Govt. College, Solan
List Of Project Titles (Project)
PGDCA IInd Semester
Software :- Mysql 5.5 command line Client
Session 2024-25

Sr. No	Roll No	Name of Student	Project Tiltle
1	24101	Vinay	Library Management System
2	24102	Pragti Thakur	Employee Management System
3	24103	Ankita Thakur	Employee Management System
4	24104	Gayatri Devi	Employee Attendance System
6	24106	Sumit Kumar	Flight Reservation System
7	24107	Isha Attri	College Course Management
8	24108	Deepika Kumari	Library Management System
9	24109	Daksh Dogra	Flight Reservation System
11	24111	Sneha Sharma	College Course Management
12	24112	Rahul	Flight Reservation System
15	24115	Megha Verma	Employee Management System
16	24116	Anchal	Student Management System
17	24117	Anidya Murli	Library Management System
18	24118	Varsha Devi	Employee Management System
19	24119	Hitanshu	Student Management System
20	24120	Gaurav	College Course Management
21	24121	Sakshi	Flight Reservation System
22	24122	Deepak Thakur	Flight Reservation System
23	24123	Preeti	Student Management System
24	24124	Preeti	Employee Attendance System
25	24125	Titiksha	Employee Attendance System
26	24126	Mansi	Library Management System
27	24127	Ritika Ray	Employee Attendance System
28	24128	Riya Thakur	Student Management System

A

PROJECT REPORT

ON

"COLLEGE COURSE MANAGEMENT SYSTEM"

Project Work is carried out for the Partial Fulfillment for the

Award of

"Post Graduation Diploma in Computer

Application"(PGDCA)

From

GOVERNMENT COLLEGE, SOLAN

Session: 2024-25

Under the supervision of:

Mrs. Simmi Sahni

Submitted By:

Gaurav,Isha,Sneha

Roll No. : 24120,24107,24111

ACKNOWLEDGEMENT

We convey our sincere gratitude to Mrs. Simmi Sahni for giving us the opportunity to prepare our project work in SQL. We express our sincere thanks to all the staff members of BCA/PGDCA.

We are thankful to Mrs. Neha Sharma for her/his guidance during our project work and sparing her/his valuable time for the same.

We express our sincere obligation and thanks to all the faculties of BCA/PGDCA for their valuable advice in guiding us at every stage in bringing out this report.

Name: Gaurav, Isha, Sneha

Enrollment No. 24120, 24107, 24111

CERTIFICATE OF THE GUIDE

Mentor / Guide name:

Designation:

This is to certify that the project report entitled "College Course Management System

has been prepared by Ms./Mr. Gaurav, Isha , Sneha   under my

supervision and guidance, for the fulfillment of Post Gradute Diploma

in Computer Application. His/her work is satisfactory.

Signature of Co-ordinet

Date: Signature of Guide

DECLARATION

We hereby declare that this project work entitled "College Course Management System" submitted by us for the partial fulfillment of the requirement for the award of Post Graduate Diploma in Computer Application (PGDCA) is a record of our own research work. The report embodies the finding based on our study and observation and has not been submitted earlier for the award of any degree or diploma to any Institue or University.

Name: Gaurav,Isha,Sneha

Roll No. : 24120,24107,24111

COLLEGE COURSE MANAGEMENT SYSTEM

Introduction : A College Course Management System is a relational database project designed to streamline and manage various academic operations with in a college environment. It primarily focuses on maintaining structure records for students, courses, instructors, and enrollment.

Overview : The system allows efficient storage retrieval, and manipulation of data related to course offerings, student registrations, instructor allocation, grading.

This project helps automates the manual handling of academic data, redudancy, and ensure data integrity through well-defined relationships between entities such as Students, Course, Instructor and Enrollment. By using SQL queries, users can perform various operations like fetching students details, analyzing course performance view instructor allocation and tracking enrollment status.

Key Features

1. User Management:

- Store and manage data for students, instructors, and administrators.
- Role-based access control for different user types.

2. Course management:

- Create, update, and delete course details.
- Assign instructors to specific courses.

3. Enrollment System:

- Allow students to register for available courses.
- Prevent duplicate or conflicting enrollments.

4. Grade and Evaluation:

- Record and update student grades.
- Generates academic reports and transcripts.

5. Reporting :

- Generates reports for course enrollments, academic performance, etc.
- Export data in user-friendly formats.

6. Security and Data Integrity:

- Use constraints, triggers, and transactions to maintain data accuracy.
- Protect sensitive data through access control and encryption where necessary.

Hardware Requirement :

Processor : Intel(R) Core (TM) i3-6100 CPU @ 3.70GHz 3.70 GHz

Installed RAM :4.00 GB

System type : 64-bit operating system, x64-based processor

Software Requirement :

Stuctured query language (SQL)

My SOL 5.5, a popular open-source relational database management system. A relational database stores information in tabular form, with rows and columns representing different data attributes and the various relationships between the data values.

Key features of My SQL 5.5 :-

1. **Improved performance:** MySQL 5.5 offers improved performance compared to earlier versions, thanks to enhnacements in the InnoDB storage engine.

2. **InnoDB as Default Storage Engine:** InnoDB is the default storage engine in MySQL 5.5, providing better support for transaction and rowlevel locking.

3. **Semisynchronous Replication:** MySQL 5.5 introduces semisynchronous replication, which ensures that transactions are committed on the master and at least one slave before being acknowledged.

4. **Improved Partitioning:** MySQL 5.5 offers improved partitioning capabilities, allowing for more efficient data management and query optimization.

Work Flow

To create a table for a college course management system, we typically need to focus on structuring the data that will represent various entities such as course, students, instructors, enrollment.

Below is an outline key tables with example attributes for each:

Course Table: This table will store details about each course offered.

❖ Table Name : Course

Columns:

- Course_id (Primary key)
- Course_name
- Course_code
- Credits
- Department

```
mysql> select * from course;
+-----------+----------------------------+-------------+---------+------------------+
| course_id | course_name                | course_code | credits | department       |
+-----------+----------------------------+-------------+---------+------------------+
|      1001 | Intoduction to Programming | CS101       |       4 | Computer Science |
|      1002 | Data Structure             | CS102       |       3 | Computer Science |
|      1003 | Calculus I                 | MATH101     |       4 | Mathemtics       |
|      1004 | Physics I                  | PHY101      |       4 | Physics          |
|      1005 | English                    | ENG101      |       3 | English          |
|      1006 | Hindi                      | HIND101     |       4 | Hindi            |
|      1007 | History                    | HIS101      |       3 | Arts             |
+-----------+----------------------------+-------------+---------+------------------+
7 rows in set (0.00 sec)
```

Student Table: This table will store information about the student.

❖ Table Name : Student

Columns:

- Student_id
- Student_name
- Email
- Date of birth
- Enrollement year
- Student_status

Course_id (as a foreign key)

```
student_id | student_name | email                      | date_of_birth | enrollment_year | student_status | course_id |
         1 | Aarav Sharma | aaravsharma@gmail.com      | 2003-05-12    |            2021 | Active         | 1001      |
         2 | Sneha Sharma | snehasharma@gmail.com      | 2004-03-16    |            2022 | Active         | 1002      |
         3 | Isha Thakur  | ishathakur@gmail.com       | 2003-03-12    |            2023 | Inactive       | 1003      |
         4 | Gaurav Thakur| gauravthakur@gmail.com     | 2005-04-23    |            2020 | Active         | 1004      |
         5 | Varsh Sood   | varshasood@gmail.com       | 2002-06-02    |            2024 | Graduated      | 1007      |
         6 | Vikram Sharma| vikramsharma@gmail.com     | 2004-03-01    |            2025 | Active         | NULL      |
         7 | Aarti Sehgal | aartisehgal@gmail.com      | 2005-04-08    |            2000 | Dropped        | 1005      |
rows in set (0.00 sec)
```

Instructor Table: This table will store information about the instructor or professor.

❖ Table Name : Instructor
Columns:
- Instructor_id
- Name
- Email
- Phone
- Department _id

Student_id (as a foreign key)

```
mysql> select * from instructor;
+---------------+---------------+------------------+------------+---------------+------------+
| instructor_id | name          | email            | phone      | department_id | student_id |
+---------------+---------------+------------------+------------+---------------+------------+
|           101 | ishita thakur | ishita@gmail.com | 9876543232 |          1011 |          1 |
|           102 | neha shrama   | neha@gmail.com   | 987898765  |          1012 |          2 |
|           103 | rahul thakur  | rahul@gmail.com  | 987654345  |          1013 |          3 |
|           104 | Adarsh Sharma | adarsh@gmail.com | 981234566  |          1014 |          4 |
|           105 | harsh thakur  | harsh@gmail.com  | 98543276   |          1015 |          5 |
|           106 | bharti verma  | verma@gmail.com  | 986575433  |          1016 |          6 |
|           107 | ankita thakur | ankita2gmail.com | 982314566  |          1017 |          7 |
+---------------+---------------+------------------+------------+---------------+------------+
7 rows in set (0.00 sec)
```

Enrollment Table: This table will store the relationship between students and the course they enrolled in.

- ❖ Table Name : Enrollment
  Columns:
  - Enrollment_id
  - Student_id
  - Instructor_id
  - Course name
  - Enrollment_date
  - Grade

```
+---------------+------------+---------------+------------------+-----------------+-------+
| enrollment_id | student_id | instructor_id | course_name      | enrollment_date | grade |
+---------------+------------+---------------+------------------+-----------------+-------+
|             1 |          1 |           101 | Mathematics      | 2025-01-15      | A     |
|             2 |          2 |           102 | Physics          | 2025-01-18      | B+    |
|             3 |          3 |           103 | Chemistry        | 2025-01-20      | A     |
|             4 |          4 |           104 | Biology          | 2025-01-25      | B     |
|             5 |          5 |           105 | English          | 2025-02-01      | C+    |
|             6 |          6 |           106 | Computer Science | 2025-02-05      | A     |
|             7 |          7 |           107 | History          | 2025-02-10      | C     |
+---------------+------------+---------------+------------------+-----------------+-------+
7 rows in set (0.05 sec)
```

Relationship

1. Student ←→ Course

Relation: Many student can enroll in one course.

```
mysql> SELECT s.student_name, c.course_name, c.department FROM student s JOIN course c ON s.course_id = c.course_id;
+--------------+----------------------------+------------------+
| student_name | course_name                | department       |
+--------------+----------------------------+------------------+
| Aarav Sharma | Intoduction to Programming | Computer Science |
| Sneha Sharma | Data Structure             | Computer Science |
| Isha Thakur  | Calculus I                 | Mathemtics       |
| Gaurav Thakur| Physics I                  | Physics          |
| Varsh Sood   | History                    | Arts             |
| Aarti Sehgal | English                    | English          |
+--------------+----------------------------+------------------+
6 rows in set (0.14 sec)
```

2. Enrollment ←→ Student

Relation: Many enrollment for one student.

```
mysql> SELECT e.*, s.student_name FROM enrollment e JOIN student s ON e.student_id = s.student_id;
+---------------+------------+---------------+------------------+-----------------+-------+--------------+
| enrollment_id | student_id | instructor_id | course_name      | enrollment_date | grade | student_name |
+---------------+------------+---------------+------------------+-----------------+-------+--------------+
|             1 |          1 |           101 | Mathematics      | 2025-01-15      | A     | Aarav Sharma |
|             2 |          2 |           102 | Physics          | 2025-01-18      | B+    | Sneha Sharma |
|             3 |          3 |           103 | Chemistry        | 2025-01-20      | A     | Isha Thakur  |
|             4 |          4 |           104 | Biology          | 2025-01-25      | B     | Gaurav Thakur|
|             5 |          5 |           105 | English          | 2025-02-01      | C+    | Varsh Sood   |
|             6 |          6 |           106 | Computer Science | 2025-02-05      | A     | Vikram Sharma|
|             7 |          7 |           107 | History          | 2025-02-10      | C     | Aarti Sehgal |
+---------------+------------+---------------+------------------+-----------------+-------+--------------+
7 rows in set (0.00 sec)
```

3. Enrollment ⟷ Instructor

Relation: Many enrollment with one instructor.

```
mysql> SELECT e.*, i.name AS instructor_name FROM enrollment e JOIN instructor i ON e.instructor_id = i.instructor_id;
```

enrollment_id	student_id	instructor_id	course_name	enrollment_date	grade	instructor_name
1	1	101	Mathematics	2025-01-15	A	ishita thakur
2	2	102	Physics	2025-01-18	B+	neha shrama
3	3	103	Chemistry	2025-01-20	A	rahul thakur
4	4	104	Biology	2025-01-25	B	Adarsh Sharma
5	5	105	English	2025-02-01	C+	harsh thakur
6	6	106	Computer Science	2025-02-05	A	bharti verma
7	7	107	History	2025-02-10	C	ankita thakur

7 rows in set (0.01 sec)

4. Course ⟷ Instructor

Relation: Taking out courses and instructor for active students.

```
mysql> SELECT st.student_name, c.course_name, ins.name AS instructor_name FROM student st JOIN course c ON st.course_id = c.course_id JOIN enrollment e ON st.student_id
= e.student_id JOIN instructor ins ON e.instructor_id = ins.instructor_id WHERE st.student_status = 'Active';
```

student_name	course_name	instructor_name
Aarav Sharma	Intoduction to Programming	ishita thakur
Sneha Sharma	Data Structure	neha shrana
Gaurav Thakur	Physics I	Adarsh Sharma

3 rows in set (0.02 sec)

5. Student ⟷ Instructor ⟷ Enrollment

Relation: Showing students name, instructors name and grade on the basis of enrollment.

```
mysql> SELECT st.student_name, ins.name AS instructor_name, e.course_name, e.grade FROM enrollment e JOIN student st ON e.student_id = st.student_id JOIN instructor ins
ON e.instructor_id = ins.instructor_id;
```

student_name	instructor_name	course_name	grade
Aarav Sharma	ishita thakur	Mathematics	A
Sneha Sharma	neha shrama	Physics	B+
Isha Thakur	rahul thakur	Chemistry	A
Gaurav Thakur	Adarsh Sharma	Biology	B
Varsh Sood	harsh thakur	English	C+
Vikram Sharma	bharti verma	Computer Science	A
Aarti Sangal	ankita thakur	History	C

rows in set (0.00 sec)

QUERIES

1. Show all student details.

```
mysql> SELECT * FROM student;
+------------+---------------+----------------------------+---------------+-----------------+----------------+-----------+
| student_id | student_name  | email                      | date_of_birth | enrollment_year | student_status | course_id |
+------------+---------------+----------------------------+---------------+-----------------+----------------+-----------+
|          1 | Aarav Sharma  | aaravsharma@gmail.com      | 2003-05-12    |            2021 | Active         | 1001      |
|          2 | Sneha Sharma  | snehasharma@gmail.com      | 2004-03-16    |            2022 | Active         | 1002      |
|          3 | Isha Thakur   | ishathakur@gmail.com       | 2003-03-12    |            2023 | Inactive       | 1003      |
|          4 | Gaurav Thakur | gauravthakur@gmail.com     | 2005-04-23    |            2020 | Active         | 1004      |
|          5 | Varsh Sood    | varshasood@gmail.com       | 2002-06-02    |            2024 | Graduated      | 1007      |
|          6 | Vikram Sharma | vikramsharma@gmail.com     | 2004-03-01    |            2025 | Active         | NULL      |
|          7 | Aarti Sehgal  | aartisehgal@gmail.com      | 2005-04-08    |            2000 | Dropped        | 1005      |
+------------+---------------+----------------------------+---------------+-----------------+----------------+-----------+
7 rows in set (0.00 sec)
```

2. Show course name with department.

```
mysql> SELECT course_name, department FROM course;
+--------------------------+------------------+
| course_name              | department       |
+--------------------------+------------------+
| Intoduction to Programming | Computer Science |
| Data Structure           | Computer Science |
| Calculus I               | Mathemtics       |
| Physics I                | Physics          |
| English                  | English          |
| Hindi                    | Hindi            |
| History                  | Arts             |
+--------------------------+------------------+
7 rows in set (0.00 sec)
```

3. Find all active students.

4. Get students along with there course names.

```
mysql> SELECT s.student_name, c.course_name FROM student s JOIN course c ON s.course_id = c.course_id;
+--------------+------------------------------+
| student_name | course_name                  |
+--------------+------------------------------+
| Aarav Sharma | Intoduction to Programming   |
| Sneha Sharma | Data Structure               |
| Isha Thakur  | Calculus I                   |
| Gaurav Thakur| Physics I                    |
| Varsh Sood   | History                      |
| Aarti Sehgal | English                      |
+--------------+------------------------------+
rows in set (0.00 sec)
```

5. List of instructor and there assigned students.

```
mysql> SELECT i.name AS instructor, s.student_name FROM instructor i JOIN student s ON i.student_id = s.student_id;
+---------------+---------------+
| instructor    | student_name  |
+---------------+---------------+
| ishita thakur | Aarav Sharma  |
| neha shrama   | Sneha Sharma  |
| rahul thakur  | Isha Thakur   |
| Adarsh Sharma | Gaurav Thakur |
| harsh thakur  | Varsh Sood    |
| bharti verma  | Vikram Sharma |
| ankita thakur | Aarti Sehgal  |
+---------------+---------------+
7 rows in set (0.00 sec)
```

6. Show enrollment details with grades.

```
mysql> SELECT e.enrollment_id, s.student_name, e.course_name, e.grade FROM enrollment e JOIN student s ON e.student_id = s.student_id;
+---------------+---------------+------------------+-------+
| enrollment_id | student_name  | course_name      | grade |
+---------------+---------------+------------------+-------+
|             1 | Aarav Sharma  | Mathematics      | A     |
|             2 | Sneha Sharma  | Physics          | B+    |
|             3 | Isha Thakur   | Chemistry        | A     |
|             4 | Gaurav Thakur | Biology          | B     |
|             5 | Varsh Sood    | English          | C+    |
|             6 | Vikram Sharma | Computer Science | A     |
|             7 | Aarti Sehgal  | History          | C     |
+---------------+---------------+------------------+-------+
7 rows in set (0.00 sec)
```

7. Student enrolled after 2023.

```
mysql> SELECT * FROM course WHERE credits > 3;
+-----------+---------------------------+-------------+---------+------------------+
| course_id | course_name               | course_code | credits | department       |
+-----------+---------------------------+-------------+---------+------------------+
|      1001 | Intoduction to Programming | CS101      |       4 | Computer Science |
|      1003 | Calculus I                | MATH101     |       4 | Mathemtics       |
|      1004 | Physics I                 | PHY101      |       4 | Physics          |
|      1006 | Hindi                     | HIND101     |       4 | Hindi            |
+-----------+---------------------------+-------------+---------+------------------+
4 rows in set (0.00 sec)
```

8. Courses with more than three credits.

```
mysql> SELECT * FROM course WHERE credits > 3;
+-----------+---------------------------+-------------+---------+------------------+
| course_id | course_name               | course_code | credits | department       |
+-----------+---------------------------+-------------+---------+------------------+
|      1001 | Intoduction to Programming | CS101      |       4 | Computer Science |
|      1003 | Calculus I                | MATH101     |       4 | Mathemtics       |
|      1004 | Physics I                 | PHY101      |       4 | Physics          |
|      1006 | Hindi                     | HIND101     |       4 | Hindi            |
+-----------+---------------------------+-------------+---------+------------------+
4 rows in set (0.00 sec)
```

9. Instructor with contact info.

```
mysql> SELECT name, email, phone FROM instructor;
+---------------+--------------------+------------+
| name          | email              | phone      |
+---------------+--------------------+------------+
| ishita thakur | ishita@gmail.com   | 9876543232 |
| neha shrama   | neha@gmail.com     | 987898765  |
| rahul thakur  | rahul@gmail.com    | 987654345  |
| Adarsh Sharma | adarsh@gmail.com   | 981234566  |
| harsh thakur  | harsh@gmail.com    | 98543276   |
| bharti verma  | verma@gmail.com    | 986575433  |
| ankita thakur | ankita2gmail.com   | 982314566  |
+---------------+--------------------+------------+
7 rows in set (0.00 sec)
```

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10. Student and thre enrollment date.

```
mysql> SELECT s.student_name, e.enrollment_date FROM student s JOIN enrollment e ON s.student_id = e.student_id;
+--------------+-----------------+
| student_name | enrollment_date |
+--------------+-----------------+
| Aarav Sharma | 2025-01-15      |
| Sneha Sharma | 2025-01-18      |
| Isha Thakur  | 2025-01-20      |
| Gaurav Thakur| 2025-01-25      |
| Varsh Sood   | 2025-02-01      |
| Vikram Sharma| 2025-02-05      |
| Aarti Sehgal | 2025-02-10      |
+--------------+-----------------+
7 rows in set (0.00 sec)
```

11. Count total students.

```
mysql> SELECT COUNT(*) AS total_students FROM student;
+----------------+
| total_students |
+----------------+
|              7 |
+----------------+
1 row in set (0.02 sec)
```

12. Grade-wise student list.

```
mysql> SELECT grade, COUNT(*) AS total_students FROM enrollment GROUP BY grade;
+-------+----------------+
| grade | total_students |
+-------+----------------+
| A     |              3 |
| B     |              1 |
| B+    |              1 |
| C     |              1 |
| C+    |              1 |
+-------+----------------+
5 rows in set (0.03 sec)
```

13. Student who haven't enrolled in any course.

```
mysql> SELECT * FROM student WHERE course_id IS NULL;
```

student_id	student_name	email	date_of_birth	enrollment_year	student_status	course_id
6	Vikram Sharma	vikramsharma@gmail.com	2004-03-01	2025	Active	NULL

1 row in set (0.00 sec)

14. Students DOB and age (using current date).

```
mysql> SELECT student_name, date_of_birth, YEAR(CURDATE()) - YEAR(date_of_birth) AS age FROM student;
```

student_name	date_of_birth	age
Aarav Sharma	2003-05-12	22
Sneha Sharma	2004-03-16	21
Isha Thakur	2003-03-12	22
Gaurav Thakur	2005-04-23	20
Varsh Sood	2002-06-02	23
Vikram Sharma	2004-03-01	21
Aarti Sehgal	2005-04-08	20

7 rows in set (0.03 sec)

Reference/Bibliography

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➤ Dr. Rajiv Chopra (DBMS)
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➤ Tutorialspoint.com