----+-----+-----+-----+
| Stream_ID | Subject_Name | Subject_Code | Course_duration |
+-----+-----+-----+-----+
| CSE       | Automata Theory | CS21 | 12 |
| EE        | Basic Electronics | EE12 | 12 |
| EE        | Control Systems | EE34 | 16 |
| IT        | RDBMS | IT42 | 8 |
+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

4. EXAM:

```
mysql> desc EXAM;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Std_RegNo  | varchar(20)   | NO   | MUL | NULL    |       |
| Exam_type  | varchar(20)   | YES  |     | NULL    |       |
| Stream_ID  | varchar(20)   | NO   | MUL | NULL    |       |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.01 sec)
```

```
mysql> select * from EXAM;
+-----+-----+-----+
| Std_RegNo | Exam_type | Stream_ID |
+-----+-----+-----+
| 201000100220002 | End Semester | CSE |
| 201000100220009 | Odd Semester | IT |
| 201000100220003 | Even Semester | EE |
+-----+-----+-----+
3 rows in set (0.05 sec)
```

5. RESULTS:

```
mysql> desc RESULTS;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Std_RegNo  | varchar(20)   | NO   | MUL | NULL    |       |
| CGPA       | float         | NO   |     | NULL    |       |
| Stream_ID  | varchar(4)    | NO   | MUL | NULL    |       |
| Percentage | float         | NO   |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

```
mysql> select * from RESULTS;
+-----+-----+-----+-----+
| Std_RegNo | CGPA | Stream_ID | Percentage |
+-----+-----+-----+-----+
| 201000100220002 | 9.6 | CSE | 91.6 |
| 201000100220009 | 9.4 | IT | 89.6 |
| 201000100220003 | 9.5 | EE | 90.5 |
+-----+-----+-----+-----+
3 rows in set (0.37 sec)
```


6. FEES

```
mysql> desc FEES;
```

Field	Type	Null	Key	Default	Extra
RegNo	varchar(20)	NO	MUL	NULL	
Fee_id	int	NO	PRI	NULL	
StreamID	varchar(4)	NO	MUL	NULL	
Fee_type	varchar(20)	NO		NULL	
Fee_amount	decimal(8,2)	YES		NULL	

```
5 rows in set (0.00 sec)
```

```
mysql> select * from FEES;
```

RegNo	Fee_id	StreamID	Fee_type	Fee_amount
201000100220009	5728931	IT	Exam Fees	25000.00
201000100220003	7891450	EE	Admission	21000.00
201000100220002	8213875	CSE	Registration	30000.00

```
3 rows in set (0.00 sec)
```

7. SCHOLARSHIP

```
mysql> desc SCHOLARSHIP;
```

Field	Type	Null	Key	Default	Extra
Std_RegNo	varchar(20)	NO	MUL	NULL	
Sch_amount	float	NO		NULL	
Sch_name	varchar(20)	NO		NULL	

```
3 rows in set (0.01 sec)
```

```
mysql> select * from SCHOLARSHIP;
```

Std_RegNo	Sch_amount	Sch_name
201000100220002	60000	SVMCM
201000100220009	30000	National Scholarship

```
2 rows in set (0.14 sec)
```

NORMALIZE STUDENT Table:

2NF:

REGNO	STUDENT_NAME	ADDRESS
201000100220002	Retam Paul	Bankura
201000100220009	Monodip Biswas	Bandel
201000100220003	Anwesha Das	Uttarpara

REGNO	YEAR	SEMESTER	DEPTCODE
201000100220002	1	2	CSE
201000100220009	2	4	IT
201000100220003	4	7	EE

REGNO	ROLLNO	STUDENT_NAME
201000100220002	10000220055	Retam Paul
201000100220009	10000220062	Monodip Biswas
201000100220003	10000220056	Anwesha Das

3NF:

REGNO	ROLLNO	STUDENT_NAME
201000100220002	10000220055	Retam Paul
201000100220009	10000220062	Monodip Biswas
201000100220003	10000220056	Anwesha Das

ROLLNO	STUDENT_NAME	ADDRESS	YEAR	SEMESTER	DEPTCODE
10000220055	Retam Paul	Bankura	1	2	CSE
10000220062	Monodip Biswas	Bandel	2	4	IT
10000220056	Anwesha Das	Uttarpara	4	7	EE

Normalization of SCHOLARSHIP Table

2NF

STD_REGNO	SCH_NAME
201000100220002	SVMCM
201000100220009	National Scholarship

STD_REGNO	SCH_AMOUNT
201000100220002	60000
201000100220009	30000

Normalization of EXAM Table

2NF:

STD_REGNO	EXAM_TYPE
201000100220002	End Semester
201000100220009	Odd Semester
201000100220003	Even Semester

STD_REGNO	STREAM_ID
201000100220002	CSE
201000100220009	IT
201000100220003	EE

Normalization of FEES Table

2NF:

REGNO	FEE_ID	FEE_AMOUNT
201000100220002	8213875	30000
201000100220009	5728931	25000
201000100220003	7891450	21000

REGNO	STREAMID	FEE_TYPE
201000100220002	CSE	Registration
201000100220009	IT	Exam fees
201000100220003	EE	admission

3NF:

REGNO	FEE_ID	FEE_AMOUNT
201000100220002	8213875	30000
201000100220009	5728931	25000
201000100220003	7891450	21000

FEE_ID	STREAMID	FEE_TYPE
8213875	CSE	Registration
5728931	IT	Exam fees
7891450	EE	admission

Normalization of RESULTS Table

2NF:

STD_REGNO	STREAM_ID
201000100220002	CSE
201000100220009	IT
201000100220003	EE

STD_REGNO	CGPA	PERCENTAGE
201000100220002	9.6	91.6
201000100220009	9.4	89.6
201000100220003	9.5	90.5

Queries:

1. Show RegNo, Student Name,DeptCode,Year,Stream_Name,Exam_type,HOD,CGPA, and Percentage

```
mysql> select RegNo,Student_Name,DeptCode,Year,STREAM.Stream_Name,EXAM.Exam_type,STREAM.HOD,RESULTS.CGPA,RESULTS.Percentage from STUDENT join RESULTS on STUDENT.RegNo = RESULTS.Std_RegNo join EXAM on EXAM.Std_RegNo = STUDENT.RegNo join STREAM on STREAM.Stream_ID = STUDENT.DeptCode order by RegNo;
```

RegNo	Student_Name	DeptCode	Year	Stream_Name	Exam_type	HOD	CGPA	Percentage
201000100220002	Retam Paul	CSE	1	Computer Science and Engineerng	End Semester	F101	9.6	91.6
201000100220003	Anwasha Das	EE	4	Electrical Engineering	Even Semester	F202	9.5	90.5
201000100220009	Monodip Biswas	IT	2	Information Technology	Odd Semester	F506	9.4	89.6

3 rows in set (0.00 sec)

2. Show the Student who got the highest percentage.

```
mysql> select Std_RegNo,STUDENT.Student_Name,Stream_ID,Percentage from RESULTS join STUDENT on STUDENT.RegNo = RESULTS.Std_RegNo where Percentage=(select max(Percentage) from RESULTS);
```

Std_RegNo	Student_Name	Stream_ID	Percentage
201000100220002	Retam Paul	CSE	91.6

1 row in set (0.01 sec)

3. Create view name Student_Details.

```
mysql> create view Student_Details as select RegNo,RollNo,Student_Name,Year,Semester,DeptCode,STREAM.Stream_Name from STUDENT join STREAM on STUDENT.DeptCode = STREAM.Stream_ID;
```

Query OK, 0 rows affected (0.25 sec)

```
mysql> select * from Student_Details;
```

RegNo	RollNo	Student_Name	Year	Semester	DeptCode	Stream_Name
201000100220001	1000020001	Test 1	3	6	IT	Information Technology
201000100220002	10000220055	Retam Paul	1	2	CSE	Computer Science and Engineerng
201000100220003	10000220056	Anwasha Das	4	7	EE	Electrical Engineering
201000100220009	10000220062	Monodip Biswas	2	4	IT	Information Technology

4 rows in set (0.00 sec)

4. /More than 1 Department/Stream in view table.

```
mysql> select DeptCode,Stream_Name from Student_Details group by DeptCode having count(DeptCode) > 1;
+-----+-----+
| DeptCode | Stream_Name |
+-----+-----+
| IT       | Information Technology |
+-----+-----+
1 row in set (0.00 sec)
```

5. Student who scored 3rd highest in Exam.

```
mysql> select Std_RegNo,STUDENT.Student_Name,Stream_ID,Percentage from RESULTS join STUDENT on STUDENT.RegNo = RESULTS.Std_RegNo order by Percentage desc limit 2,1;
+-----+-----+-----+-----+
| Std_RegNo | Student_Name | Stream_ID | Percentage |
+-----+-----+-----+-----+
| 201000100220009 | Monodip Biswas | IT | 89.6 |
+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

6. Check whether the Year ranges from 1 to 4.

```
mysql> alter table STUDENT add constraint check_Year check (Year>= 1 and Year <= 4);
Query OK, 4 rows affected (3.38 sec)
Records: 4 Duplicates: 0 Warnings: 0
```

7. Student who have paid the Admission fees

```
mysql> select STUDENT.Student_Name,Fee_amount from FEES join STUDENT on STUDENT.RegNo = FEES.RegNo where Fee_type = "Admission";
+-----+-----+
| Student_Name | Fee_amount |
+-----+-----+
| Anwesha Das | 21000.00 |
+-----+-----+
1 row in set (0.00 sec)
```

8. Students who are not eligible or not applied for scholarship

```
mysql> select Student_Name,DeptCode from STUDENT where RegNo NOT in (select Std_RegNo from SCHOLARSHIP);
+-----+-----+
| Student_Name | DeptCode |
+-----+-----+
| Test 1       | IT       |
| Anwesha Das  | EE       |
+-----+-----+
2 rows in set (0.00 sec)
```

9. Change column name of Fee_id to Transaction_id

```
mysql> desc FEES;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| RegNo          | varchar(20)   | NO   | MUL | NULL    |       |
| Fee_id         | int           | NO   | PRI | NULL    |       |
| StreamID       | varchar(4)    | NO   | MUL | NULL    |       |
| Fee_type       | varchar(20)   | NO   |     | NULL    |       |
| Fee_amount     | decimal(8,2)  | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.01 sec)
```

```
mysql> alter table FEES change Fee_id Transaction_id int;
Query OK, 0 rows affected (0.78 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> desc FEES;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| RegNo          | varchar(20)   | NO   | MUL | NULL    |       |
| Transaction_id | int           | NO   | PRI | NULL    |       |
| StreamID       | varchar(4)    | NO   | MUL | NULL    |       |
| Fee_type       | varchar(20)   | NO   |     | NULL    |       |
| Fee_amount     | decimal(8,2)  | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

10. Remove the Primary key from the Transaction_id.

```
mysql> alter table FEES drop primary key;
Query OK, 3 rows affected (3.42 sec)
Records: 3 Duplicates: 0 Warnings: 0
```

```
mysql> desc FEES;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| RegNo          | varchar(20)   | NO   | MUL | NULL    |       |
| Transaction_id | int           | NO   |     | NULL    |       |
| StreamID       | varchar(4)    | NO   | MUL | NULL    |       |
| Fee_type       | varchar(20)   | NO   |     | NULL    |       |
| Fee_amount     | decimal(8,2)  | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```