CLIENT MANAGEMENT SYSTEM
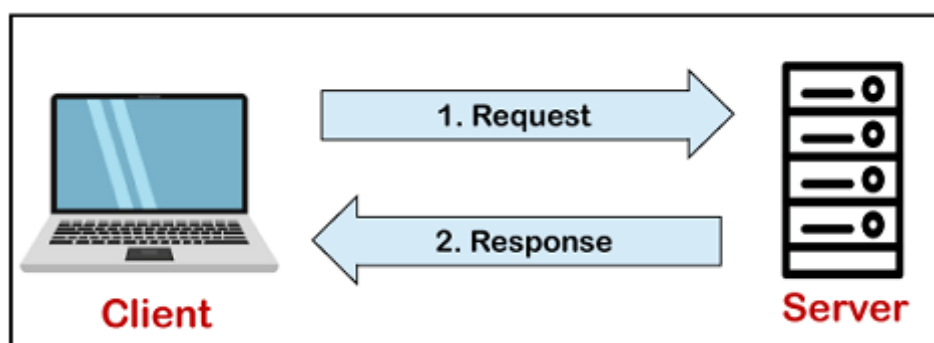# USING MYSQL

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Batch No: BH09

Project Name: Client Management Database System.

SQL (Structured Query Language), which stands for Structured Query Language, is a domain-specific language used for managing and manipulating relational databases. SQL is used to perform operations on the records stored in the database, such as updating records, inserting records, deleting records, creating and modifying database tables, views, etc.
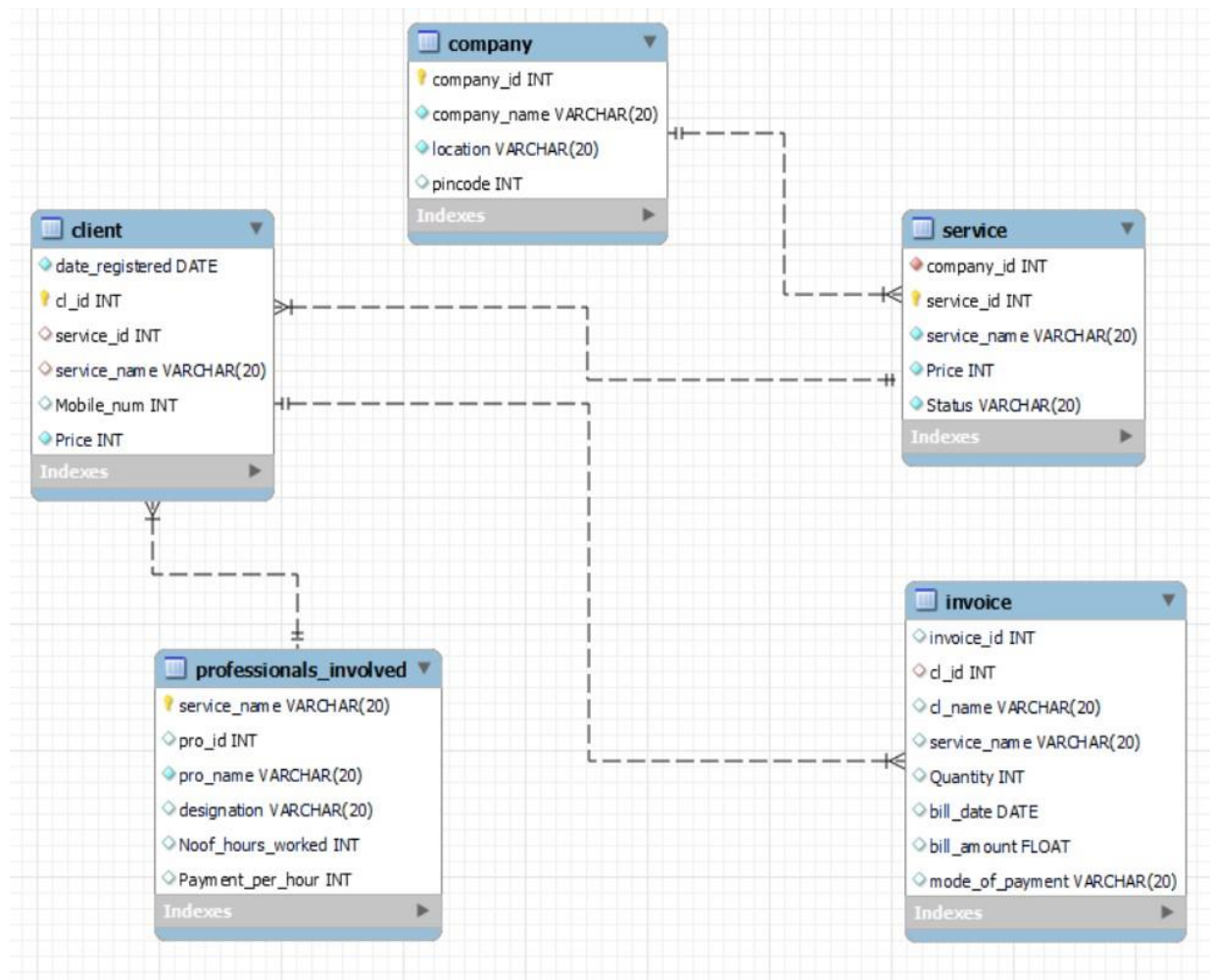
MySQL is an open-source relational database management system (RDBMS) that uses SQL as its query language. It is one of the most popular and widely used RDBMSs in the world. MySQL is known for its speed, reliability, and ease of use.

MySQL follows the working of **Client-Server Architecture.** This model is designed for the end-users called clients to access the resources from a central computer known as a server using network services. Here, the clients make requests through a graphical user interface (GUI), and the server will give the desired output as soon as the instructions are matched. The process of MySQL environment is the same as the client-server model.

You have been assigning to create a database of client management database system that should store information about company, services provided by the company, client details, professionals who involved, invoice.

ER Diagram

company
- company_id INT
- company_name VARCHAR(20)
- location VARCHAR(20)
- pincode INT
- Indexes

client
- date_registered DATE
- cl_id INT
- service_id INT
- service_name VARCHAR(20)
- Mobile_num INT
- Price INT
- Indexes

service
- company_id INT
- service_id INT
- service_name VARCHAR(20)
- Price INT
- Status VARCHAR(20)
- Indexes

professionals_involved
- service_name VARCHAR(20)
- pro_id INT
- pro_name VARCHAR(20)
- designation VARCHAR(20)
- Noof_hours_worked INT
- Payment_per_hour INT
- Indexes

invoice
- invoice_id INT
- cl_id INT
- cl_name VARCHAR(20)
- service_name VARCHAR(20)
- Quantity INT
- bill_date DATE
- bill_amount FLOAT
- mode_of_payment VARCHAR(20)
- Indexes

Design the database scheme answer the following questions.

Steps:

- Open MySQL and Create a Database with database name called "Client Management


```
mysql> create database client_management;
Query OK, 1 row affected (0.01 sec)
```

- Show Databases

```
mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| client_management  |
| demo               |
| information_schema |
| mysql              |
| performance_schema |
+--------------------+
5 rows in set (0.00 sec)
```

- Use database

```
mysql> use client_management;
Database changed
```

- Create tables of Company, Service, Client, Professionals_involves, invoices.

```
mysql>   create table company(company_id int,
    ->   company_name varchar(20) not null,
    ->   location varchar(20) not null,
    ->   pincode int unique);
Query OK, 0 rows affected (0.04 sec)
```

```
mysql> create table service(company_id int not null,
    -> service_id int,
    -> service_name varchar(20) not null,
    -> Price int not null,
    -> Status varchar(20) not null);
Query OK, 0 rows affected (0.02 sec)
```

```
mysql> create table client (date_registered date not null,
    -> cl_id int,
    -> service_id int unique,
    -> service_name varchar(20),
    -> Mobile_num int unique,
    -> Price int not null);
Query OK, 0 rows affected (0.03 sec)
```

```
mysql>   create table professionals_involved(service_name varchar(20),
    ->   pro_id int unique,
    ->   pro_name varchar(20) not null ,
    ->   designation varchar(20),
    ->   Noof_hours_worked int,
    ->   Payment_per_hour int );
Query OK, 0 rows affected (0.04 sec)
```

```
mysql>  create table invoice(invoice_id int unique,
    ->  cl_id int ,
    ->  cl_name varchar(20),
    ->  service_name varchar(20),
    ->  Quantity int ,
    ->  Bill_date date ,
    ->  Bill_amount float,
    ->  Mode_of_payment varchar(20));
Query OK, 0 rows affected (0.04 sec)
```

- Adding Primary key

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

mysql> desc company;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| company_id   | int         | NO   | PRI | NULL    |       |
| company_name | varchar(20) | NO   |     | NULL    |       |
| location     | varchar(20) | NO   |     | NULL    |       |
| pincode      | int         | YES  | UNI | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

```
mysql> alter table service add primary key (service_id);
Query OK, 0 rows affected (0.03 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> desc service;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| company_id   | int         | NO   |     | NULL    |       |
| service_id   | int         | NO   | PRI | NULL    |       |
| service_name | varchar(20) | NO   |     | NULL    |       |
| Price        | int         | NO   |     | NULL    |       |
| Status       | varchar(20) | NO   |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

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

mysql> desc client;
+-----------------+-------------+------+-----+---------+-------+
| Field           | Type        | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
| date_registered | date        | NO   |     | NULL    |       |
| cl_id           | int         | NO   | PRI | NULL    |       |
| service_id      | int         | YES  | UNI | NULL    |       |
| service_name    | varchar(20) | YES  |     | NULL    |       |
| Mobile_num      | int         | YES  | UNI | NULL    |       |
| Price           | int         | NO   |     | NULL    |       |
+-----------------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

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

```
mysql> desc professionals_involved;
+-------------------+-------------+------+-----+---------+-------+
| Field             | Type        | Null | Key | Default | Extra |
+-------------------+-------------+------+-----+---------+-------+
| service_name      | varchar(20) | NO   | PRI | NULL    |       |
| pro_id            | int         | YES  | UNI | NULL    |       |
| pro_name          | varchar(20) | NO   |     | NULL    |       |
| designation       | varchar(20) | YES  |     | NULL    |       |
| Noof_hours_worked | int         | YES  |     | NULL    |       |
| Payment_per_hour  | int         | YES  |     | NULL    |       |
+-------------------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

- Insert Data into Tables

```
mysql> insert into company values(101, "ISOQ", "Hi-tech City", 500081);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> insert into service values(101, 1731201, "software repair", 5000.00, "Active"),
    -> (101, 1731202, "Hardware repair", 15000.00, "Active"),
    -> (101, 1731203, "Website Development", 3500.00, "Active"),
    -> (101, 1731204, "Web Development", 8500.00, "Active"),
    -> (101, 1731205, "Sys Trouble Shooting", 7000.00, "Active"),
    -> (101, 1731206, "Device Cleaning", 6000.00, "Active"),
    -> (101, 1731207, "Parts replacement", 8300.50, "Active");
Query OK, 7 rows affected (0.00 sec)
Records: 7  Duplicates: 0  Warnings: 0
```

```
mysql> insert into client values('2020-02-05', 501, "Rishith", 1731204, "Web Development", 9578452145, 8500),
    -> ('2020-04-05',502, "Ayansh", 1731206, "Device Cleaning", 9578425863,6000),
    -> ('2020-04-18', 503,"Avyay", 1731206, "Device Cleaning", 8654789651, 6000),
    -> ('2020-04-25',504, "Divya",1731205, "Sys Trouble Shooting", 9547823015, 7000),
    -> ('2020-05-01', 505, "Sravya", 1731201,"Software Repair", 9872031576, 5000),
    -> ('2020-05-01', 506, "Nithin", 1731202, "Hardware Repair",9820314568, 15000);
Query OK, 6 rows affected (0.00 sec)
Records: 6  Duplicates: 0  Warnings: 0
```

```
mysql> insert into professionals_involved values( 111, "Software Repair","Rishabh", "Computer Engineer", 8, 3500),
    -> (112,"Hardware Repair", "Subhash", "Tester", 6, 4500),
    -> (113,"Webite Development", "Praneetha", "Developer", 9, 4000),
    -> (114,"Web Development","Vinay", "Developer",9, 3000),
    -> ( 115,"Sys Trouble Shooting","Kumar", "Tester", 6, 3000),
    -> (116,"Device Cleaning",  "Sreeja", "Tester", 8, 4000),
    -> (117,"Parts Replacement","Roshan", "Computer Engineer", 3,2300);
Query OK, 7 rows affected (0.01 sec)
Records: 7  Duplicates: 0  Warnings: 0
```

```
mysql> insert into invoice values(200117, 501, "Rishith", "Web Develeopment", 2, '2020-02-10', 17000, "UPI"),
    -> (200118, 502, "Ayansh", "Device Cleaning",1, '2020-04-20', 6000,"Credit Card"),
    -> (200119,503, "Avyay", "Device Cleaning",1, '2020-04-26', 6000, "Cash"),
    -> (200120, 504, "Divya", "Sys Trouble Shooting", 2, '2020-05-15', 14000, "Debit Card"),
    -> (200121, 505, "Sravya", "Software Repair", 1, '2020-05-15', 5000, "Cash"),
    -> (200122, 506, "Nithin", "Hardware Repair", 1, '2020-05-20', 15000, "UPI");
Query OK, 6 rows affected (0.01 sec)
Records: 6  Duplicates: 0  Warnings: 0
```

- Retrieving data using SELECT command.

```
mysql> select * from company;
+------------+--------------+---------------+---------+
| company_id | company_name | location      | pincode |
+------------+--------------+---------------+---------+
|        101 | ISOQ         | Hi-tech City  |  500081 |
+------------+--------------+---------------+---------+
1 row in set (0.00 sec)
```

```
mysql> select * from service;
+------------+------------+---------------------+-------+--------+
| company_id | service_id | service_name        | Price | Status |
+------------+------------+---------------------+-------+--------+
|        101 |    1731201 | software repair     |  5000 | Active |
|        101 |    1731202 | Hardware repair     | 15000 | Active |
|        101 |    1731203 | Website Development |  3500 | Active |
|        101 |    1731204 | Web Development     |  8500 | Active |
|        101 |    1731205 | Sys Trouble Shooting|  7000 | Active |
|        101 |    1731206 | Device Cleaning     |  6000 | Active |
|        101 |    1731207 | Parts replacement   |  8301 | Active |
+------------+------------+---------------------+-------+--------+
7 rows in set (0.00 sec)
```

```
mysql> select * from client;
+-----------------+-------+---------+------------+---------------------+------------+-------+
| date_registered | cl_id | cl_name | service_id | service_name        | Mobile_num | Price |
+-----------------+-------+---------+------------+---------------------+------------+-------+
| 2020-02-05      |   501 | Rishith |    1731204 | Web Development      | 9578452145 |  8500 |
| 2020-04-05      |   502 | Ayansh  |    1731206 | Device Cleaning      | 9578425863 |  6000 |
| 2020-04-18      |   503 | Avyay   |    1731206 | Device Cleaning      | 8654789651 |  6000 |
| 2020-04-25      |   504 | Divya   |    1731205 | Sys Trouble Shooting | 9547823015 |  7000 |
| 2020-05-01      |   505 | Sravya  |    1731201 | Software Repair      | 9872031576 |  5000 |
| 2020-05-01      |   506 | Nithin  |    1731202 | Hardware Repair      | 9820314568 | 15000 |
+-----------------+-------+---------+------------+---------------------+------------+-------+
6 rows in set (0.00 sec)
```

```
mysql> select * from professionals_involved;
+---------------------+--------+-----------+-------------------+-----------------+-----------------+
| service_name        | pro_id | pro_name  | designation       | Noof_hours_worked | Payment_per_hour |
+---------------------+--------+-----------+-------------------+-----------------+-----------------+
| Device Cleaning     |    116 | Sreeja    | Tester            |               8 |            4000 |
| Hardware Repair     |    112 | Subhash   | Tester            |               6 |            4500 |
| Parts Replacement   |    117 | Roshan    | Computer Engineer |               3 |            2300 |
| Software Repair     |    111 | Rishabh   | Computer Engineer |               8 |            3500 |
| Sys Trouble Shooting |   115 | Kumar     | Tester            |               6 |            3000 |
| Web Development     |    114 | Vinay     | Developer         |               9 |            3000 |
| Webite Development  |    113 | Praneetha | Developer         |               9 |            4000 |
+---------------------+--------+-----------+-------------------+-----------------+-----------------+
7 rows in set (0.00 sec)
```

```
mysql> select * from invoice;
+------------+-------+----------+--------------------+----------+------------+-------------+----------------+
| invoice_id | cl_id | cl_name  | service_name       | Quantity | Bill_date  | Bill_amount | Mode_of_payment |
+------------+-------+----------+--------------------+----------+------------+-------------+----------------+
|     200117 |   501 | Rishith  | Web Develeopment   |        2 | 2020-02-10 |       17000 | UPI            |
|     200118 |   502 | Ayansh   | Device Cleaning    |        1 | 2020-04-20 |        6000 | Credit Card    |
|     200119 |   503 | Avyay    | Device Cleaning    |        1 | 2020-04-26 |        6000 | Cash           |
|     200120 |   504 | Divya    | Sys Trouble Shooting |      2 | 2020-05-15 |       14000 | Debit Card     |
|     200121 |   505 | Sravya   | Software Repair    |        1 | 2020-05-15 |        5000 | Cash           |
|     200122 |   506 | Nithin   | Hardware Repair    |        1 | 2020-05-20 |       15000 | UPI            |
+------------+-------+----------+--------------------+----------+------------+-------------+----------------+
6 rows in set (0.00 sec)
```

- Delete command:

```
mysql> select   * from client;
+----------------+-------+---------+------------+---------------------+------------+-------+
| date_registered | cl_id | cl_name | service_id | service_name        | Mobile_num | Price |
+----------------+-------+---------+------------+---------------------+------------+-------+
| 2020-02-05     |   501 | Rishith |    1731204 | Web Development      | 9578452145 |  8500 |
| 2020-04-05     |   502 | Ayansh  |    1731206 | Device Cleaning      | 9578425863 |  6000 |
| 2020-04-18     |   503 | Avyay   |    1731206 | Device Cleaning      | 8654789651 |  6000 |
| 2020-04-25     |   504 | Divya   |    1731205 | Sys Trouble Shooting | 9547823015 |  7000 |
| 2020-05-01     |   505 | Sravya  |    1731201 | Software Repair      | 9872031576 |  5000 |
| 2020-05-01     |   506 | Nithin  |    1731202 | Hardware Repair      | 9820314568 | 15000 |
+----------------+-------+---------+------------+---------------------+------------+-------+
6 rows in set (0.00 sec)
```

```
mysql> delete from client where cl_id=506;
Query OK, 1 row affected (0.01 sec)
```

```
mysql> select * from client;
+----------------+-------+---------+------------+---------------------+------------+-------+
| date_registered | cl_id | cl_name | service_id | service_name        | Mobile_num | Price |
+----------------+-------+---------+------------+---------------------+------------+-------+
| 2020-02-05     |   501 | Rishith |    1731204 | Web Development      | 9578452145 |  8500 |
| 2020-04-05     |   502 | Ayansh  |    1731206 | Device Cleaning      | 9578425863 |  6000 |
| 2020-04-18     |   503 | Avyay   |    1731206 | Device Cleaning      | 8654789651 |  6000 |
| 2020-04-25     |   504 | Divya   |    1731205 | Sys Trouble Shooting | 9547823015 |  7000 |
| 2020-05-01     |   505 | Sravya  |    1731201 | Software Repair      | 9872031576 |  5000 |
+----------------+-------+---------+------------+---------------------+------------+-------+
5 rows in set (0.00 sec)
```

- Adding Foreign Key

```
mysql> alter table service add foreign key(company_id) references company(company_id);
Query OK, 7 rows affected (0.08 sec)
Records: 7  Duplicates: 0  Warnings: 0

mysql> desc service;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| company_id   | int         | NO   | MUL | NULL    |       |
| service_id   | int         | NO   | PRI | NULL    |       |
| service_name | varchar(20) | NO   |     | NULL    |       |
| Price        | int         | NO   |     | NULL    |       |
| Status       | varchar(20) | NO   |     | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

```
mysql> alter table client add foreign key(service_id) references service(service_id);
Query OK, 5 rows affected (0.07 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

```
mysql> alter table client add foreign key(service_name) references professionals_involved(service_name);
Query OK, 5 rows affected (0.07 sec)
Records: 5  Duplicates: 0  Warnings: 0
```

```
mysql> desc client;
+-----------------+-------------+------+-----+---------+-------+
| Field           | Type        | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
| date_registered | date        | NO   |     | NULL    |       |
| cl_id           | int         | NO   | PRI | NULL    |       |
| cl_name         | varchar(40) | YES  |     | NULL    |       |
| service_id      | int         | YES  | MUL | NULL    |       |
| service_name    | varchar(20) | YES  | MUL | NULL    |       |
| Mobile_num      | bigint      | YES  | UNI | NULL    |       |
| Price           | int         | YES  |     | NULL    |       |
+-----------------+-------------+------+-----+---------+-------+
7 rows in set (0.00 sec)
```

```
mysql> alter table invoice add foreign key(cl_id) references client(cl_id);
Query OK, 6 rows affected (0.10 sec)
Records: 6  Duplicates: 0  Warnings: 0

mysql> desc invoice;
+-----------------+-------------+------+-----+---------+-------+
| Field           | Type        | Null | Key | Default | Extra |
+-----------------+-------------+------+-----+---------+-------+
| invoice_id      | int         | YES  | UNI | NULL    |       |
| cl_id           | int         | YES  | MUL | NULL    |       |
| cl_name         | varchar(20) | YES  |     | NULL    |       |
| service_name    | varchar(20) | YES  |     | NULL    |       |
| Quantity        | int         | YES  |     | NULL    |       |
| Bill_date       | date        | YES  |     | NULL    |       |
| Bill_amount     | float       | YES  |     | NULL    |       |
| Mode_of_payment | varchar(20) | YES  |     | NULL    |       |
+-----------------+-------------+------+-----+---------+-------+
8 rows in set (0.00 sec)
```

- Operators

```
mysql> /* ----IN operator---*/
mysql> select * from invoice where cl_id in(505,506);
+------------+-------+---------+-----------------+----------+------------+-------------+-----------------+
| invoice_id | cl_id | cl_name | service_name    | Quantity | Bill_date  | Bill_amount | Mode_of_payment |
+------------+-------+---------+-----------------+----------+------------+-------------+-----------------+
|     200121 |   505 | Sravya  | Software Repair |        1 | 2020-05-15 |        5000 | Cash            |
|     200122 |   506 | Nithin  | Hardware Repair |        1 | 2020-05-20 |       15000 | UPI             |
+------------+-------+---------+-----------------+----------+------------+-------------+-----------------+
2 rows in set (0.00 sec)
```

```
mysql> select * , Payment_per_day*30 as salary from professionals_involved;
+--------+---------------------+-----------+------------------+-----------------+-----------------+--------+
| pro_id | service_name        | pro_name  | designation      | Noof_hours_worked | Payment_per_day | salary |
+--------+---------------------+-----------+------------------+-----------------+-----------------+--------+
|    116 | Device Cleaning     | Sreeja    | Tester           |               8 |            4000 | 120000 |
|    112 | Hardware Repair     | Subhash   | Tester           |               6 |            4500 | 135000 |
|    117 | Parts Replacement   | Roshan    | Computer Engineer |               3 |            2300 |  69000 |
|    111 | Software Repair     | Rishabh   | Computer Engineer |               8 |            3500 | 105000 |
|    115 | Sys Trouble Shooting | Kumar     | Tester           |               6 |            3000 |  90000 |
|    114 | Web Development     | Vinay     | Developer        |               9 |            3000 |  90000 |
|    113 | Webite Development  | Praneetha | Developer        |               9 |            4000 | 120000 |
+--------+---------------------+-----------+------------------+-----------------+-----------------+--------+
7 rows in set (0.00 sec)
```

```
mysql> select * from client where Price>7000;
+-----------------+-------+---------+------------+-------------------+------------+-------+
| date_registered | cl_id | cl_name | service_id | service_name      | Mobile_num | Price |
+-----------------+-------+---------+------------+-------------------+------------+-------+
| 2020-02-05      |   501 | Rishith |    1731204 | Web Development   | 9578452145 |  8500 |
| 2020-05-01      |   506 | Nithin  |    1731202 | Hardware Repair   | 9820314568 | 15000 |
+-----------------+-------+---------+------------+-------------------+------------+-------+
2 rows in set (0.00 sec)
```

```
mysql> select * from invoice where Bill_amount>10000 and cl_id=504;
+------------+-------+---------+---------------------+----------+------------+-------------+-----------------+
| invoice_id | cl_id | cl_name | service_name        | Quantity | Bill_date  | Bill_amount | Mode_of_payment |
+------------+-------+---------+---------------------+----------+------------+-------------+-----------------+
|     200120 |   504 | Divya   | Sys Trouble Shooting |       2 | 2020-05-15 |       14000 | Debit Card      |
+------------+-------+---------+---------------------+----------+------------+-------------+-----------------+
1 row in set (0.00 sec)
```

- LIKE operator:

```
mysql> /*-----LIKE OPERATOR----*/
mysql> select cl_name ,service_name  from invoice where cl_name like '_y%';
+---------+-----------------+
| cl_name | service_name    |
+---------+-----------------+
| Ayansh  | Device Cleaning |
+---------+-----------------+
1 row in set (0.00 sec)
```

- BETWEEN Operator

```
mysql> /*-----BETWEEN Operator----*/
mysql> select cl_id, cl_name  from client where cl_id between 502 and 505;
+-------+---------+
| cl_id | cl_name |
+-------+---------+
|   502 | Ayansh  |
|   503 | Avyay   |
|   504 | Divya   |
|   505 | Sravya  |
+-------+---------+
4 rows in set (0.00 sec)
```

- IN Operator

```
mysql> /* ----IN operator---*/
mysql> select * from invoice where cl_id in(505,506);
+------------+-------+---------+-----------------+----------+------------+-------------+-----------------+
| invoice_id | cl_id | cl_name | service_name    | Quantity | Bill_date  | Bill_amount | Mode_of_payment |
+------------+-------+---------+-----------------+----------+------------+-------------+-----------------+
|     200121 |   505 | Sravya  | Software Repair |        1 | 2020-05-15 |        5000 | Cash            |
|     200122 |   506 | Nithin  | Hardware Repair |        1 | 2020-05-20 |       15000 | UPI             |
+------------+-------+---------+-----------------+----------+------------+-------------+-----------------+
2 rows in set (0.00 sec)
```

- Create View

```
mysql> create view output as (select * from invoice where Bill_amount>20000);
Query OK, 0 rows affected (0.01 sec)
```

```
mysql> show tables;
+--------------------------+
| Tables_in_client_management |
+--------------------------+
| client                   |
| company                  |
| invoice                  |
| professionals_involved   |
| service                  |
+--------------------------+
5 rows in set (0.00 sec)
```

```
mysql> show tables;
+--------------------------+
| Tables_in_client_management |
+--------------------------+
| client                   |
| company                  |
| invoice                  |
| output                   |
| professionals_involved   |
| service                  |
+--------------------------+
6 rows in set (0.00 sec)
```

- Aggregate Functions

```
mysql> select sum(price) from service;
+------------+
| sum(price) |
+------------+
|      53301 |
+------------+
1 row in set (0.00 sec)
```

```
mysql> select min(price) from service;
+------------+
| min(price) |
+------------+
|       3500 |
+------------+
1 row in set (0.00 sec)
```

```
mysql> select * from service  where price=(select max(price) from service);
+------------+------------+-----------------+-------+--------+
| company_id | service_id | service_name    | Price | Status |
+------------+------------+-----------------+-------+--------+
|        101 |    1731202 | Hardware repair | 15000 | Active |
+------------+------------+-----------------+-------+--------+
1 row in set (0.00 sec)
```

```
mysql> select avg(price) from service;
+------------+
| avg(price) |
+------------+
|  7614.4286 |
+------------+
1 row in set (0.00 sec)
```

```
mysql> select count(service_id) from service;
+-------------------+
| count(service_id) |
+-------------------+
|                 7 |
+-------------------+
1 row in set (0.00 sec)
```

• Cross join

```
mysql> select * from client cross join invoice;
+---------------+-------+---------+------------+-------------------+------------+-------+------------+-------+---------+-------------------+----------+------------+-------------+-----------------+
| date_registered | cl_id | cl_name | service_id | service_name      | Mobile_num | Price | invoice_id | cl_id | cl_name | service_name      | Quantity | Bill_date  | Bill_amount | Mode_of_payment |
+---------------+-------+---------+------------+-------------------+------------+-------+------------+-------+---------+-------------------+----------+------------+-------------+-----------------+
| 2020-05-01    |   506 | Nithin  | 1731202    | Hardware Repair   | 9820314568 | 15000 | 200117     | 501   | Rishith | Web Develeopment  |        2 | 2020-02-10 | 17000       | UPI             |
| 2020-05-01    |   505 | Sravya  | 1731201    | Software Repair   | 9872031576 | 5000  | 200117     | 501   | Rishith | Web Develeopment  |        2 | 2020-02-10 | 17000       | UPI             |
| 2020-04-25    |   504 | Divya   | 1731205    | Sys Trouble Shooting | 9547823015 | 7000  | 200117     | 501   | Rishith | Web Develeopment  |        2 | 2020-02-10 | 17000       | UPI             |
| 2020-04-18    |   503 | Avyay   | 1731206    | Device Cleaning   | 8654789651 | 6000  | 200117     | 501   | Rishith | Web Develeopment  |        2 | 2020-02-10 | 17000       | UPI             |
| 2020-04-05    |   502 | Ayansh  | 1731206    | Device Cleaning   | 9578425863 | 6000  | 200117     | 501   | Rishith | Web Develeopment  |        2 | 2020-02-10 | 17000       | UPI             |
| 2020-02-05    |   501 | Rishith | 1731204    | Web Development   | 9578452145 | 8500  | 200117     | 501   | Rishith | Web Develeopment  |        2 | 2020-02-10 | 17000       | UPI             |
| 2020-05-01    |   506 | Nithin  | 1731202    | Hardware Repair   | 9820314568 | 15000 | 200118     | 502   | Ayansh  | Device Cleaning   |        1 | 2020-04-20 | 6000        | Credit Card     |
| 2020-05-01    |   505 | Sravya  | 1731201    | Software Repair   | 9872031576 | 5000  | 200118     | 502   | Ayansh  | Device Cleaning   |        1 | 2020-04-20 | 6000        | Credit Card     |
| 2020-04-25    |   504 | Divya   | 1731205    | Sys Trouble Shooting | 9547823015 | 7000  | 200118     | 502   | Ayansh  | Device Cleaning   |        1 | 2020-04-20 | 6000        | Credit Card     |
| 2020-04-18    |   503 | Avyay   | 1731206    | Device Cleaning   | 8654789651 | 6000  | 200118     | 502   | Ayansh  | Device Cleaning   |        1 | 2020-04-20 | 6000        | Credit Card     |
| 2020-04-05    |   502 | Ayansh  | 1731206    | Device Cleaning   | 9578425863 | 6000  | 200118     | 502   | Ayansh  | Device Cleaning   |        1 | 2020-04-20 | 6000        | Credit Card     |
| 2020-02-05    |   501 | Rishith | 1731204    | Web Development   | 9578452145 | 8500  | 200118     | 502   | Ayansh  | Device Cleaning   |        1 | 2020-04-20 | 6000        | Credit Card     |
| 2020-05-01    |   506 | Nithin  | 1731202    | Hardware Repair   | 9820314568 | 15000 | 200119     | 503   | Avyay   | Device Cleaning   |        1 | 2020-04-26 | 6000        | Cash            |
| 2020-05-01    |   505 | Sravya  | 1731201    | Software Repair   | 9872031576 | 5000  | 200119     | 503   | Avyay   | Device Cleaning   |        1 | 2020-04-26 | 6000        | Cash            |
| 2020-04-25    |   504 | Divya   | 1731205    | Sys Trouble Shooting | 9547823015 | 7000  | 200119     | 503   | Avyay   | Device Cleaning   |        1 | 2020-04-26 | 6000        | Cash            |
| 2020-04-18    |   503 | Avyay   | 1731206    | Device Cleaning   | 8654789651 | 6000  | 200119     | 503   | Avyay   | Device Cleaning   |        1 | 2020-04-26 | 6000        | Cash            |
| 2020-04-05    |   502 | Ayansh  | 1731206    | Device Cleaning   | 9578425863 | 6000  | 200119     | 503   | Avyay   | Device Cleaning   |        1 | 2020-04-26 | 6000        | Cash            |
| 2020-02-05    |   501 | Rishith | 1731204    | Web Development   | 9578452145 | 8500  | 200119     | 503   | Avyay   | Device Cleaning   |        1 | 2020-04-26 | 6000        | Cash            |
| 2020-05-01    |   506 | Nithin  | 1731202    | Hardware Repair   | 9820314568 | 15000 | 200120     | 504   | Divya   | Sys Trouble Shooting |     2 | 2020-05-15 | 14000       | Debit Card      |
| 2020-05-01    |   505 | Sravya  | 1731201    | Software Repair   | 9872031576 | 5000  | 200120     | 504   | Divya   | Sys Trouble Shooting |     2 | 2020-05-15 | 14000       | Debit Card      |
| 2020-04-25    |   504 | Divya   | 1731205    | Sys Trouble Shooting | 9547823015 | 7000  | 200120     | 504   | Divya   | Sys Trouble Shooting |     2 | 2020-05-15 | 14000       | Debit Card      |
| 2020-04-18    |   503 | Avyay   | 1731206    | Device Cleaning   | 8654789651 | 6000  | 200120     | 504   | Divya   | Sys Trouble Shooting |     2 | 2020-05-15 | 14000       | Debit Card      |
| 2020-04-05    |   502 | Ayansh  | 1731206    | Device Cleaning   | 9578425863 | 6000  | 200120     | 504   | Divya   | Sys Trouble Shooting |     2 | 2020-05-15 | 14000       | Debit Card      |
| 2020-02-05    |   501 | Rishith | 1731204    | Web Development   | 9578452145 | 8500  | 200120     | 504   | Divya   | Sys Trouble Shooting |     2 | 2020-05-15 | 14000       | Debit Card      |
| 2020-05-01    |   506 | Nithin  | 1731202    | Hardware Repair   | 9820314568 | 15000 | 200121     | 505   | Sravya  | Software Repair   |        1 | 2020-05-15 | 5000        | Cash            |
| 2020-05-01    |   505 | Sravya  | 1731201    | Software Repair   | 9872031576 | 5000  | 200121     | 505   | Sravya  | Software Repair   |        1 | 2020-05-15 | 5000        | Cash            |
| 2020-04-25    |   504 | Divya   | 1731205    | Sys Trouble Shooting | 9547823015 | 7000  | 200121     | 505   | Sravya  | Software Repair   |        1 | 2020-05-15 | 5000        | Cash            |
| 2020-04-18    |   503 | Avyay   | 1731206    | Device Cleaning   | 8654789651 | 6000  | 200121     | 505   | Sravya  | Software Repair   |        1 | 2020-05-15 | 5000        | Cash            |
| 2020-04-05    |   502 | Ayansh  | 1731206    | Device Cleaning   | 9578425863 | 6000  | 200121     | 505   | Sravya  | Software Repair   |        1 | 2020-05-15 | 5000        | Cash            |
| 2020-02-05    |   501 | Rishith | 1731204    | Web Development   | 9578452145 | 8500  | 200121     | 505   | Sravya  | Software Repair   |        1 | 2020-05-15 | 5000        | Cash            |
| 2020-05-01    |   506 | Nithin  | 1731202    | Hardware Repair   | 9820314568 | 15000 | 200122     | 506   | Nithin  | Hardware Repair   |        1 | 2020-05-20 | 15000       | UPI             |
| 2020-05-01    |   505 | Sravya  | 1731201    | Software Repair   | 9872031576 | 5000  | 200122     | 506   | Nithin  | Hardware Repair   |        1 | 2020-05-20 | 15000       | UPI             |
| 2020-04-25    |   504 | Divya   | 1731205    | Sys Trouble Shooting | 9547823015 | 7000  | 200122     | 506   | Nithin  | Hardware Repair   |        1 | 2020-05-20 | 15000       | UPI             |
| 2020-04-18    |   503 | Avyay   | 1731206    | Device Cleaning   | 8654789651 | 6000  | 200122     | 506   | Nithin  | Hardware Repair   |        1 | 2020-05-20 | 15000       | UPI             |
| 2020-04-05    |   502 | Ayansh  | 1731206    | Device Cleaning   | 9578425863 | 6000  | 200122     | 506   | Nithin  | Hardware Repair   |        1 | 2020-05-20 | 15000       | UPI             |
| 2020-02-05    |   501 | Rishith | 1731204    | Web Development   | 9578452145 | 8500  | 200122     | 506   | Nithin  | Hardware Repair   |        1 | 2020-05-20 | 15000       | UPI             |
+---------------+-------+---------+------------+-------------------+------------+-------+------------+-------+---------+-------------------+----------+------------+-------------+-----------------+
36 rows in set (0.00 sec)
```

• Inner join

```
mysql> select * from client inner join invoice on client.cl_id=invoice.cl_id;
+---------------+-------+---------+------------+-------------------+------------+-------+------------+-------+---------+-------------------+----------+------------+-------------+-----------------+
| date_registered | cl_id | cl_name | service_id | service_name      | Mobile_num | Price | invoice_id | cl_id | cl_name | service_name      | Quantity | Bill_date  | Bill_amount | Mode_of_payment |
+---------------+-------+---------+------------+-------------------+------------+-------+------------+-------+---------+-------------------+----------+------------+-------------+-----------------+
| 2020-02-05    |   501 | Rishith | 1731204    | Web Development   | 9578452145 | 8500  | 200117     | 501   | Rishith | Web Develeopment  |        2 | 2020-02-10 | 17000       | UPI             |
| 2020-04-05    |   502 | Ayansh  | 1731206    | Device Cleaning   | 9578425863 | 6000  | 200118     | 502   | Ayansh  | Device Cleaning   |        1 | 2020-04-20 | 6000        | Credit Card     |
| 2020-04-18    |   503 | Avyay   | 1731206    | Device Cleaning   | 8654789651 | 6000  | 200119     | 503   | Avyay   | Device Cleaning   |        1 | 2020-04-26 | 6000        | Cash            |
| 2020-04-25    |   504 | Divya   | 1731205    | Sys Trouble Shooting | 9547823015 | 7000  | 200120     | 504   | Divya   | Sys Trouble Shooting |     2 | 2020-05-15 | 14000       | Debit Card      |
| 2020-05-01    |   505 | Sravya  | 1731201    | Software Repair   | 9872031576 | 5000  | 200121     | 505   | Sravya  | Software Repair   |        1 | 2020-05-15 | 5000        | Cash            |
| 2020-05-01    |   506 | Nithin  | 1731202    | Hardware Repair   | 9820314568 | 15000 | 200122     | 506   | Nithin  | Hardware Repair   |        1 | 2020-05-20 | 15000       | UPI             |
+---------------+-------+---------+------------+-------------------+------------+-------+------------+-------+---------+-------------------+----------+------------+-------------+-----------------+
6 rows in set (0.00 sec)
```

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