BUAN 6320- Database Foundations for Business Analytics

Group Project Assignment

Group 10

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- Our GPA is creating a database for our business 'A GUN RANGE' and doing so with 3 milestones.

    1. Business Rules and ERD
    2. Normalisation(in the excel file), Post-Normalisation ERD
    3. SQL Database creation

MILESTONE 1:

A GUN RANGE:

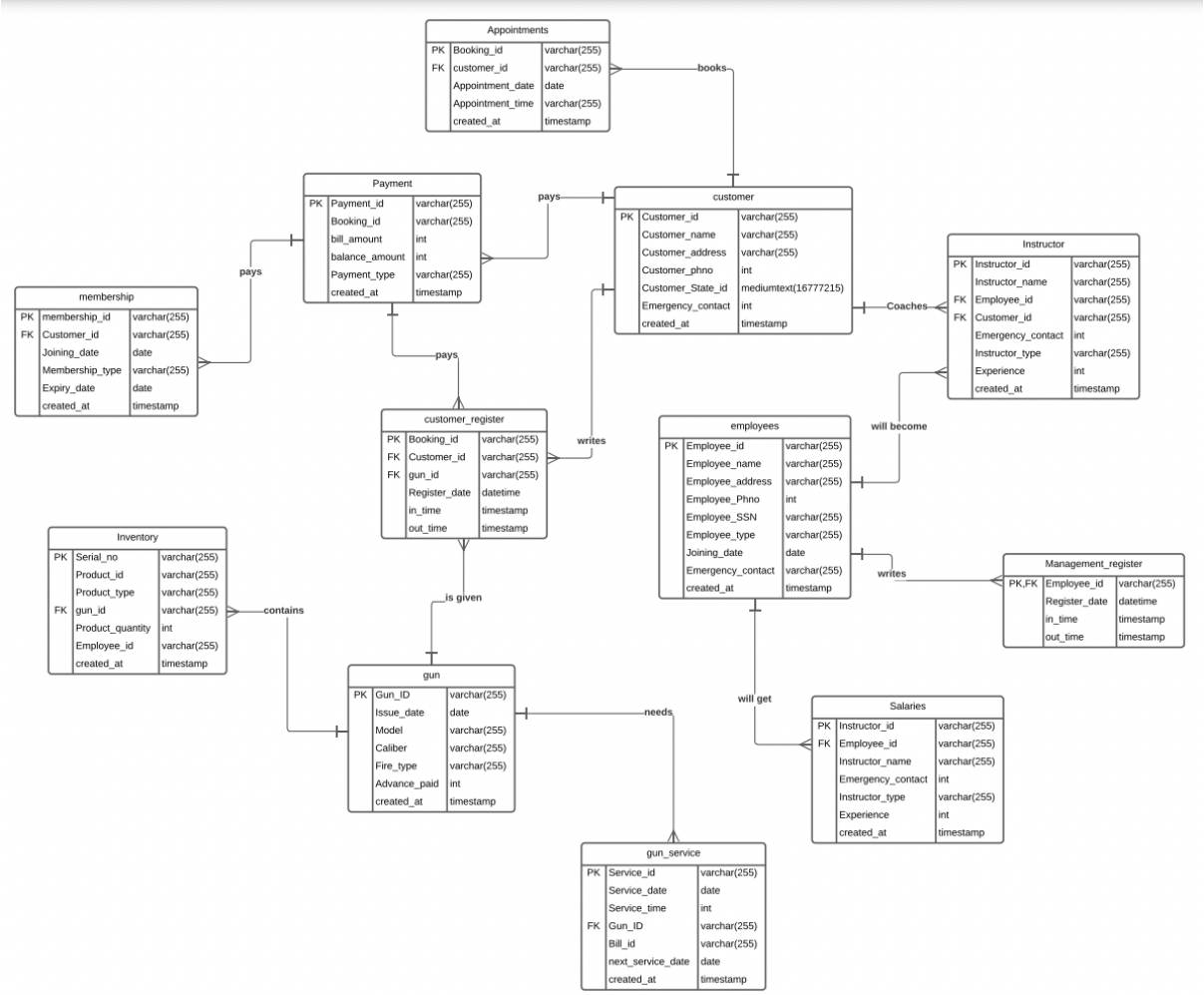
A gun range is a specialized facility, venue, or field designed specifically for firearm usage qualifications, training, practice.

Business Rules:

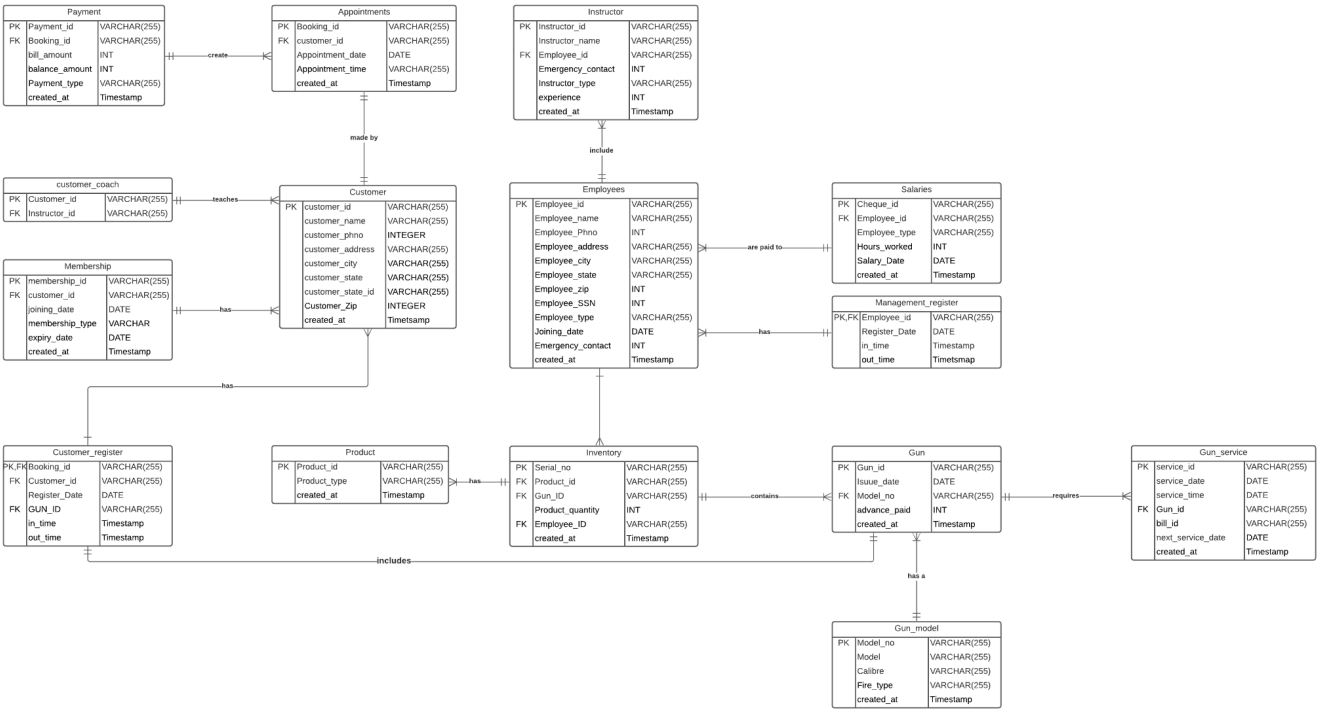
1. Each customer must have a customer id to identify uniquely.
2. Customers should have an emergency contact in the records in case of crisis.
3. Customers can't walk in, they will need a prior appointment.
4. Customers will require a valid state id to go through the range.
5. Every entry in the customer will contain the timestamp when it is created, for safety purposes.
6. Employees should also have an employee id to identify uniquely.
7. Customers can take memberships and they have a membership ID
8. Membership type includes lifetime membership and basic membership.
9. The lifetime customer membership is for a lifetime and for basic customer membership the duration will be given.
10. Membership starts from the customer joining date.
11. Timestamp of creating membership will be saved for safety purposes.
12. Employees should have an emergency contact in case of crisis.
13. To become an employee, you will need a valid SSN.
14. Inventory will include products like guns, eye protection, ear protection, holsters, ammo.
15. The required quantity of inventory will be noted to avoid running out of items.
16. The issue date and timestamp of guns will be recorded.
17. The different types of gun models are noted.
18. There are two fire types, automatic and semi-automatic.
19. Products like Pistols are semi-automatic, and rifles are automatic.
20. The size of the bullet is measured and noted as caliber.
21. Gun will have an appointment date and time for service.

22. The next scheduled appointment date will also be mentioned.
23. Bill will be generated according to the services.
24. A customer register is created to know the time spent by customers in the gun range.
25. The register will contain in-time and out-time of the customer.
26. Customer register should have a unique Booking id.
27. Register date of management and time spent by the employees will be noted.
28. In-time and out-time of the management will be used for counting the no. of hours spent to calculate the salary.
29. Appointments will be scheduled before for a specific date and time.
30. The timestamp when the appointment is booked is recorded.
31. Every payment will have a unique payment id.
32. The balance amount is calculated from the advance paid and bill amount.
33. The payment type should either be cash or card.
34. For safety purposes, the timestamp of payment will be saved.
35. Salaries of employees will be calculated according to the number of hours worked.
36. There are two employee types, part-time employees(temporary) and full-time employees(permanent).
37. The experience is calculated from the joining date for the instructor.
38. There are types of instructors like an assistant, junior or senior.
39. Each customer will have a coach.
40. Guns should be serviced every 3 months.
41. The next service date will be updated after each service.
42. An employee can be an instructor for safety or shooting purpose.
43. A minimum of 3 years' experience is needed for an employee to be an instructor.
44. Salaries are given on the 30th of every month.
45. All instructors are employees but all employees are not instructors.
46. All customers must have an address and a phone number recorded for contact purposes
47. All employees must have an address and a phone number recorded for contact purposes

Entity-Relationship Diagram(ERD): (pre_normalisation)



ERD: (POST NORMALISATION)



MILESTONE 3:

1. Creating Database:

```
create database gpa;
use gpa;
```

2. Creating all the Tables:

```
CREATE TABLE `customer` (
 `Customer_id` varchar(255) PRIMARY KEY,
 `Customer_name` varchar(255),
 `Customer_address` varchar(255),
 `Customer_city` varchar(255),
 `Customer_state` varchar(255),
 `Customer_zip` integer,
 `Customer_phno` varchar(255),
 `Customer_State_id` long,
 `created_at` datetime DEFAULT CURRENT_TIMESTAMP
);

CREATE TABLE `employees` (
 `Employee_id` varchar(255) PRIMARY KEY,
 `Employee_name` varchar(255),
 `Employee_address` varchar(255),
 `Employee_city` varchar(255),
 `Employee_state` varchar(255),
 `Employee_zip` integer,
 `Employee_Phno` varchar(255),
 `Employee_SSN` varchar(255),
 `Employee_type` varchar(255),
 `Joining_date` varchar(255),
 `Emergency_contact` varchar(255),
 `created_at` datetime DEFAULT CURRENT_TIMESTAMP
);
CREATE TABLE `membership` (
 `membership_id` varchar(255) PRIMARY KEY,
 `Customer_id` varchar(255),
 `Joining_date` date,
 `Membership_type` varchar(255),
 `Expiry_date` VARCHAR(255),
 `created_at` datetime DEFAULT CURRENT_TIMESTAMP
);
```

```sql
CREATE TABLE `Inventory` (
 `Serial_no` varchar(255) PRIMARY KEY,
 `Product_id` varchar(255),
 `gun_id` varchar(255),
 `Product_quantity` integer,
 `Employee_id` varchar(255),
 `created_at` datetime DEFAULT CURRENT_TIMESTAMP
);

CREATE TABLE `Product` (
 `Product_id` varchar(255) PRIMARY KEY,
 `Product_type` varchar(255)
);

CREATE TABLE `gun` (
 `Gun_ID` varchar(255) PRIMARY KEY,
 `Issue_date` date,
 `Model_no` varchar(255),
 `Advance_paid` integer,
 `created_at` datetime DEFAULT CURRENT_TIMESTAMP
);

CREATE TABLE `gun_model` (
 `Model_no` varchar(255) PRIMARY KEY,
 `model_name` varchar(255),
 `Caliber` varchar(255),
 `Fire_type` varchar(255)
);
CREATE TABLE `gun_service` (
 `Service_id` varchar(255) PRIMARY KEY,
 `Service_date` VARCHAR(255),
 `Service_time` varchar(255),
 `Gun_ID` varchar(255),
 `Bill_id` varchar(255),
 `next_service_date` date,
 `created_at` datetime DEFAULT CURRENT_TIMESTAMP
);

CREATE TABLE `customer_Register` (
 `Booking_id` varchar(255) PRIMARY KEY,
 `Customer_id` varchar(255),
 `Register_date` varchar(255),
 `Gun_ID` varchar(255),
 `in_time` VARCHAR(255),
 `out_time` VARCHAR(255)
```

```
);
CREATE TABLE `Management_register` (
 `Employee_id` varchar(255) PRIMARY KEY,
 `Register_date` VARCHAR(255),
 `in_time` varchar(255),
 `out_time` varchar(255)
);

CREATE TABLE `Appointments` (
 `Booking_id` varchar(255) PRIMARY KEY,
 `customer_id` varchar(255),
 `Appointment_date` VARCHAR(255),
 `Appointment_time` varchar(255),
 `created_at` datetime DEFAULT CURRENT_TIMESTAMP
);
CREATE TABLE `Payment` (
 `Payment_id` varchar(255) PRIMARY KEY,
 `Booking_id` varchar(255),
 `bill_amount` integer,
 `balance_amount` integer,
 `Payment_type` varchar(255),
 `created_at` datetime DEFAULT CURRENT_TIMESTAMP
);

CREATE TABLE `Salaries` (
 `Cheque_id` varchar(255) PRIMARY KEY,
 `Employee_id` varchar(255),
 `Employee_type` varchar(255),
 `Hours_worked` integer,
 `salary` integer,
 `Salary_date` VARCHAR(255),
 `created_at` datetime DEFAULT CURRENT_TIMESTAMP
);

CREATE TABLE `Instructor` (
 `Instructor_id` varchar(255) PRIMARY KEY,
 `Instructor_name` varchar(255),
 `Employee_id` varchar(255),
 `Emergency_contact` varchar(255),
 `Instructor_type` varchar(255),
 `Experience` integer,
 `created_at` datetime DEFAULT CURRENT_TIMESTAMP
);

CREATE TABLE `customer_coach` (
```

```
 `Customer_id` varchar(255) PRIMARY KEY,
 `Instructor_id` varchar(255)
);

ALTER TABLE `membership` ADD FOREIGN KEY (`Customer_id`) REFERENCES `customer`
(`Customer_id`);

ALTER TABLE `customer_Register` ADD FOREIGN KEY (`Customer_id`) REFERENCES
`customer` (`Customer_id`);

ALTER TABLE `Appointments` ADD FOREIGN KEY (`customer_id`) REFERENCES `customer`
(`Customer_id`);

ALTER TABLE `Management_register` ADD FOREIGN KEY (`Employee_id`) REFERENCES
`employees` (`Employee_id`);

ALTER TABLE `Salaries` ADD FOREIGN KEY (`Employee_id`) REFERENCES `employees`
(`Employee_id`);

ALTER TABLE `Payment` ADD FOREIGN KEY (`Booking_id`) REFERENCES `customer_Register`
(`Booking_id`);

ALTER TABLE `gun_service` ADD FOREIGN KEY (`Gun_ID`) REFERENCES `gun` (`Gun_ID`);

ALTER TABLE `Inventory` ADD FOREIGN KEY (`gun_id`) REFERENCES `gun` (`Gun_ID`);

ALTER TABLE `Instructor` ADD FOREIGN KEY (`Employee_id`) REFERENCES `employees`
(`Employee_id`);

ALTER TABLE `customer_coach` ADD FOREIGN KEY (`Customer_id`) REFERENCES `customer`
(`Customer_id`);

ALTER TABLE `customer_coach` ADD FOREIGN KEY (`Instructor_id`) REFERENCES
`Instructor` (`Instructor_id`);

ALTER TABLE `gun` ADD FOREIGN KEY (`Model_no`) REFERENCES `gun_model` (`Model_no`);

ALTER TABLE `Inventory` ADD FOREIGN KEY (`Product_id`) REFERENCES `Product`
(`Product_id`);

ALTER TABLE `customer_Register` ADD FOREIGN KEY (`Gun_ID`) REFERENCES `gun`
(`Gun_ID`);
```

–Successfully created all the tables with foreign keys

3. Inserting Data into each table:

Customer table:

```
INSERT INTO Customer
(`Customer_id`,`Customer_name`,`Customer_phno`,`Customer_address`,`Customer_City`,`
Customer_State`,`Customer_Zip`,`Customer_State_id`)
VALUES
   ('C01','Stephen Johnson','(973) 660-5721','19953 Strickler Rd','West
Fork','AR',72774,65621857),
   ('C02','Jacqueline Johnson','(758) 409-7049','29 Deer Haven
Ct','Florence','KY',41042,55706037),
   ('C03','Michelle Smith','(296) 505-4645','799 Gray
Rd','Hohenwald','TN',38462,52327304),
   ('C04','Connie Johnson','(323) 470-5451','17534 233rd Pl
NE','Woodinville','WA',98072,31824248),
   ('C05','Geoffrey Smith','(845) 284-7557','234 River Rd #1','New
Milford','NJ',7646,24445809),
   ('C06','Jeanne Smith','(837) 258-9575','2270 Mckelvy
Rd','Camden','TN',38320,53377308),
   ('C07','Billy Johnson','(731) 584-6657','9176 Red Branch Rd
#M','Columbia','MD',21045,29035456),
   ('C08','Annette Philip','(816) 425-4000','219 Bienbille
St','Belton','MO',64012,97398722),
   ('C09','Clay Johnson','(708) 679-1249','115 Elm St','Park
Forest','IL',60466,38695373),
   ('C10','Valeeta Smith','(201) 262-5758','22916 NW Pine Lane
Rd','Fountain','FL',32438,68358539);

select * from customer;
```

```
select * from customer
```

Input To Search Data | Cost: 2ms | 1 | Total 10

	Customer_id	Customer_name	Customer_address	Customer_city	Customer_state	Customer_zip	Customer_phno	Customer_State
	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter
1	C01	Stephen Johnson	19953 Strickler Rd	West Fork	AR	72774	(973) 660-5721	65621857
2	C02	Jacqueline Johnson	29 Deer Haven Ct	Florence	KY	41042	(758) 409-7049	55706037
3	C03	Michelle Smith	799 Gray Rd	Hohenwald	TN	38462	(296) 505-4645	52327304
4	C04	Connie Johnson	17534 233rd Pl NE	Woodinville	WA	98072	(323) 470-5451	31824248
5	C05	Geoffrey Smith	234 River Rd #1	New Milford	NJ	7646	(845) 284-7557	24445809
6	C06	Jeanne Smith	2270 Mckelvy Rd	Camden	TN	38320	(837) 258-9575	53377308
7	C07	Billy Johnson	9176 Red Branch Rd #	Columbia	MD	21045	(731) 584-6657	29035456
8	C08	Annette Philip	219 Bienbille St	Belton	MO	64012	(816) 425-4000	97398722
9	C09	Clay Johnson	115 Elm St	Park Forest	IL	60466	(708) 679-1249	38695373
10	C10	Valeeta Smith	22916 NW Pine Lane F	Fountain	FL	32438	(201) 262-5758	68358539

Membership table:

```
INSERT INTO Membership
(Membership_id,Customer_id,Joining_date,Membership_type,`Expiry_date`)
VALUES
   ('M01','C01','2021-04-19 ','Lifetime','NULL'),
   ('M02','C02','2021-04-27 ','Lifetime','NULL'),
   ('M03','C03','2021-05-24 ','Basic','2022-05-09 '),
   ('M04','C04','2021-05-26 ','Lifetime','NULL'),
   ('M05','C05','2021-06-08 ','Lifetime','NULL'),
   ('M06','C06','2021-06-29 ','Lifetime','NULL'),
   ('M07','C07','2021-07-14 ','Basic','2022-06-20 '),
   ('M08','C08','2021-09-14 ','Basic','2022-08-23 '),
   ('M09','C09','2021-11-02 ','Basic','2023-02-07 '),
   ('M10','C10','2021-11-08 ','Lifetime','NULL');
select * from membership;
```

```
select * from membership
```

Input To Search Data | Cost: 3ms | 1 | Total 10

	membership_id	Customer_id	Joining_date	Membership_type	Expiry_date	created_at
	Filter	Filter	Filter	Filter	Filter	Filter
1	M01	C01	2021-04-19	Lifetime	NULL	2021-12-12 20:31:57
2	M02	C02	2021-04-27	Lifetime	NULL	2021-12-12 20:31:57
3	M03	C03	2021-05-24	Basic	2022-05-09	2021-12-12 20:31:57
4	M04	C04	2021-05-26	Lifetime	NULL	2021-12-12 20:31:57
5	M05	C05	2021-06-08	Lifetime	NULL	2021-12-12 20:31:57
6	M06	C06	2021-06-29	Lifetime	NULL	2021-12-12 20:31:57
7	M07	C07	2021-07-14	Basic	2022-06-20	2021-12-12 20:31:57
8	M08	C08	2021-09-14	Basic	2022-08-23	2021-12-12 20:31:57
9	M09	C09	2021-11-02	Basic	2023-02-07	2021-12-12 20:31:57
10	M10	C10	2021-11-08	Lifetime	NULL	2021-12-12 20:31:57

Gun Table:

```
INSERT INTO Gun
(Gun_ID,Issue_date,Model_no,Advance_paid)
VALUES
   ('G01','2019-08-20 ','M1',600),
   ('G02','2019-12-10 ','M2',1100),
   ('G03','2019-12-16 ','M3',700),
   ('G04','2020-01-14 ','M1',600),
   ('G05','2020-02-25 ','M2',1100),
```

```
   ('G06','2020-03-10 ','M1',600),
   ('G07','2020-03-18 ','M4',1500),
   ('G08','2020-03-24 ','M3',700),
   ('G09','2020-04-13 ','M2',1100),
   ('G10','2020-04-14 ','M3',700),
   ('G11','2020-05-04 ','M4',1500),
   ('G12','2020-05-18 ','M3',700),
   ('G13','2020-06-02 ','M1',600);
select * from gun;
```

```
select * from gun
```

Input To Search Data | Cost: 4ms | 1 | Total 13

	Gun_ID	Issue_date	Model_no	Advance_paid	created_at
	Filter	Filter	Filter	Filter	Filter
1	G01	2019-08-20	M1	600	2021-12-12 20:34:44
2	G02	2019-12-10	M2	1100	2021-12-12 20:34:44
3	G03	2019-12-16	M3	700	2021-12-12 20:34:44
4	G04	2020-01-14	M1	600	2021-12-12 20:34:44
5	G05	2020-02-25	M2	1100	2021-12-12 20:34:44
6	G06	2020-03-10	M1	600	2021-12-12 20:34:44
7	G07	2020-03-18	M4	1500	2021-12-12 20:34:44
8	G08	2020-03-24	M3	700	2021-12-12 20:34:44
9	G09	2020-04-13	M2	1100	2021-12-12 20:34:44
10	G10	2020-04-14	M3	700	2021-12-12 20:34:44
11	G11	2020-05-04	M4	1500	2021-12-12 20:34:44
12	G12	2020-05-18	M3	700	2021-12-12 20:34:44

Gun_service Table;

```
INSERT INTO Gun_Service
(Service_id,Service_date,Service_time,Gun_ID,Bill_id,next_service_date)
VALUES
   ('S01','2021-01-04','2021-01-07','G08',8365938,'2021-04-07'),
   ('S02','2021-02-03','2021-02-08','G06',5714771,'2021-05-09'),
   ('S03','2021-02-09','2021-02-11','G13',1357613,'2021-05-12'),
   ('S04','2021-02-10','2021-02-16','G10',8459985,'2021-05-17'),
   ('S05','2021-03-08','2021-03-12','G05',7714176,'2021-06-10'),
```

```
   ('S06','2021-03-12','2021-03-14','G11',8195842,'2021-06-12'),
   ('S07','2021-03-17','2021-03-20','G01',2862756,'2021-06-18'),
   ('S08','2021-04-01','2021-04-05','G02',6175852,'2021-07-04'),
   ('S09','2021-04-30','2021-05-01','G03',8789528,'2021-07-30'),
   ('S10','2021-05-18','2021-05-20','G09',3862423,'2021-08-18'),
   ('S11','2021-05-21','2021-05-24','G07',5233761,'2021-08-22'),
   ('S12','2021-05-25','2021-05-29','G10',4729982,'2021-08-27'),
   ('S13','2021-07-05','2021-07-10','G05',2731917,'2021-10-08'),
   ('S14','2021-07-06','2021-07-07','G11',5761144,'2021-10-05'),
   ('S15','2021-07-16','2021-07-19','G01',9268548,'2021-10-17'),
   ('S16','2021-08-18','2021-08-20','G02',5861919,'2021-11-18'),
   ('S17','2021-09-07','2021-09-11','G08',7983259,'2021-12-10'),
   ('S18','2021-09-09','2021-09-11','G06',9328446,'2021-12-10'),
   ('S19','2021-09-28','2021-10-01','G12',2127175,'2021-12-30'),
   ('S20','2021-07-05','2021-07-09','G04',8538185,'2021-10-07');

select * from gun_service;
```

```
select * from gun_service
```

Input To Search Data | Cost: 5ms | 1 | Total 20

	Service_id	Service_date	Service_time	Gun_ID	Bill_id	next_service_date	created_at
	Filter	Filter	Filter	Filter	Filter	Filter	Filter
1	S01	2021-01-04	2021-01-07	G08	8365938	2021-04-07	2021-12-12 20:45:56
2	S02	2021-02-03	2021-02-08	G06	5714771	2021-05-09	2021-12-12 20:45:56
3	S03	2021-02-09	2021-02-11	G13	1357613	2021-05-12	2021-12-12 20:45:56
4	S04	2021-02-10	2021-02-16	G10	8459985	2021-05-17	2021-12-12 20:45:56
5	S05	2021-03-08	2021-03-12	G05	7714176	2021-06-10	2021-12-12 20:45:56
6	S06	2021-03-12	2021-03-14	G11	8195842	2021-06-12	2021-12-12 20:45:56
7	S07	2021-03-17	2021-03-20	G01	2862756	2021-06-18	2021-12-12 20:45:56
8	S08	2021-04-01	2021-04-05	G02	6175852	2021-07-04	2021-12-12 20:45:56
9	S09	2021-04-30	2021-05-01	G03	8789528	2021-07-30	2021-12-12 20:45:56
10	S10	2021-05-18	2021-05-20	G09	3862423	2021-08-18	2021-12-12 20:45:56
11	S11	2021-05-21	2021-05-24	G07	5233761	2021-08-22	2021-12-12 20:45:56
12	S12	2021-05-25	2021-05-29	G10	4729982	2021-08-27	2021-12-12 20:45:56
13	S13	2021-07-05	2021-07-10	G05	2731917	2021-10-08	2021-12-12 20:45:56
14	S14	2021-07-06	2021-07-07	G11	5761144	2021-10-05	2021-12-12 20:45:56
15	S15	2021-07-16	2021-07-19	G01	9268548	2021-10-17	2021-12-12 20:45:56
16	S16	2021-08-18	2021-08-20	G02	5861919	2021-11-18	2021-12-12 20:45:56

Gun_model table:

```
INSERT INTO Gun_Model VALUES
   ('M1','Ruger .22','22 LR','semi-automatic'),
```

```
   ('M2','Armalite AR-15','223/5.56mm NATO','fully automatic'),
   ('M3','Mossberg 500','12 Guage','semi-automatic'),
   ('M4','Colt 1911','. 45 ACP','semi-automatic');

select * from gun_model;
```

```
select * from gun_model
```

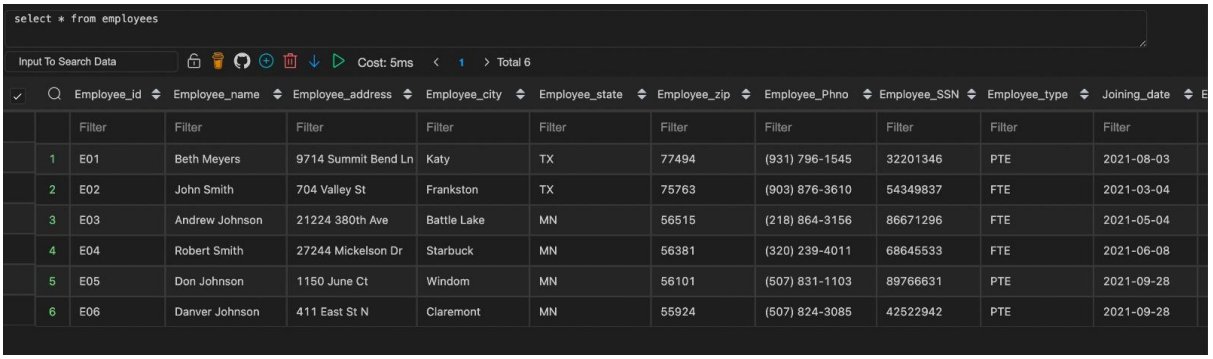
Input To Search Data | Cost: 8ms | 1 | Total 4

		Model_no	model_name	Caliber	Fire_type
		Filter	Filter	Filter	Filter
	1	M1	Ruger .22	22 LR	semi-automatic
	2	M2	Armalite AR-15	223/5.56mm NATO	fully automatic
	3	M3	Mossberg 500	12 Guage	semi-automatic
	4	M4	Colt 1911	. 45 ACP	semi-automatic

Employees table:

```
INSERT INTO Employees
(Employee_id,Employee_name,Employee_Phno,Employee_address,Employee_city,Employee_st
ate,Employee_zip,Employee_SSN,Employee_type,Joining_date,Emergency_contact)
VALUES
   ('E01','Beth Meyers','(931) 796-1545','9714 Summit Bend
Ln','Katy','TX',77494,32201346,'PTE','2021-08-03 ','(623)882-5945'),
   ('E02','John Smith','(903) 876-3610','704 Valley
St','Frankston','TX',75763,54349837,'FTE','2021-03-04 ','(301)559-5062'),
   ('E03','Andrew Johnson','(218) 864-3156','21224 380th Ave','Battle
Lake','MN',56515,86671296,'FTE','2021-05-04 ','(507)203-9186'),
   ('E04','Robert Smith','(320) 239-4011','27244 Mickelson
Dr','Starbuck','MN',56381,68645533,'FTE','2021-06-08 ','(256)679-5775'),
   ('E05','Don Johnson','(507) 831-1103','1150 June
Ct','Windom','MN',56101,89766631,'PTE','2021-09-28 ','(603)535-2544'),
   ('E06','Danver Johnson','(507) 824-3085','411 East St
N','Claremont','MN',55924,42522942,'PTE','2021-09-28 ','(414)578-6473');

select * from employees;
```



```
select * from employees
```

Input To Search Data Cost: 5ms 1 Total 6

	Employee_id	Employee_name	Employee_address	Employee_city	Employee_state	Employee_zip	Employee_Phno	Employee_SSN	Employee_type	Joining_date
	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter	Filter
1	E01	Beth Meyers	9714 Summit Bend Ln	Katy	TX	77494	(931) 796-1545	32201346	PTE	2021-08-03
2	E02	John Smith	704 Valley St	Frankston	TX	75763	(903) 876-3610	54349837	FTE	2021-03-04
3	E03	Andrew Johnson	21224 380th Ave	Battle Lake	MN	56515	(218) 864-3156	86671296	FTE	2021-05-04
4	E04	Robert Smith	27244 Mickelson Dr	Starbuck	MN	56381	(320) 239-4011	68645533	FTE	2021-06-08
5	E05	Don Johnson	1150 June Ct	Windom	MN	56101	(507) 831-1103	89766631	PTE	2021-09-28
6	E06	Danver Johnson	411 East St N	Claremont	MN	55924	(507) 824-3085	42522942	PTE	2021-09-28

Inventory table:

```sql
INSERT INTO Inventory
(Serial_no,Product_id,Gun_ID,Product_quantity,Employee_ID)
VALUES
   ('S01','P1','G01',1,'E02'),
   ('S02','P1','G02',1,'E02'),
   ('S03','P1','G03',1,'E03'),
   ('S04','P1','G04',1,'E03'),
   ('S05','P1','G05',1,'E04'),
   ('S06','P1','G06',1,'E02'),
   ('S07','P1','G07',1,'E02'),
   ('S08','P1','G08',1,'E02'),
   ('S09','P1','G09',1,'E04'),
   ('S10','P1','G10',1,'E02'),
   ('S11','P1','G11',1,'E02'),
   ('S12','P1','G12',1,'E03'),
   ('S13','P1','G13',1,'E04'),
   ('S14','P2','NULL',10,'E03'),
   ('S15','P3','NULL',15,'E02'),
   ('S16','P4','NULL',20,'E04');


select * from inventory;
```

```
select * from inventory
```

Input To Search Data Cost: 4ms 1 Total 16

	Serial_no	Product_id	gun_id	Product_quantity	Employee_id	created_at
	Filter	Filter	Filter	Filter	Filter	Filter
1	S01	P1	G01	1	E02	2021-12-12 20:51:16
2	S02	P1	G02	1	E02	2021-12-12 20:51:16
3	S03	P1	G03	1	E03	2021-12-12 20:51:16
4	S04	P1	G04	1	E03	2021-12-12 20:51:16
5	S05	P1	G05	1	E04	2021-12-12 20:51:16
6	S06	P1	G06	1	E02	2021-12-12 20:51:16
7	S07	P1	G07	1	E02	2021-12-12 20:51:16
8	S08	P1	G08	1	E02	2021-12-12 20:51:16
9	S09	P1	G09	1	E04	2021-12-12 20:51:16
10	S10	P1	G10	1	E02	2021-12-12 20:51:16
11	S11	P1	G11	1	E02	2021-12-12 20:51:16
12	S12	P1	G12	1	E03	2021-12-12 20:51:16
13	S13	P1	G13	1	E04	2021-12-12 20:51:16
14	S14	P2	NULL	10	E03	2021-12-12 20:51:16
15	S15	P3	NULL	15	E02	2021-12-12 20:51:16
16	S16	P4	NULL	20	E04	2021-12-12 20:51:16

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Product Table:

```
INSERT INTO Product VALUES
   ('P1','Gun'),
   ('P2','Headphones'),
   ('P3','Safety Equipment'),
   ('P4','Other');

SELECT * from product;
```

	Product_id	Product_type
	Filter	Filter
1	P1	Gun
2	P2	Headphones
3	P3	Safety Equipment
4	P4	Other

Customer_Register table;

```
INSERT INTO Customer_register VALUES
   ('A01','C01','2021-11-13 ','G03','09','14:55'),
   ('A02','C02','2021-11-22 ','G05','09:50','15:15'),
   ('A03','C03','2021-12-02 ','G02','10:30','15:30'),
   ('A04','C04','2021-12-04 ','G01','10:50','15:45'),
```

```
   ('A05','C05','2021-12-06 ','G07','11:10','15:55'),
   ('A06','C06','2021-12-09 ','G12','11:25','16:15'),
   ('A07','C07','2021-12-10 ','G11','11:55','17'),
   ('A08','C08','2021-12-11 ','G09','13:40','17:10'),
   ('A09','C09','2021-12-17 ','G10','14','17:30'),
   ('A10','C10','2021-12-29 ','G06','14:40','17:45');
select* from customer_register;
```

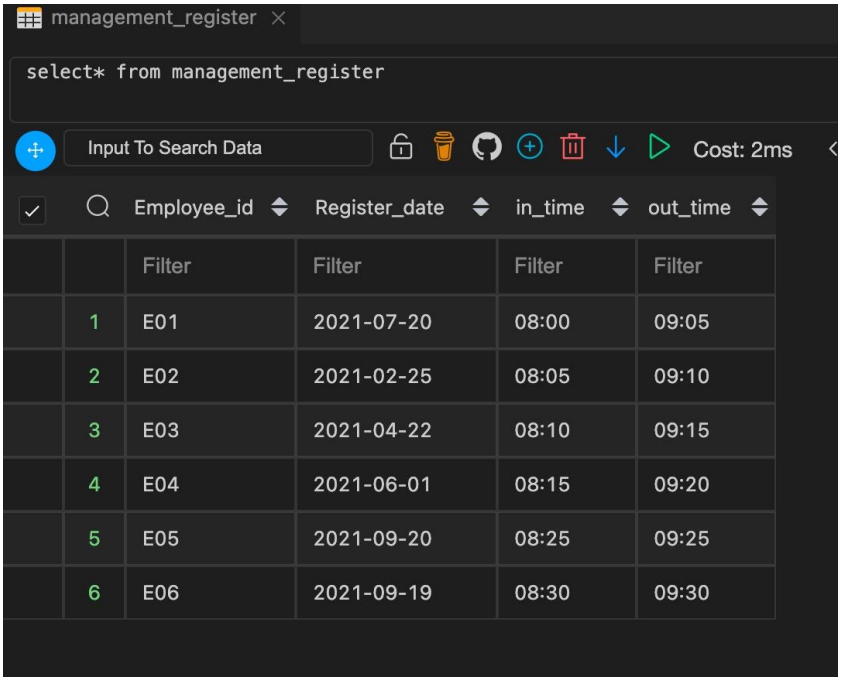
```
select* from customer_register
```

Input To Search Data | Cost: 5ms | 1 | Total 10

	Booking_id	Customer_id	Register_date	Gun_ID	in_time	out_time
	Filter	Filter	Filter	Filter	Filter	Filter
1	A01	C01	2021-11-13	G03	09	14:55
2	A02	C02	2021-11-22	G05	09:50	15:15
3	A03	C03	2021-12-02	G02	10:30	15:30
4	A04	C04	2021-12-04	G01	10:50	15:45
5	A05	C05	2021-12-06	G07	11:10	15:55
6	A06	C06	2021-12-09	G12	11:25	16:15
7	A07	C07	2021-12-10	G11	11:55	17
8	A08	C08	2021-12-11	G09	13:40	17:10
9	A09	C09	2021-12-17	G10	14	17:30
10	A10	C10	2021-12-29	G06	14:40	17:45

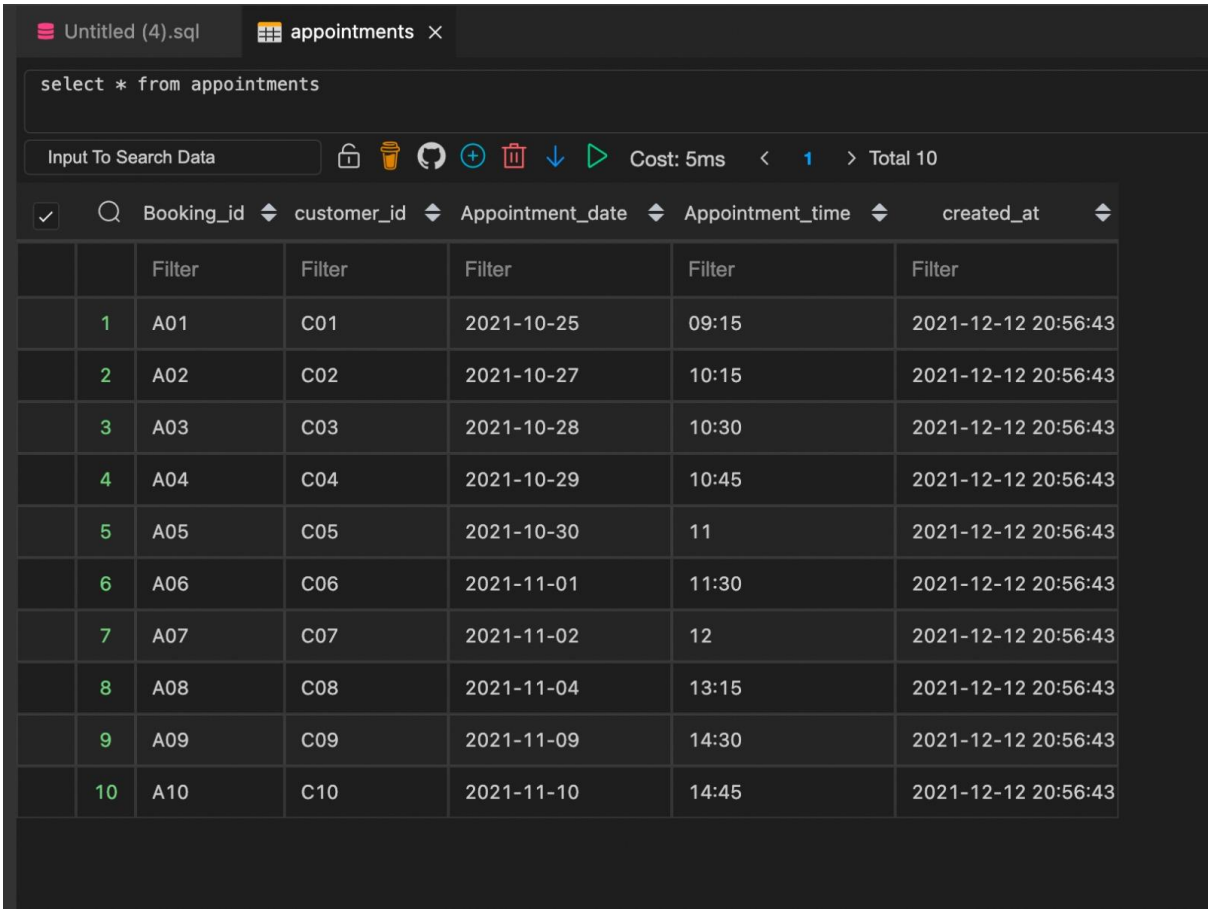
Management_Register Table:

```
INSERT INTO Management_register VALUES
   ('E01','2021-07-20' ,'08:00','09:05'),
   ('E02','2021-02-25' ,'08:05','09:10'),
   ('E03','2021-04-22' ,'08:10','09:15'),
   ('E04','2021-06-01' ,'08:15','09:20'),
   ('E05','2021-09-20' ,'08:25','09:25'),
   ('E06','2021-09-19' ,'08:30','09:30');

select* from management_register;
```



Appointments Table:

```
INSERT INTO Appointments
(Booking_id,customer_id,Appointment_date,Appointment_time)
VALUES
   ('A01','C01','2021-10-25 ','09:15'),
   ('A02','C02','2021-10-27 ','10:15'),
   ('A03','C03','2021-10-28 ','10:30'),
   ('A04','C04','2021-10-29 ','10:45'),
   ('A05','C05','2021-10-30 ','11'),
   ('A06','C06','2021-11-01 ','11:30'),
   ('A07','C07','2021-11-02 ','12'),
   ('A08','C08','2021-11-04 ','13:15'),
   ('A09','C09','2021-11-09 ','14:30'),
   ('A10','C10','2021-11-10 ','14:45');

select * from appointments;
```



	Booking_id	customer_id	Appointment_date	Appointment_time	created_at
	Filter	Filter	Filter	Filter	Filter
1	A01	C01	2021-10-25	09:15	2021-12-12 20:56:43
2	A02	C02	2021-10-27	10:15	2021-12-12 20:56:43
3	A03	C03	2021-10-28	10:30	2021-12-12 20:56:43
4	A04	C04	2021-10-29	10:45	2021-12-12 20:56:43
5	A05	C05	2021-10-30	11	2021-12-12 20:56:43
6	A06	C06	2021-11-01	11:30	2021-12-12 20:56:43
7	A07	C07	2021-11-02	12	2021-12-12 20:56:43
8	A08	C08	2021-11-04	13:15	2021-12-12 20:56:43
9	A09	C09	2021-11-09	14:30	2021-12-12 20:56:43
10	A10	C10	2021-11-10	14:45	2021-12-12 20:56:43

Payment table:

```
INSERT INTO Payment
(Payment_id,Booking_id,bill_amount,balance_amount,Payment_type)
VALUES
   ('P100','A01',500,100,'Credit Card'),
   ('P101','A02',500,50,'Credit Card'),
   ('P102','A03',300,0,'Credit Card'),
   ('P103','A04',500,75,'Cash'),
   ('P104','A05',500,90,'Cash'),
   ('P105','A06',500,80,'Cash'),
   ('P106','A07',300,55,'Card '),
   ('P107','A08',300,60,'Card '),
   ('P108','A09',300,0,'Debit Card'),
   ('P109','A10',500,65,'Debit Card');
select * from payment;
```

```
select * from payment
```

Input To Search Data | Cost: 3ms | 1 | Total 10

	Payment_id	Booking_id	bill_amount	balance_amount	Payment_type	created_at
	Filter	Filter	Filter	Filter	Filter	Filter
1	P100	A01	500	100	Credit Card	2021-12-12 21:41:00
2	P101	A02	500	50	Credit Card	2021-12-12 21:41:00
3	P102	A03	300	0	Credit Card	2021-12-12 21:41:00
4	P103	A04	500	75	Cash	2021-12-12 21:41:00
5	P104	A05	500	90	Cash	2021-12-12 21:41:00
6	P105	A06	500	80	Cash	2021-12-12 21:41:00
7	P106	A07	300	55	Card	2021-12-12 21:41:00
8	P107	A08	300	60	Card	2021-12-12 21:41:00
9	P108	A09	300	0	Debit Card	2021-12-12 21:41:00
10	P109	A10	500	65	Debit Card	2021-12-12 21:41:00

Salaries table:

```
INSERT INTO Salaries
(Cheque_id,Employee_id,Employee_type,Hours_worked,Salary,salary_date)
VALUES
    ('C01','E01','Staff',170,3400,'2021-11-30 '),
   ('C02','E02','Staff',160,3200,'2021-11-30 '),
   ('C03','E03','Staff',170,3400,'2021-11-30 '),
   ('C04','E04','Instructor',60,2400,'2021-11-30 '),
   ('C05','E05','Instructor',50,2000,'2021-11-30 '),
   ('C06','E06','Instructor',70,2800,'2021-11-30 ');

select * from Salaries;
```

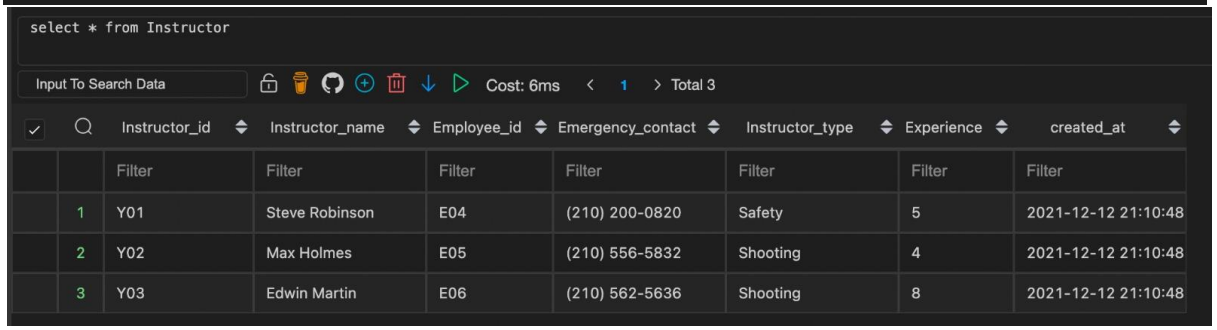
```
select * from Salaries
```

Input To Search Data | Cost: 2ms | 1 | Total 6

	Cheque_id	Employee_id	Employee_type	Hours_worked	salary	Salary_date	created_at
	Filter	Filter	Filter	Filter	Filter	Filter	Filter
1	C01	E01	Staff	170	3400	2021-11-30	2021-12-12 21:08:39
2	C02	E02	Staff	160	3200	2021-11-30	2021-12-12 21:08:39
3	C03	E03	Staff	170	3400	2021-11-30	2021-12-12 21:08:39
4	C04	E04	Instructor	60	2400	2021-11-30	2021-12-12 21:08:39
5	C05	E05	Instructor	50	2000	2021-11-30	2021-12-12 21:08:39
6	C06	E06	Instructor	70	2800	2021-11-30	2021-12-12 21:08:39

Instructor table:

```
INSERT INTO Instructor
(Instructor_id,Instructor_name,Employee_id,Emergency_contact,Instructor_type,experi
ence)
VALUES
   ('Y01','Steve Robinson','E04','(210) 200-0820','Safety',' 5 '),
   ('Y02','Max Holmes','E05','(210) 556-5832','Shooting',' 4 '),
   ('Y03','Edwin Martin','E06','(210) 562-5636','Shooting',' 8 ');
select * from Instructor;
```



	Instructor_id	Instructor_name	Employee_id	Emergency_contact	Instructor_type	Experience	created_at
	Filter	Filter	Filter	Filter	Filter	Filter	Filter
1	Y01	Steve Robinson	E04	(210) 200-0820	Safety	5	2021-12-12 21:10:48
2	Y02	Max Holmes	E05	(210) 556-5832	Shooting	4	2021-12-12 21:10:48
3	Y03	Edwin Martin	E06	(210) 562-5636	Shooting	8	2021-12-12 21:10:48

Customer_Coach Table:

```
INSERT INTO customer_coach VALUES
   ('C01','Y02'),
   ('C02','Y02'),
   ('C03','Y03'),
   ('C04','Y03'),
   ('C05','Y03'),
   ('C06','Y02'),
   ('C07','Y02'),
   ('C08','Y02'),
   ('C09','Y02'),
   ('C10','Y03');


select * from customer_coach;
```

```
select * from customer_coach
```

Input To Search Data

		Customer_id	Instructor_id
		Filter	Filter
	1	C01	Y02
	2	C02	Y02
	3	C03	Y03
	4	C04	Y03
	5	C05	Y03
	6	C06	Y02
	7	C07	Y02
	8	C08	Y02
	9	C09	Y02
	10	C10	Y03

—----------INSERTIONS ARE DONE—----------

4. QUERIES

Inner Join:

So I am performing an INNER JOIN for two tables; employees and salaries tables to get the details of Employees and their respective Salaries

```
--Inner JOIN
select e.Employee_id,e.Employee_name,s.Hours_worked,s.salary as "Salary in $"
from employees e
INNER JOIN Salaries s
ON e.Employee_id=s.Employee_id;
```

```
select e.Employee_id,e.Employee_name,s.Hours_worked,s.salary as
"Salary in $"
from employees e
INNER JOIN Salaries s
ON e.Employee_id=s.Employee_id
```

Input To Search Data Cost: 5ms

1 Total 6

	* Employee_id varchar(255)	Employee_name varchar(255)	Hours_worked	Salary in $
	Filter	Filter	Filter	Filter
1	E01	Beth Meyers	170	3400
2	E02	John Smith	160	3200
3	E03	Andrew Johnson	170	3400
4	E04	Robert Smith	60	2400
5	E05	Don Johnson	50	2000
6	E06	Danver Johnson	70	2800

Full Join:

Since Mysql does not support outer joins, we will emulate it in a way shown using "UNION"

```
--Full JOIN
select
c.Customer_id,a.Booking_id,c.Customer_name,a.Appointment_date,a.Appointment_time as
'Appointment Time(in Hrs)'
from customer c
left join Appointments a
on c.Customer_id=a.customer_id
UNION
select
c.Customer_id,a.Booking_id,c.Customer_name,a.Appointment_date,a.Appointment_time
from customer c
right outer join Appointments a
on c.Customer_id=a.customer_id;
```

	Customer_id varchar(255)	Booking_id	Customer_name varchar(255)	Appointment_date	Appointment Time(in
	Filter	Filter	Filter	Filter	Filter
1	C01	A01	Stephen Johnson	2021-10-25	09:15
2	C02	A02	Jacqueline Johnson	2021-10-27	10:15
3	C03	A03	Michelle Smith	2021-10-28	10:30
4	C04	A04	Connie Johnson	2021-10-29	10:45
5	C05	A05	Geoffrey Smith	2021-10-30	11
6	C06	A06	Jeanne Smith	2021-11-01	11:30
7	C07	A07	Billy Johnson	2021-11-02	12
8	C08	A08	Annette Philip	2021-11-04	13:15
9	C09	A09	Clay Johnson	2021-11-09	14:30
10	C10	A10	Valeeta Smith	2021-11-10	14:45

Left Join:

```
--left outer JOIN
--get the customer_id of customers whose balance payment is more that 50$
select p.payment_id,p.booking_id,p.balance_amount,a.customer_id
FROM payment p
LEFT OUTER JOIN appointments a
ON a.booking_id = p.booking_id
WHERE balance_amount > 50;
```

	payment_id	booking_id	balance_amount	customer_id
	Filter	Filter	Filter	Filter
1	P100	A01	100	C01
2	P103	A04	75	C04
3	P104	A05	90	C05
4	P105	A06	80	C06
5	P106	A07	55	C07
6	P107	A08	60	C08
7	P109	A10	65	C10

Intersect :

```
--Intersect workaround
--get the details of all employees who are instructors
SELECT employee_id,
     employee_name,
     employee_address,
     employee_ssn,
     employee_type
FROM employees
 WHERE employee_id IN(SELECT employee_id from instructor);
```

	employee_id	employee_name	employee_address	employee_ssn	employee_type
	Filter	Filter	Filter	Filter	Filter
1	E04	Robert Smith	27244 Mickelson Dr	68645533	FTE
2	E05	Don Johnson	1150 June Ct	89766631	PTE
3	E06	Danver Johnson	411 East St N	42522942	PTE

Except:

```
--except workaround
--get the details of all employees except instructor
SELECT employee_id,
     employee_name,
     employee_address,
     employee_ssn,
     employee_type
FROM employees
 WHERE employee_id NOT IN(SELECT employee_id from instructor);
```

Input To Search Data Cost: 36ms 1 Total 3

	employee_id	employee_name	employee_address	employee_ssn	employee_type
	Filter	Filter	Filter	Filter	Filter
1	E01	Beth Meyers	9714 Summit Bend Ln	32201346	PTE
2	E02	John Smith	704 Valley St	54349837	FTE
3	E03	Andrew Johnson	21224 380th Ave	86671296	FTE

Union:

So I performed UNION operation to get details of customers who have instructors with ids Y02 and Y03

```sql
SELECT c.Customer_id,b.Instructor_id,c.Customer_name
from customer c
join customer_coach b
on c.Customer_id=b.Customer_id
WHERE b.Instructor_id='Y03'
UNION
SELECT c.Customer_id,b.Instructor_id,c.Customer_name
from customer c
join customer_coach b
on c.Customer_id=b.Customer_id
WHERE b.Instructor_id='Y02'
ORDER BY Customer_id;
```

	* Customer_id varchar(255)	Instructor_id	Customer_name varchar(255)
	Filter	Filter	Filter
1	C01	Y02	Stephen Johnson
2	C02	Y02	Jacqueline Johnson
3	C03	Y03	Michelle Smith
4	C04	Y03	Connie Johnson
5	C05	Y03	Geoffrey Smith
6	C06	Y02	Jeanne Smith
7	C07	Y02	Billy Johnson
8	C08	Y02	Annette Philip
9	C09	Y02	Clay Johnson
10	C10	Y03	Valeeta Smith

THANK YOU
THE END