CLIENT MANAGEMENT USING MYSQL

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Project Name: Client Management

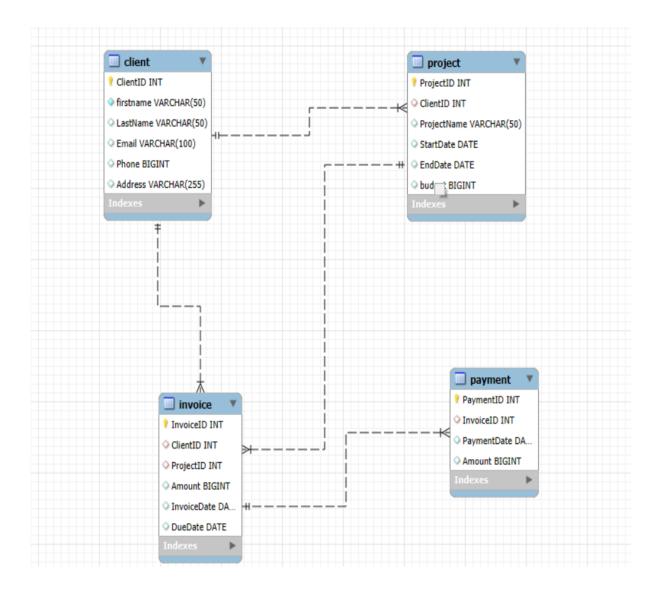
SQL

SQL stands for **Structured Query Language** and is a computer language that we use to interact with a relational database. SQL is a tool for organizing, managing, and retrieving archived data from a computer **MYSQL**

MySQL is a open-source, **Relational Database management system** that stores in a structured format using rows and columns. It's software that enables users to create, manage and manipulate databases. Developed by MySQL AB, which is now owned by oracle corporation, MySQL renowned for its reliability, scalability and ease of use.



ER DIAGRAM



Creating Database

 Open MySQL Editor and Create the database which stores information of client database.

```
Enter password: ********

Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.37 MySQL Community Server - GPL

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Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

```
mysql> create database client;
Query OK, 1 row affected (0.03 sec)
```

Show Databases

Use Database

```
mysql> use client;
Database changed
```

Creating Tables

```
mysql> Create table client(
    -> FirstName VARCHAR(50),
    -> LastName VARCHAR(50),
    -> Email VARCHAR(100),
    -> Phone BIGINT,
    -> Address VARCHAR(255));
Query OK, 0 rows affected (0.09 sec)
```

```
mysql> create table Project(
    -> ProjectID INT,
    -> Client INT,
    -> ProjectName VARCHAR(50),
    -> StartDate DATE,
    -> EndDate DATE,
    -> Budget VARCHAR(255));
Query OK, 0 rows affected (0.02 sec)
```

```
mysql> create table invoice(
-> InvoiceID INT,
-> ClientID INT,
-> ProjectID INT,
-> Amount BIGINT,
-> InvoiceDate DATE,
-> DueDate DATE);
Query OK, 0 rows affected (0.03 sec)
```

```
mysql> Create table Payment(
    -> PaymentID INT,
    -> InvoiceID INT,
    -> PaymentDate DATE,
    -> Amount BIGINT);
Query OK, 0 rows affected (0.02 sec)
```

Description of tables

mysql> desc o	:lient; 	.			!
Field	Type	Null	Key	Default	Extra
ClientID FirstName LastName Email Phone Address	varchar(50) varchar(100) bigint	YES YES YES YES YES YES		NULL NULL NULL NULL NULL	
6 rows in set	(0.00 sec)				,,

mysql> desc pro	oject;	.		.	·
Field	Туре	Null	Key	Default	Extra
ProjectID Client ProjectName StartDate EndDate Budget	date date	YES YES YES YES YES YES YES		NULL NULL NULL NULL NULL	
+6 rows in set ((0.00 sec)	+	+	·	++

mysql> desc inv +	/oice; +	+		+	++
Field	Туре	Null	Key	Default	Extra
InvoiceID	int	YES		NULL	İ
ClientID	int	YES		NULL	
ProjectID	int	YES		NULL	
Amount	bigint	YES		NULL	
InvoiceDate	date	YES		NULL	
DueDate	date	YES		NULL	
	+	+	+	+	++
6 rows in set	(0.00 sec)			

mysql> desc pay +	<u>-</u>	+	 Kev	Default	+ Extra
+					++
!		YES YES YES YES		NULL NULL NULL NULL	
4 rows in set (0.00 sec	+ -	+	·	++

Show Tables

```
mysql> show tables;
+-----+
| Tables_in_client |
+------+
| client |
| invoice |
| payment |
| project |
+------+
4 rows in set (0.00 sec)
```

Adding Primary Key

```
mysql> alter table client add primary key(ClientId);
Query OK, 0 rows affected (0.07 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> alter table project add primary key(projectid);
Query OK, 0 rows affected (0.05 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> alter table invoice add primary key(invoiceid);
Query OK, 0 rows affected (0.05 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> alter table payment add primary key(paymentid);
Query OK, 0 rows affected (0.05 sec)
Records: 0 Duplicates: 0 Warnings: 0
```

```
mysql> DESC CLIENT;
                            | Null | Key | Default | Extra
| Field
              Type
  ClientID
                              NO
                                     PRI
                                           NULL
              int
  FirstName
              varchar(50)
                              YES
                                           NULL
  LastName
              varchar(50)
                              YES
                                           NULL
  Email
              varchar(100)
                              YES
                                           NULL
  Phone
              bigint
                              YES
                                           NULL
  Address
              varchar(255)
                             YES
                                           NULL
```

mysql> desc pro	oject;	.	·	.	
Field	Туре	Null	Key	Default	Extra
Client ProjectName StartDate EndDate	int int varchar(50) date date varchar(255)	NO YES YES YES YES YES	PRI	NULL NULL NULL NULL NULL	
6 rows in set	(0.00 sec)				

mysql> desc in	voice;			!	+
Field	Туре	Null	Key	Default	Extra
InvoiceID ClientID ProjectID Amount InvoiceDate DueDate	int int int bigint date date	NO YES YES YES YES YES	PRI	NULL NULL NULL NULL NULL	
6 rows in set	(0.00 sec)))		+	+

mysql> desc pay	/ment; 	·		·	-
Field	Туре	Null	Key	Default	Extra
PaymentDate	int	NO YES YES YES	PRI	NULL NULL NULL NULL	
4 rows in set ([0.00 sec])			

Adding Contraints

Inserting Data into Table

```
mysql> insert into invoice values
-> (333,6701,101,200000,'2020-03-07','2021-02-04'),
-> (444,6703,102,900000,'2021-01-02','2022-11-21'),
-> (555,6702,103,500000,'2023-03-02','2024-07-15'),
-> (666,6704,104,700000,'2022-08-17','2023-004-08');
Query OK, 4 rows affected (0.01 sec)
Records: 4 Duplicates: 0 Warnings: 0
```

```
mysql> insert into payment values(5001,333,'2021-09-18',900000),
        -> (5002,444,'2023-12-11',500000),
        -> (5003,555,'2020-05-22',700000),
        -> (5004,666,'2021-06-16',450000);
Query OK, 4 rows affected (0.01 sec)
Records: 4 Duplicates: 0 Warnings: 0
```

Retrieving data Using SELECT command

mysql> selec	ct * from cl:	ient;		·	·
ClientID	firstname	LastName	Email	Phone	Address
6701 6702 6703 6704	Deepthi Praneeth Virat Subhash	Sharma Goud Kohli Chandra	ds@demo.com pg@demo.com vk@demo.com sc@demo.com	9704716523 9704755589 7675895588 9701755589	Delhi Hyderabad Noida Mumbai
4 rows in se	et (0.00 sec	+)	+		++

```
mysql> select * from project;
 ProjectID | ClientID | ProjectName
                                        StartDate
                                                     EndDate
                                                                    budget
        101
                  6702
                          Facebook
                                        2020-07-18
                                                      2024-03-08
                                                                    1000000000
        102
                          Salesforce
                                        2021-02-09
                                                      2023-05-23
                                                                    1000000000
                  6701
        103
                  6703
                          Alibaba
                                        2019-09-21
                                                      2022-12-12
                                                                    1000000000
        104
                  6704
                          AWS
                                        2018-03-18 |
                                                      2020-10-29
                                                                   1000000000
4 rows in set (0.00 sec)
```

```
mysql> select * from invoice;
                          ProjectID
  InvoiceID
              ClientID
                                                InvoiceDate
                                                               DueDate
                                       Amount
        333
                   6701
                                 101
                                       200000
                                                 2020-03-07
                                                               2021-02-04
        444
                   6703
                                 102
                                       900000
                                                 2021-01-02
                                                               2022-11-21
        555
                   6702
                                 103
                                       500000
                                                2023-03-02
                                                               2024-07-15
                   6704
                                       700000
                                                2022-08-17
                                                               2023-04-08
        666
                                 104
 rows in set (0.00 sec)
```

```
mysql> select
               * from
                       payment;
  PaymentID
               InvoiceID
                            PaymentDate
                                            Amount
       5001
                      333
                            2021-09-18
                                            900000
                                            500000
       5002
                      444
                            2023-12-11
                      555
                            2020-05-22
                                            700000
       5003
                            2021-06-16
                                            450000
       5004
                      666
  rows in set (0.00 sec)
```

• Update Command

```
mysql> update client set address='Kerala' where clientid=6703;
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0
```

mysql> selec	ct * from cli	ient;	·		.
ClientID	firstname	LastName	Email	Phone	Address
6701 6702 6703 6704	Deepthi Praneeth Virat Subhash	Sharma Goud Kohli Chandra	ds@demo.com pg@demo.com vk@demo.com sc@demo.com	9704716523 9704755589 7675895588 9701755589	Delhi Hyderabad Kerala Mumbai
4 rows in se	et (0.00 sec))			

Delete Command

```
mysql> delete from payment where PaymentID=5004;
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from payment;
 PaymentID | InvoiceID | PaymentDate |
                                        Amount
       5001
                    333
                          2021-09-18
                                         900000
                    444
       5002
                          2023-12-11
                                         500000
       5003
                    555 |
                                         700000
                          2020-05-22
3 rows in set (0.00 sec)
```

Adding Foreign Key

```
mysql> Alter table project add FOREIGN KEY (ClientID) references Client (ClientID);
Query OK, 4 rows affected (0.14 sec)
Records: 4 Duplicates: 0 Warnings: 0
```

```
mysql> desc project;
                                            Default
 Field
                Type
                              Null | Key |
                                                         Extra
 ProjectID
                                     PRI
                                           NULL
                int
                              NO
 ClientID
                int
                              YES
                                     MUL
                                           NULL
                varchar(50)
 ProjectName |
                              YES
                                            NULL
 StartDate
                date
                              YES
                                            NULL
 EndDate
                date
                              YES
                                            NULL
               bigint
                              YES
 budget
                                            1000000000
  rows in set (0.00 sec)
```

```
mysql> Alter table Invoice add FOREIGN KEY (ClientID) references Client (ClientID);
Query OK, 4 rows affected (0.12 sec)
Records: 4 Duplicates: 0 Warnings: 0
```

```
mysql> alter table invoice add FOREIGN KEY (ProjectID) references Project(ProjectID);
Query OK, 4 rows affected (0.15 sec)
Records: 4 Duplicates: 0 Warnings: 0
```

mysql> desc inv	/oice;	.			
Field	Type	Null	Key	Default	Extra
InvoiceID ClientID ProjectID Amount InvoiceDate DueDate	int int int bigint date date	NO YES YES YES YES YES	PRI MUL MUL	NULL NULL NULL NULL NULL NULL	
6 rows in set	(0.00 sec)			++

```
mysql> alter table payment Add FOREIGN KEY
-> (InvoiceID) References Invoice (InvoiceID);
Query OK, 4 rows affected (0.12 sec)
Records: 4 Duplicates: 0 Warnings: 0
```

mysql> desc pay	yment;		·		·
Field	Туре	Null	Key	Default	Extra
PaymentID InvoiceID PaymentDate Amount	int int date bigint	NO YES YES YES	PRI MUL	NULL NULL NULL NULL	
4 rows in set	(0.00 sec))			

Operators

```
mysql> SELECT * ,amount*12 as annual_amount from payment;
  PaymentID |
             InvoiceID
                                                   annual_amount
                           PaymentDate |
                                         Amount
       5001
                    333
                           2021-09-18
                                         900000
                                                        10800000
       5002
                    444
                           2023-12-11
                                         500000
                                                         600000
       5003
                    555
                           2020-05-22
                                         700000
                                                         8400000
       5004
                    666
                           2021-06-16
                                         450000
                                                         5400000
4 rows in set (0.01 sec)
```

```
mysql> select * from invoice where amount> 200000;
 InvoiceID | ClientID | ProjectID |
                                     Amount | InvoiceDate
                                                              DueDate
        444
                  6703
                                102
                                      900000
                                               2021-01-02
                                                              2022-11-21
        555
                                      500000
                                               2023-03-02
                                                              2024-07-15
                  6702
                                103
        666
                  6704
                                104
                                      700000
                                               2022-08-17
                                                              2023-04-08
3 rows in set (0.00 sec)
```

Like Operator

Between Operator

```
mysql> select * from project where clientID BETWEEN 6702 and 6704;
  ProjectID
              ClientID
                          ProjectName
                                        StartDate
                                                      EndDate
                                                                    budget
                          Facebook
                                         2020-07-18
                                                      2024-03-08
                                                                    1000000000
        101
                   6702
        103
                   6703
                          Alibaba
                                         2019-09-21
                                                      2022-12-12
                                                                    1000000000
                   6704
                                         2018-03-18
                                                                    1000000000
        104
                                                      2020-10-29
3 rows in set (0.00 sec)
```

• IN Operator

```
mysql> select * from project where projectID in(102,104);
 ProjectID | ClientID |
                         ProjectName |
                                        StartDate
                                                     EndDate
                                                                   budget
                         Salesforce
                                                     2023-05-23
                                                                   1000000000
        102
                  6701
                                        2021-02-09
        104
                  6704
                                        2018-03-18
                                                      2020-10-29
                                                                   1000000000
 rows in set (0.00 sec)
```

Aggregate Functions

COUNT Function

```
mysql> select count(InvoiceID) from invoice;
+-----+
| count(InvoiceID) |
+-----+
| 4 |
+-----+
1 row in set (0.01 sec)
```

SUM Function

```
mysql> select sum(amount) from Payment;
+-----
| sum(amount) |
+-----+
| 2550000 |
+-----+
1 row in set (0.00 sec)
```

MAX Function

```
mysql> select Max(Invoicedate) from invoice;
+-----+
| Max(Invoicedate) |
+-----+
| 2023-03-02 |
+-----+
1 row in set (0.00 sec)
```

MIN Function

AVG Function

```
mysql> select avg(amount) from payment;
+-----+
| avg(amount) |
+----+
| 637500.0000 |
+-----+
1 row in set (0.00 sec)
```

ORDER BY AND GROUP BY

CREAT VIEW

```
mysql> CREATE VIEW ClientsWithPhone97 AS
-> SELECT * FROM client
-> WHERE Phone LIKE '97%';
Query OK, 0 rows affected (0.01 sec)
```

```
mysql> SELECT * FROM clientswithphone97;
 ClientID | firstname |
                       LastName
                                   Email
                                                 Phone
                                                              Address
            Deepthi
                        Sharma
                                   ds@demo.com
                                                 9704716523
                                                              Delhi
     6701
     6702
            Praneeth |
                        Goud
                                   pg@demo.com |
                                                 9704755589
                                                              Hyderabad
     6704 | Subhash
                      Chandra
                                   sc@demo.com | 9701755589 | Mumbai
3 rows in set (0.00 sec)
```

```
mysql> CREATE VIEW ClientFullNames AS
-> SELECT ClientID, CONCAT(firstname, ' ', LastName) AS FullName FROM client;
Query OK, 0 rows affected (0.01 sec)
```

JOINS

• CROSS JOIN

aymentID	InvoiceID	PaymentDate	Amount	ClientID	firstname	LastName	Email	Phone	Address
5004	666	 2021-06-16	450000	6701	Deepthi	Sharma	ds@demo.com	9704716523	Delhi
5003	555	2020-05-22	700000	6701	Deepthi	Sharma	ds@demo.com	9704716523	Delhi
5002	444	2023-12-11	500000	6701	Deepthi	Sharma	ds@demo.com	9704716523	Delhi
5001	333	2021-09-18	900000	6701	Deepthi	Sharma	ds@demo.com	9704716523	Delhi
5004	666	2021-06-16	450000	6702	Praneeth	Goud	pg@demo.com	9704755589	Hyderabad
5003	555	2020-05-22	700000	6702	Praneeth	Goud	pg@demo.com	9704755589	Hyderabad
5002	444	2023-12-11	500000	6702	Praneeth	Goud	pg@demo.com	9704755589	Hyderabad
5001	333	2021-09-18	900000	6702	Praneeth	Goud	pg@demo.com	9704755589	Hyderabad
5004	666	2021-06-16	450000	6703	Virat	Kohli	vk@demo.com	7675895588	Kerala
5003	555	2020-05-22	700000	6703	Virat	Kohli	vk@demo.com	7675895588	Kerala
5002	444	2023-12-11	500000	6703	Virat	Kohli	vk@demo.com	7675895588	Kerala
5001	333	2021-09-18	900000	6703	Virat	Kohli	vk@demo.com	7675895588	Kerala
5004	666	2021-06-16	450000	6704	Subhash	Chandra	sc@demo.com	9701755589	Mumbai
5003	555	2020-05-22	700000	6704	Subhash	Chandra	sc@demo.com	9701755589	Mumbai
5002	444	2023-12-11	500000	6704	Subhash	Chandra	sc@demo.com	9701755589	Mumbai
5001	333	2021-09-18	900000	6704	Subhash	Chandra	sc@demo.com	9701755589	Mumbai

• INNER JOIN

ClientID	firstname	LastName	Email	Phone	Address	ProjectID	ClientID	ProjectName	StartDate	EndDate	budget
6702 6703	Deepthi Praneeth Virat Subhash	Sharma Goud Kohli Chandra	ds@demo.com pg@demo.com vk@demo.com sc@demo.com	9704755589 7675895588	Hyderabad Kerala	102 101 103 104	6702	Salesforce Facebook Alibaba AWS	2020-07-18 2019-09-21	2023-05-23 2024-03-08 2022-12-12 2020-10-29	1000000000 1000000000

• LEFT OUTER JOIN

InvoiceID	ClientID	ProjectID	Amount	InvoiceDate	DueDate	PaymentID	InvoiceID	PaymentDate	Amount
333	6701	101	200000	2020-03-07	 2021-02-04	5001	333	2021-09-18	900000
444	6703	102	900000	2021-01-02	2022-11-21	5002	444	2023-12-11	500000
555	6702	103	500000	2023-03-02	2024-07-15	5003	555	2020-05-22	700000
666	6704	104	700000	2022-08-17	2023-04-08	5004	666	2021-06-16	450000

• RIGHT OUTER JOIN

Payment	ID InvoiceID	PaymentDate	Amount	InvoiceID	ClientID	ProjectID	Amount	InvoiceDate	DueDate
 50)1	2021-09-18	900000	333	6701	101	200000	 2020-03-07	 2021-02-04
50)2 444	2023-12-11	500000	444	6703	102	900000	2021-01-02	2022-11-21
50	3 555	2020-05-22	700000	555	6702	103	500000	2023-03-02	2024-07-15
50	04 666	2021-06-16	450000	666	6704	104	700000	2022-08-17	2023-04-08

• NATURAL JOIN

LastName	Email	Phone	Address	ProjectID	ProjectName	StartDate	EndDate	budget
Sharma Goud Kohli Chandra	pg@demo.com vk@demo.com	9704755589 7675895588	Hyderabad Kerala	103	Facebook Alibaba	2020-07-18 2019-09-21	2024-03-08 2022-12-12	1000000000 1000000000
	Sharma Goud Kohli	Sharma ds@demo.com Goud pg@demo.com Kohli vk@demo.com Chandra sc@demo.com	Sharma	Sharma ds@demo.com 9704716523 Delhi Goud pg@demo.com 9704755589 Hyderabad Kohli vk@demo.com 7675895588 Kerala Chandra sc@demo.com 9701755589 Mumbai	Sharma ds@demo.com 9704716523 Delhi 102 Goud pg@demo.com 9704755589 Hyderabad 101 Kohli vk@demo.com 7675895588 Kerala 103 Chandra sc@demo.com 9701755589 Mumbai 104	Sharma ds@demo.com 9704716523 Delhi 102 Salesforce Goud pg@demo.com 9704755589 Hyderabad 101 Facebook Kohli vk@demo.com 7675895588 Kerala 103 Alibaba Chandra sc@demo.com 9701755589 Mumbai 104 AWS	Sharma ds@demo.com 9704716523 Delhi 102 Salesforce 2021-02-09 Goud pg@demo.com 9704755589 Hyderabad 101 Facebook 2020-07-18 Kohli vk@demo.com 7675895588 Kerala 103 Alibaba 2019-09-21 Chandra sc@demo.com 9701755589 Mumbai 104 AWS 2018-03-18	Sharma ds@demo.com 9704716523 Delhi 102 Salesforce 2021-02-09 2023-05-23 Goud pg@demo.com 9704755589 Hyderabad 101 Facebook 2020-07-18 2024-03-08 Kohli vk@demo.com 7675895588 Kerala 103 Alibaba 2019-09-21 2022-12-12 Chandra sc@demo.com 9701755589 Mumbai 104 AWS 2018-03-18 2020-10-29

-----*THANK YOU*-----