

2020

ITE1003 – Database Management System

Project Report

Deadly Drones Battleground

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Abstract -:

Our project revolves around the working of a drone battleground.

In these modern, stressful times, this is a proposal for people to release their stress and lighten their moods. The main idea behind this is to maintain the battleground and manage the day to day activity of the place.

The gist would be to monitor the arenas, the available drones and the time slots with their booking. Functions to be able to register for a time slot, a particular arena. All the information of the drones that are being owned by the organisation.

The updation of the details of the drones and the time slots. Addition of the details of new drones, time slots. Deletion of the worn-out drones from the database.

The details of the customers in an arena, such as their name and their phone number, and all the drones associated with them.

Data Requirements

- We need to store the information of various arenas. This information includes different arena details, time slots, drone availability, drone ids assigned to each arena and price charged for the time slots. Arena ID should be unique and be present for each arena.
- Player information is stored for each player who visits the battle-arena. This data is stored for retrieval of a player's details when required either for player queries regarding previous playing instances or by the organization to monitor a player record. Player information should include his/her name, phone number and email. Player's contact number can be used to uniquely identify a player information and it should be given by each player who plays over there.
- Details of drones which are purchased for various arenas must be stored. These details can be referred when a group wants to play. They should include drone's unique id, controller id and color. Id of the drone can be used to uniquely identify each drone and it will be generally provided at the time of purchasing a particular time slot.

- Whenever there is a sale, then details like discount percent, start date, end date of the sale must be stored to refer while billing. These details may differ according to the organization needs at that present time.
- Bill generated on every acquirement of time slot must be stored so the playing history can be traced and referred when necessary. It should also display date, time, arena chosen, time slot and amount paid.
- The details of arenas and drone used by a player is a necessary data that is needed for reference when a player comes up with a query related to the arenas or payment. This data should include arena, drone, amount paid as well as bill number issued.

Functional Requirements

Scenarios of adding new data

- Add new play arena
- Add new player details
- Add new drones
- Add sale offers
- Addition of time slot price
- Add time slot

Scenarios of updating old data

- Update the playing arenas
- Updating registered players information
- Update the price of slot
- Update the time slots
- Increase or decrease ongoing sale
- Updating drone information

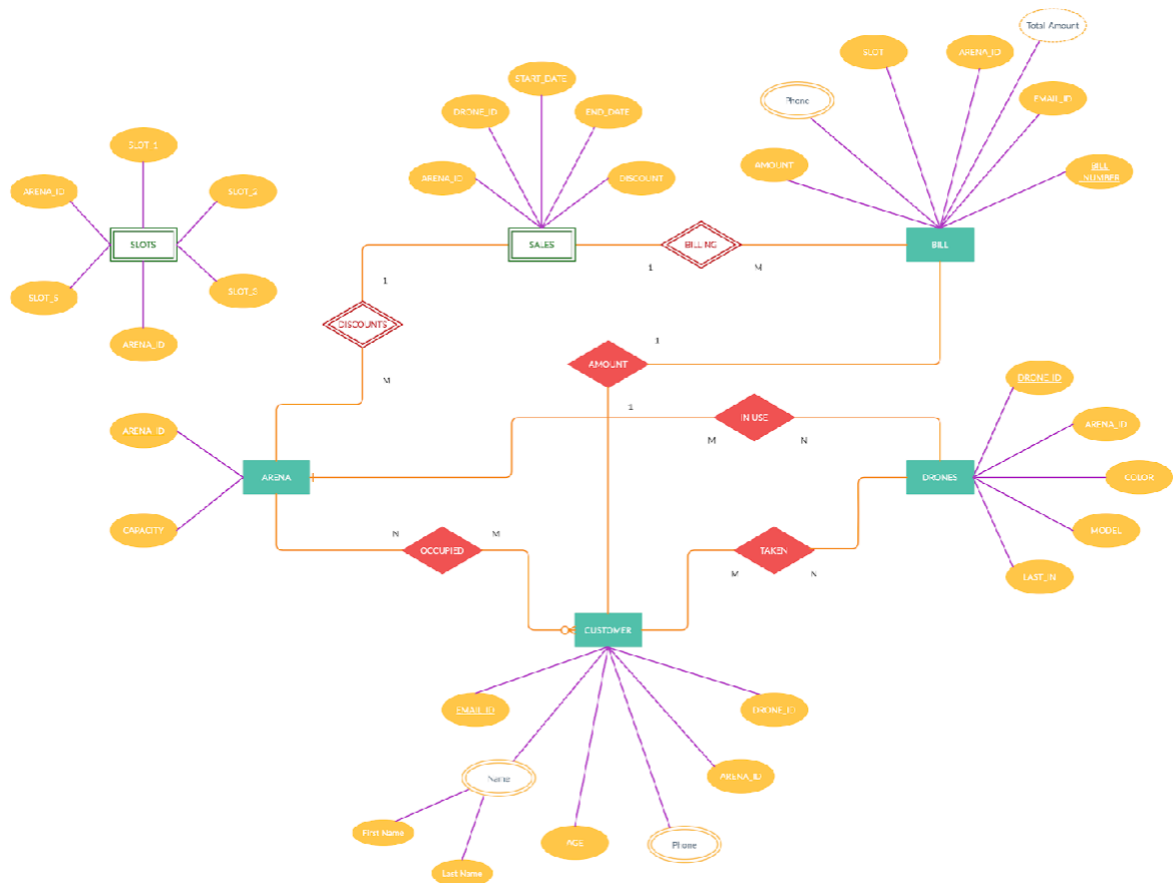
Scenarios of deleting old data

- Delete sale info and sale's end date
- Delete player's details after 2 years
- Deletion of damaged drones
- Removing of time slots
- Removing of arenas

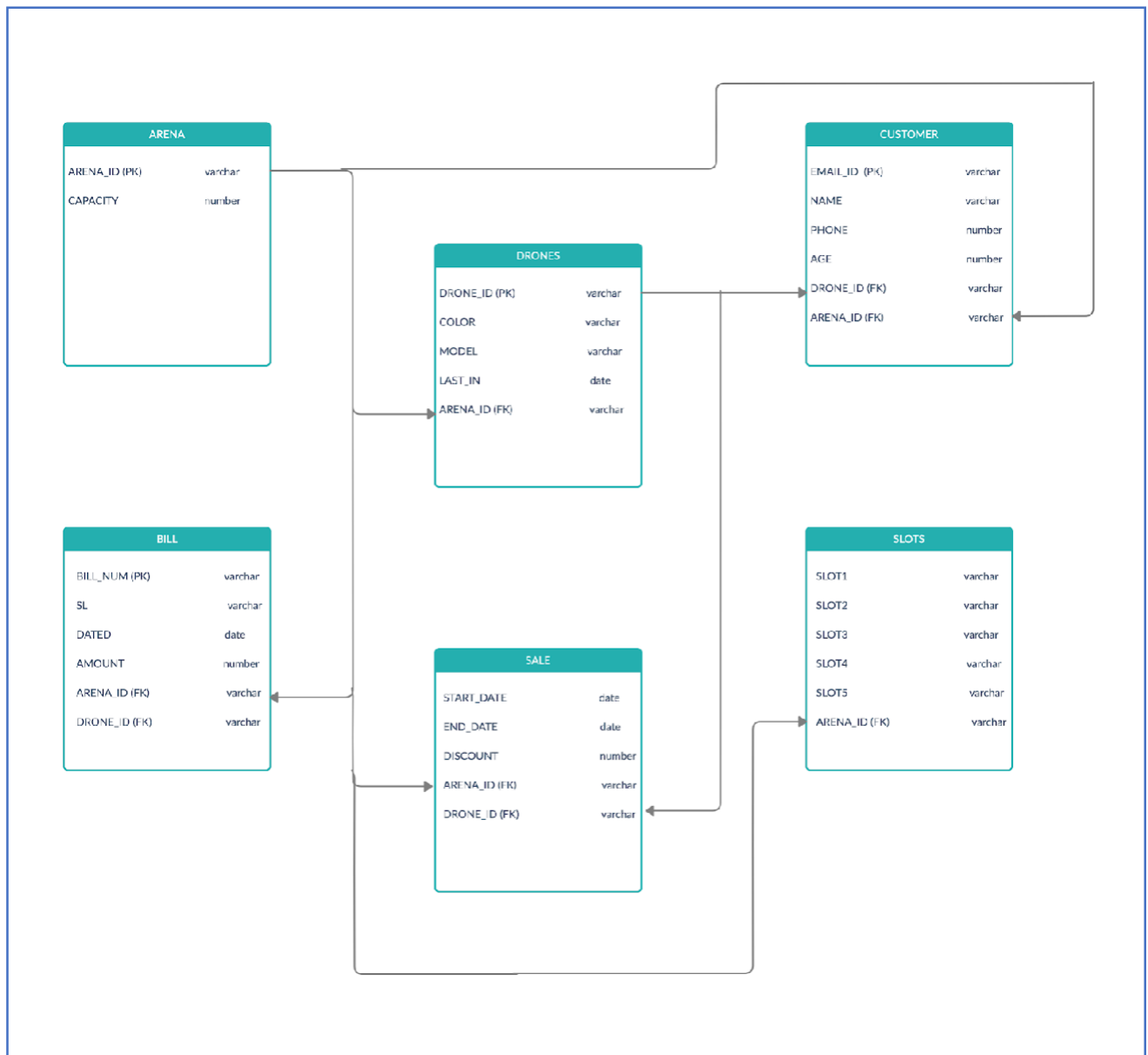
Scenarios of retrieving some data

- Getting the last played details of a player
- Details of drones
- Details of all time slots and arenas
- Details of drones used by a person

ER Diagram



Relational Schema Diagram



Tables

1. Arena

Attribute	Data Type	Constraints
arena_id	varchar(10)	Primary key
capacity	number(3)	Not Null

2. Drone

Attribute	Data Type	Constraints
drone_id	varchar(10)	Primary key
color	varchar(10)	Not Null
model_	varchar(10)	Not Null
last_in	date	Not Null
arena_id	varchar(10)	Foreign id of Arena

3. Customer

Attribute	Data Type	Constraints
names	varchar(50)	Not Null
email	varchar(50)	Primary key
phone	number(10)	Multi valued
arena_id	varchar(10)	Foreign id of Arena
drone_id	varchar(10)	Foreign id of drones
age	number(3)	Not Null, age>=15

4. Slots

Attribute	Data Type	Constraints
slot1	varchar(20)	Not Null
slot2	varchar(20)	Not Null
slot3	varchar(20)	Not Null
slot4	varchar(20)	Not Null
slot5	varchar(20)	Not Null

5. Sale

Attribute	Data Type	Constraints
arena_id	varchar(10)	Foreign id of Arena
drone_id	varchar(10)	Foreign id of drones
start_date	date	Null
end_date	date	Null
discount	number(2)	Null

6. Bill

Attribute	Data Type	Constraints
email	varchar(50)	Foreign id of customer
arena_id	varchar(10)	Foreign id of Arena
slot	varchar(20)	Null
dated	date	Date
amount	number(10)	Null
Total amount	number	Derieved

Table Creation Code

Arena

```
create table arena (  
  arena_id varchar(10),  
  capacity_ number(3) not NULL,  
  PRIMARY key(arena_id)  
);
```

Drones

```
create table drones (  
  drone_id varchar(10),  
  color varchar(10),  
  model_ varchar(10) NOT NULL,  
  last_in date ,  
  arena_id varchar(10),  
  PRIMARY KEY(drone_id),  
  FOREIGN key (arena_id) REFERENCES arena(arena_id)  
);
```

Customer

```
create table customer(  
  names varchar(50) NOT NULL,  
  email varchar(50),  
  phone number(10),  
  arena_id varchar(10),  
  drone_id varchar(10),  
  age number(3) CHECK (age>=15),  
  PRIMARY key (email),  
  FOREIGN key (arena_id) REFERENCES arena(arena_id),  
  FOREIGN key (drone_id) REFERENCES drones(drone_id)  
);
```

Slots

```
create table slots (  
  slot1 varchar(20) not NULL,  
  slot2 varchar(20) not NULL,  
  slot3 varchar(20) not NULL,  
  slot4 varchar(20) not NULL,  
  slot5 varchar(20) not NULL,  
  arena_id varchar(10)  
);
```

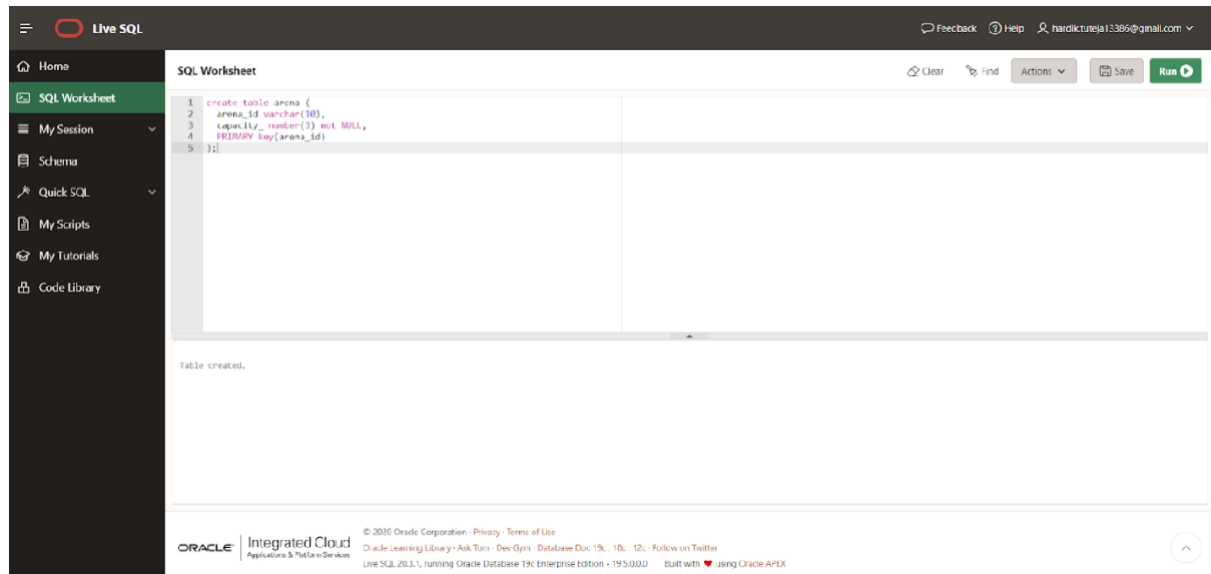
Sale

```
create table sale(  
arena_id varchar(10),  
drone_id varchar(10),  
start_date date,  
end_date date,  
discount number(2),  
FOREIGN key (arena_id) REFERENCES arena(arena_id),  
FOREIGN key (drone_id) REFERENCES drones(drone_id)  
);
```

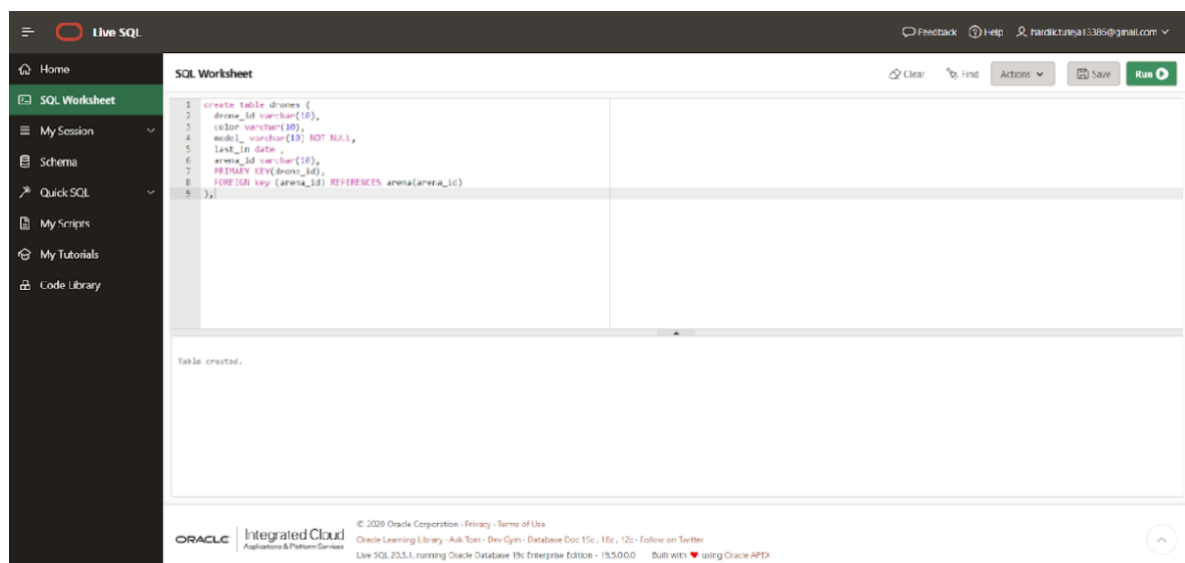
Bill

```
create TABLE bill (  
email varchar(50),  
arena_id varchar(10),  
slot varchar(20),  
dated date,  
amount number(10),  
bill_number varchar(10),  
primary key (bill_number),  
FOREIGN key (email) REFERENCES customer(email),  
FOREIGN key (arena_id) REFERENCES arena(arena_id)  
);
```


Arena



Drones



Customer

The screenshot shows the Live SQL web application interface. On the left is a dark sidebar with navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains a code editor with the following SQL script:

```
1 create table customer(  
2   name varchar(50) not null,  
3   email varchar(50),  
4   phone number(10),  
5   arena_id varchar(10),  
6   drone_id varchar(10),  
7   age number(3) check (age > 15),  
8   primary key (email),  
9   foreign key (arena_id) references arena(arena_id),  
10  foreign key (drone_id) references drone(drone_id)  
11 );
```

Below the code editor, a message states 'Table created.' The footer of the interface includes the Oracle logo, 'Integrated Cloud Applications & Platform Services', and copyright information for 2020 Oracle Corporation.

Slots

The screenshot shows the Live SQL web application interface. On the left is a dark sidebar with navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains a code editor with the following SQL script:

```
1 create table slots (  
2   slot1 varchar(20) not null,  
3   slot2 varchar(20) not null,  
4   slot3 varchar(20) not null,  
5   slot4 varchar(20) not null,  
6   slot5 varchar(20) not null,  
7   arena_id varchar(10)  
8 );
```

Below the code editor, a message states 'Table created.' The footer of the interface includes the Oracle logo, 'Integrated Cloud Applications & Platform Services', and copyright information for 2020 Oracle Corporation.

Sale

The screenshot shows the Live SQL web application interface. On the left is a dark sidebar with navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains a text editor with the following SQL code:

```
1 create table sale{
2   arena_id varchar(10),
3   drone_id varchar(10),
4   start_date date,
5   end_date date,
6   discount number(2),
7   FOREIGN key (arena_id) REFERENCES arena(arena_id),
8   FOREIGN key (drone_id) REFERENCES drones(drone_id)
9 }
```

Below the editor, a message states 'Table created.' The top right of the interface includes a 'Live SQL' logo, a feedback icon, a help icon, and a user profile icon for 'hardik.tuteja13305@gmail.com'. Action buttons for 'Clear', 'Find', 'Actions', 'Save', and 'Run' are located above the editor. The footer contains Oracle and Integrated Cloud logos, copyright information for 2020, and links to Oracle Learning Library, Ask Tom, Dev Gym, Database Doc, and Twitter.

Bill

The screenshot shows the Live SQL web application interface. On the left is a dark sidebar with navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains a text editor with the following SQL code:

```
1 create TABLE bill {
2   email varchar(50),
3   arena_id varchar(10),
4   plot varchar(20),
5   dated date,
6   amount number(10),
7   FOREIGN key (email) REFERENCES customer(email),
8   FOREIGN key (arena_id) REFERENCES arena(arena_id)
9 }
```

Below the editor, a message states 'Table created.' The top right of the interface includes a 'Live SQL' logo, a feedback icon, a help icon, and a user profile icon for 'hardik.tuteja13305@gmail.com'. Action buttons for 'Clear', 'Find', 'Actions', 'Save', and 'Run' are located above the editor. The footer contains Oracle and Integrated Cloud logos, copyright information for 2020, and links to Oracle Learning Library, Ask Tom, Dev Gym, Database Doc, and Twitter.

Insertion

Arena

```
INSERT into arena values('AR001',12);  
INSERT into arena values('AR002',10);  
INSERT into arena values('AR003',12);  
INSERT into arena values('AR004',16);  
INSERT into arena values('AR005',12);
```

Drones

```
INSERT into drones values('DR001','BLACK','MOD111','26-  
AUG-2020','AR004');  
INSERT into drones values('DR002','RED','MOD121','26-AUG-  
2020','AR004');  
INSERT into drones values('DR003','BLUE','MOD131','26-  
AUG-2020','AR004');  
INSERT into drones values('DR004','BLACK','MOD141','26-  
AUG-2020','AR004');  
INSERT into drones values('DR005','BLACK','MOD151','26-  
AUG-2020','AR001');  
INSERT into drones values('DR006','WHITE','MOD161','26-  
AUG-2020','AR004');  
INSERT into drones values('DR007','GREEN','MOD171','26-  
AUG-2020','AR001');  
INSERT into drones values('DR008','RED','MOD181','26-AUG-  
2020','AR001');  
INSERT into drones values('DR009','WHITE','MOD191','26-  
AUG-2020','AR001');
```

```
INSERT into drones values('DR0010','BLACK','MOD211','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0011','RED','MOD221','26-  
AUG-2020','AR001');  
INSERT into drones values('DR0012','WHITE','MOD231','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0013','BLACK','MOD241','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0014','GREEN','MOD251','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0015','BLACK','MOD261','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0016','GREEN','MOD271','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0017','WHITE','MOD281','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0018','GREEN','MOD291','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0019','BLUE','MOD301','26-  
AUG-2020','AR001');  
INSERT into drones values('DR0020','BLACK','MOD311','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0021','BLUE','MOD321','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0022','GREEN','MOD331','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0023','WHITE','MOD341','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0024','BLACK','MOD351','26-  
AUG-2020','AR001');
```

```
INSERT into drones values('DR0025','BLUE','MOD361','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0026','GREEN','MOD371','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0027','WHITE','MOD381','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0028','RED','MOD391','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0029','BLACK','MOD411','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0030','BLUE','MOD421','26-  
AUG-2020','AR001');  
INSERT into drones values('DR0031','BLACK','MOD431','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0032','BLUE','MOD441','26-  
AUG-2020','AR001');  
INSERT into drones values('DR0033','GREEN','MOD451','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0034','WHITE','MOD461','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0035','RED','MOD471','26-  
AUG-2020','');  
INSERT into drones values('DR0036','BLACK','MOD481','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0037','BLUE','MOD491','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0038','GREEN','MOD511','26-  
AUG-2020','');  
INSERT into drones values('DR0039','WHITE','MOD521','26-  
AUG-2020','');
```

```
INSERT into drones values('DR0040','RED','MOD531','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0041','BLACK','MOD541','26-  
AUG-2020','');  
INSERT into drones values('DR0042','BLUE','MOD551','26-  
AUG-2020','');  
INSERT into drones values('DR0043','GREEN','MOD561','26-  
AUG-2020','');  
INSERT into drones values('DR0044','WHITE','MOD571','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0045','RED','MOD581','26-  
AUG-2020','');  
INSERT into drones values('DR0046','BLACK','MOD591','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0047','BLUE','MOD611','26-  
AUG-2020','');  
INSERT into drones values('DR0048','GREEN','MOD621','26-  
AUG-2020','');  
INSERT into drones values('DR0049','WHITE','MOD631','26-  
AUG-2020','AR001');  
INSERT into drones values('DR0050','RED','MOD641','26-  
AUG-2020','');  
INSERT into drones values('DR0051','BLACK','MOD651','26-  
AUG-2020','AR004');  
INSERT into drones values('DR0052','BLUE','MOD661','26-  
AUG-2020','');  
INSERT into drones values('DR0053','GREEN','MOD671','26-  
AUG-2020','');  
INSERT into drones values('DR0054','WHITE','MOD681','26-  
AUG-2020','AR004');
```

```
INSERT into drones values('DR0055','RED','MOD691','26-  
AUG-2020','AR001');  
INSERT into drones values('DR0056','BLACK','MOD711','26-  
AUG-2020','');  
INSERT into drones values('DR0057','BLUE','MOD721','26-  
AUG-2020','');  
INSERT into drones values('DR0058','GREEN','MOD731','26-  
AUG-2020','');  
INSERT into drones values('DR0059','WHITE','MOD741','26-  
AUG-2020','AR001');  
INSERT into drones values('DR0060','RED','MOD751','26-  
AUG-2020','');
```

Customer

```
INSERT into customer  
values('ADARSH','abc001@gmail.com',9876543210,'AR004','DR001',  
19);  
INSERT into customer  
values('ADITYA','abc002@gmail.com',9876543102,'AR004','DR002',1  
8);  
INSERT into customer  
values('SHIVAM','abc003@gmail.com',9876345210,'AR004','DR003',1  
7);  
INSERT into customer  
values('RISHAB','abc004@gmail.com',9867543210,'AR004','DR004',1  
8);  
INSERT into customer  
values('MAYANK','abc005@gmail.com',9121543210,'AR001','DR005',  
19);
```



```
INSERT into customer
values('HANK','abc006@gmail.com',9787543210,'AR004','DR006',21)
;
INSERT into customer
values('FRANK','abc007@gmail.com',8555192971,'AR001','DR007',20
);
INSERT into customer
values('SCOTT','abc008@gmail.com',7555120569,'AR001','DR008',21
);
INSERT into customer
values('JOHN','abc009@gmail.com',8555166211,'AR001','DR009',21);
INSERT into customer
values('JANE','abc010@gmail.com',7555009390,'AR004','DR0010',21)
;
INSERT into customer
values('BEN','abc011@gmail.com',9655579148,'AR001','DR0011',20);
INSERT into customer
values('EDEN','abc012@gmail.com',9855522079,'AR004','DR0012',20
);
INSERT into customer
values('JAMES','abc013@gmail.com',8555674596,'AR004','DR0013',2
1);
INSERT into customer
values('TOM','abc014@gmail.com',8555019665,'AR004','DR0014',19)
;
INSERT into customer
values('RAJ','abc015@gmail.com',9955575864,'AR004','DR0015',22);
INSERT into customer
values('ALBA','abc016@gmail.com',7555972922,'AR004','DR0016',21
);
INSERT into customer
values('KALA','abc017@gmail.com',9755588852,'AR004','DR0017',21
);
```

```
INSERT into customer
values('FRED','abc018@gmail.com',7555617222,'AR004','DR0018',20
);
INSERT into customer
values('AFTAB','abc019@gmail.com',9055532303,'AR001','DR0019',2
0);
INSERT into customer
values('ANKIT','abc020@gmail.com',8555231113,'AR004','DR0020',2
0);
INSERT into customer
values('ANKIT','abc021@gmail.com',9455570827,'AR004','DR0021',2
0);
INSERT into customer
values('AMIS','abc022@gmail.com',8555881992,'AR004','DR0022',21
);
INSERT into customer
values('MARTIN','abc023@gmail.com',8555635531,'AR004','DR0023'
,22);
INSERT into customer
values('RAJU','abc024@gmail.com',7555394819,'AR001','DR0024',19
);
INSERT into customer
values('Bhavya','abc025@gmail.com',9455534287,'AR004','DR0025',
20);
INSERT into customer
values('GARV','abc026@gmail.com',9255530562,'AR004','DR0026',21
);
INSERT into customer
values('PARTH','abc027@gmail.com',8555719947,'AR004','DR0027',2
0);
INSERT into customer
values('DEVAL','abc028@gmail.com',7555841268,'AR004','DR0028',2
0);
```

```
INSERT into customer
values('RHEA','abc029@gmail.com',8555895606,'AR004','DR0029',22
);
INSERT into customer
values('VIDDUSHI','abc030@gmail.com',8555359803,'AR001','DR003
0',19);
INSERT into customer
values('JAY','abc031@gmail.com',8555059632,'AR004','DR0031',20);
INSERT into customer
values('RIYA','abc032@gmail.com',7555670216,'AR001','DR0032',21)
;
INSERT into customer
values('SHWETA','abc033@gmail.com',9055598392,'AR004','DR0033'
,22);
INSERT into customer
values('RINKI','abc034@gmail.com',7555872187,'AR004','DR0034',20
);
INSERT into customer
values('SHALU','abc035@gmail.com',7555474503,'AR004','DR0036',2
1);
INSERT into customer
values('REEMA','abc036@gmail.com',9755527431,'AR004','DR0037',
20);
INSERT into customer
values('AKBAR','abc037@gmail.com',8555781349,'AR004','DR0040',2
1);
INSERT into customer
values('BIRBAL','abc038@gmail.com',9455545063,'AR004','DR0044',
21);
INSERT into customer
values('BETAAL','abc039@gmail.com',9455578852,'AR004','DR0046',
20);
INSERT into customer
values('YASH','abc040@gmail.com',9755599615,'AR001','DR0049',22
);
```

Slots

```
INSERT into slots
values('AVAILABLE','BOOKED','BOOKED','AVAILABLE','BOOKED','AR001');
INSERT into slots
values('BOOKED','BOOKED','BOOKED','AVAILABLE','BOOKED','AR002');
INSERT into slots
values('AVAILABLE','BOOKED','AVAILABLE','AVAILABLE','BOOKED','AR003');
INSERT into slots
values('AVAILABLE','AVAILABLE','BOOKED','AVAILABLE','BOOKED','AR004');
INSERT into slots
values('BOOKED','BOOKED','BOOKED','AVAILABLE','BOOKED','AR005');
```

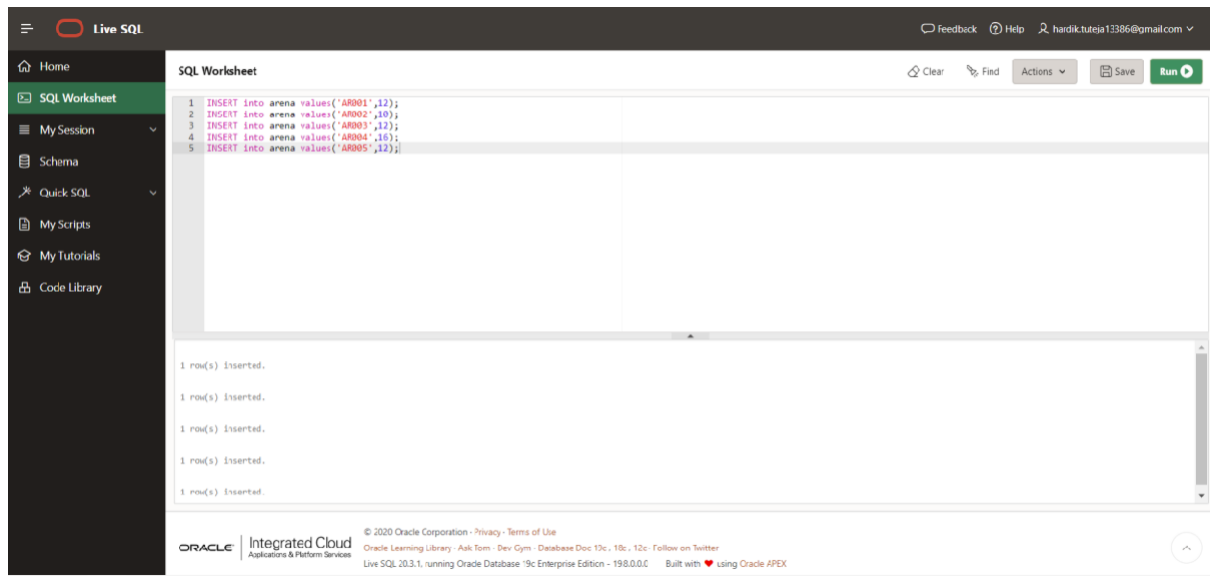
Sale

```
INSERT into sale values('AR001','DR001','01-SEP-2020','05-SEP-2020',10);
INSERT into sale values('AR003','DR003','01-OCT-2020','05-OCT-2020',10);
```

Bill

```
INSERT into bill values('abc001@gmail.com','AR001','11:00
AM - 01:00 PM','03-SEP-2020',1200,'BL001');
INSERT into bill values('abc002@gmail.com','AR001','06:00
PM - 07:30 PM','03-SEP-2020',1000,'BL011');
INSERT into bill values('abc003@gmail.com','AR004','04:00
PM - 06:00 PM','03-SEP-2020',1200,'BL013');
INSERT into bill values('abc004@gmail.com','AR004','11:00
AM - 01:00 PM','03-SEP-2020',1200,'BL015');
INSERT into bill values('abc006@gmail.com','AR004','02:30
PM - 04:00 PM','03-SEP-2020',1000,'BL019');
INSERT into bill values('abc0012@gmail.com','AR004','04:00
PM - 07:30 PM','03-SEP-2020',1000,'BL021');
INSERT into bill values('abc015@gmail.com','AR004','02:30
PM - 04:00 PM','03-SEP-2020',1200,'BL025');
INSERT into bill values('abc017@gmail.com','AR004','06:00
PM - 07:30 PM','03-SEP-2020',1000,'BL031');
INSERT into bill values('abc018@gmail.com','AR004','11:00
PM - 01:00 PM','03-SEP-2020',1200,'BL036');
INSERT into bill values('abc019@gmail.com','AR001','04:00
PM - 07:30 PM','03-SEP-2020',1000,'BL041');
```

Arena



The screenshot shows the Oracle Live SQL interface. On the left is a navigation menu with options: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains the following SQL code:

```
1 INSERT into arena values('AR001',12);
2 INSERT into arena values('AR002',10);
3 INSERT into arena values('AR003',12);
4 INSERT into arena values('AR004',16);
5 INSERT into arena values('AR005',12);
```

Below the code, the execution results are displayed, showing five rows inserted successfully:

```
1 row(s) inserted.
1 row(s) inserted.
1 row(s) inserted.
1 row(s) inserted.
1 row(s) inserted.
```

The footer of the interface includes the Oracle logo, 'Integrated Cloud Applications & Platform Services', and copyright information: '© 2020 Oracle Corporation - Privacy - Terms of Use'. It also mentions 'Oracle Learning Library - Ask Tom - Dev Gym - Database Doc 19c, 18c, 12c - Follow on Twitter' and 'Live SQL 20.3.1, running Oracle Database 19c Enterprise Edition - 19B.0.0.0 Built with using Oracle APEX'.

Drones



The screenshot shows the Oracle Live SQL interface. On the left is a navigation menu with options: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains 60 INSERT statements for the 'drones' table, each with a unique drone ID, color, and date. The execution results show 60 rows inserted successfully:

```
1 row(s) inserted.
1 row(s) inserted.
1 row(s) inserted.
1 row(s) inserted.
1 row(s) inserted.
```

The footer of the interface includes the Oracle logo, 'Integrated Cloud Applications & Platform Services', and copyright information: '© 2020 Oracle Corporation - Privacy - Terms of Use'. It also mentions 'Oracle Learning Library - Ask Tom - Dev Gym - Database Doc 19c, 18c, 12c - Follow on Twitter' and 'Live SQL 20.3.1, running Oracle Database 19c Enterprise Edition - 19B.0.0.0 Built with using Oracle APEX'.

Customer

Home

SQL Worksheet

My Session

Schema

Quick SQL

My Scripts

My Tutorials

Code Library

SQL Worksheet

ClearFindActionsSaveRun

```
1 INSERT into customer values('ADARSH','abc001@gmail.com','0876543210','AR004','DR001',10);
2 INSERT into customer values('ADITYA','abc002@gmail.com','0876543100','AR004','DR002',10);
3 INSERT into customer values('SHIVAM','abc003@gmail.com','0876545210','AR004','DR003',17);
4 INSERT into customer values('RISHAB','abc004@gmail.com','0876543210','AR004','DR004',10);
5 INSERT into customer values('MAYANK','abc005@gmail.com','0121543210','AR001','DR005',10);
6 INSERT into customer values('HARSH','abc006@gmail.com','9997541210','AR004','DR006',21);
7 INSERT into customer values('FRAANK','abc007@gmail.com','8555192971','AR001','DR007',20);
8 INSERT into customer values('SCOTT','abc008@gmail.com','7555120560','AR001','DR008',21);
9 INSERT into customer values('JOHN','abc009@gmail.com','8555166211','AR001','DR009',22);
10 INSERT into customer values('JANE','abc010@gmail.com','7555009100','AR004','DR010',21);
11 INSERT into customer values('BEN','abc011@gmail.com','9655579148','AR001','DR011',20);
12 INSERT into customer values('EDEN','abc012@gmail.com','9855521079','AR004','DR012',20);
13 INSERT into customer values('JAMES','abc013@gmail.com','5555674596','AR004','DR013',21);
14 INSERT into customer values('TONY','abc014@gmail.com','8555019665','AR004','DR014',19);
15 INSERT into customer values('RAJ','abc015@gmail.com','9955577804','AR004','DR015',22);
16 INSERT into customer values('ALBA','abc016@gmail.com','7555973922','AR004','DR016',21);
17 INSERT into customer values('VAIDA','abc017@gmail.com','9555588652','AR002','DR017',21);
18 INSERT into customer values('FRED','abc018@gmail.com','7555017222','AR004','DR018',20);
19 INSERT into customer values('AFIAB','abc019@gmail.com','9855512303','AR001','DR019',20);
20 INSERT into customer values('ADICT','abc020@gmail.com','5555211113','AR004','DR020',20);
21 INSERT into customer values('ADKTT','abc021@gmail.com','6455570837','AR004','DR021',20);
```

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

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Slots

Home

SQL Worksheet

My Session

Schema

Quick SQL

My Scripts

My Tutorials

Code Library

SQL Worksheet

ClearFindActionsSaveRun

```
1 INSERT into slots values('AVAILABLE','BOOKED','BOOKED','AVAILABLE','BOOKED','AR001');
2 INSERT into slots values('BOOKED','BOOKED','BOOKED','AVAILABLE','BOOKED','AR002');
3 INSERT into slots values('AVAILABLE','BOOKED','AVAILABLE','AVAILABLE','BOOKED','AR003');
4 INSERT into slots values('AVAILABLE','AVAILABLE','BOOKED','AVAILABLE','BOOKED','AR004');
5 INSERT into slots values('BOOKED','BOOKED','BOOKED','AVAILABLE','BOOKED','AR005');
6
```

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

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Sale

Live SQL

SQL Worksheet

```
1 INSERT into sale values('AR001','DR001','01-SEP-2020',10);
2 INSERT into sale values('AR003','DR003','01-OCT-2020',10);
3
```

1 row(s) inserted.

1 row(s) inserted.

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Bill

Live SQL

SQL Worksheet

```
1 INSERT into bill values('abc001@gmail.com','AR001','11:00 AM - 01:00 PM','03-SEP-2020',1000,'EL001');
2 INSERT into bill values('abc002@gmail.com','AR001','06:00 PM - 07:30 PM','03-SEP-2020',1000,'EL011');
3 INSERT into bill values('abc003@gmail.com','AR004','04:00 PM - 06:00 PM','03-SEP-2020',1200,'EL013');
4 INSERT into bill values('abc004@gmail.com','AR004','11:00 AM - 03:00 PM','03-SEP-2020',1200,'EL015');
5 INSERT into bill values('abc006@gmail.com','AR004','02:30 PM - 04:00 PM','03-SEP-2020',1000,'EL019');
6 INSERT into bill values('abc0012@gmail.com','AR004','04:00 PM - 07:30 PM','03-SEP-2020',1000,'EL021');
7 INSERT into bill values('abc015@gmail.com','AR004','02:30 PM - 04:00 PM','03-SEP-2020',1200,'EL025');
8 INSERT into bill values('abc017@gmail.com','AR004','06:00 PM - 07:30 PM','03-SEP-2020',1000,'EL031');
9 INSERT into bill values('abc018@gmail.com','AR004','11:00 PM - 01:00 PM','03-SEP-2020',1200,'EL036');
10 INSERT into bill values('abc019@gmail.com','AR001','04:00 PM - 07:30 PM','03-SEP-2020',1000,'EL041');
```

1 row(s) inserted.

1 row(s) inserted.

1 row(s) inserted.

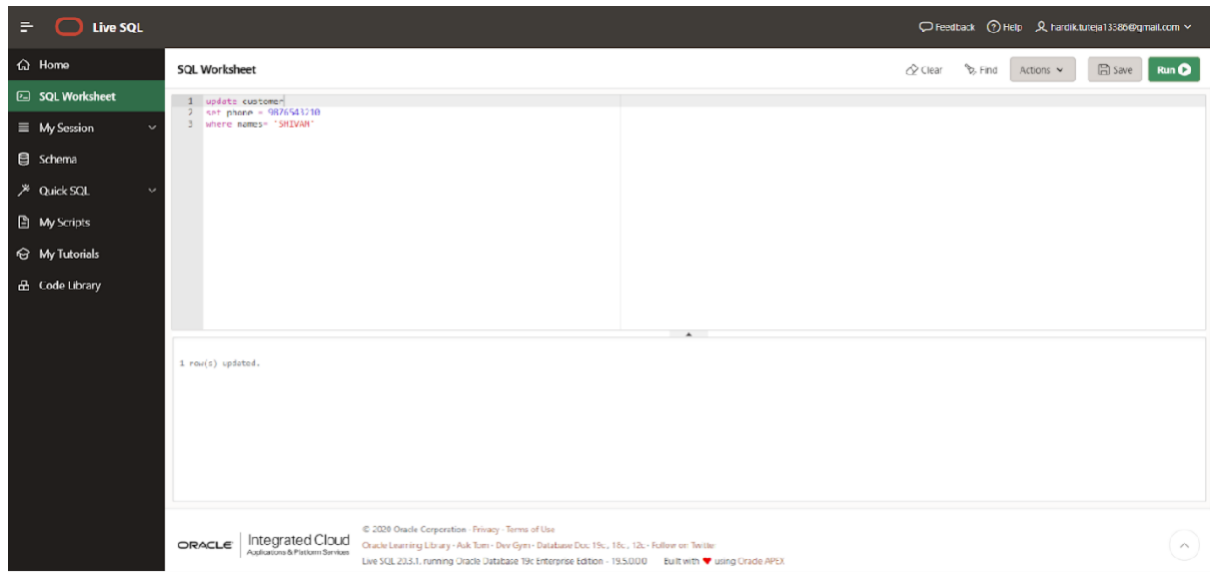
1 row(s) inserted.

1 row(s) inserted.

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Updation of Values

Customer's Number Updation

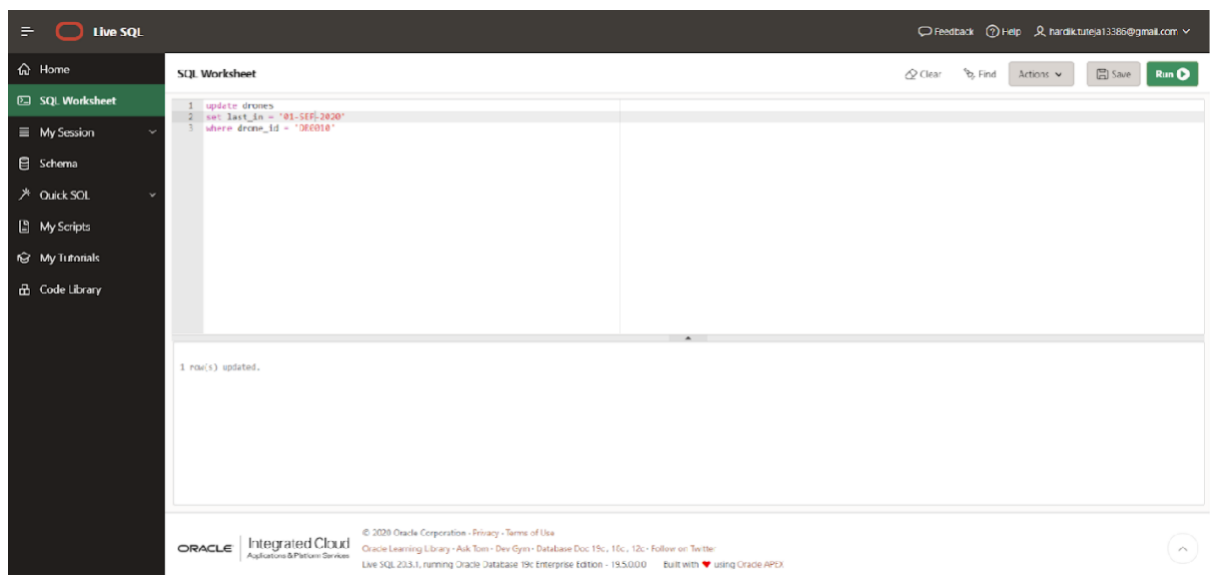


The screenshot shows the Live SQL interface. On the left is a sidebar with navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains a text editor with the following SQL query:

```
1 update customer
2 set phone = '9876543210'
3 where name = 'SHIVAN'
```

Below the editor, the execution result is displayed: '1 row(s) updated.' At the bottom of the interface, there is a footer with Oracle and Integrated Cloud logos, copyright information for 2020, and links to the Oracle Learning Library and Twitter.

Last Inspection of Drones



The screenshot shows the Live SQL interface. On the left is a sidebar with navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains a text editor with the following SQL query:

```
1 update drones
2 set last_ins = '01-SEP-2020'
3 where drone_id = '000010'
```

Below the editor, the execution result is displayed: '1 row(s) updated.' At the bottom of the interface, there is a footer with Oracle and Integrated Cloud logos, copyright information for 2020, and links to the Oracle Learning Library and Twitter.

Age of Customer

The screenshot shows the Live SQL web interface. On the left is a dark sidebar with navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains a text editor with the following SQL code:

```
1 update customer
2 set age = 32
3 where name = 'SARIL';
```

Below the editor, a status bar indicates '1 row(s) updated.' The top right of the interface includes links for Feedback, Help, and a user profile for hardik.tuteja13286@gmail.com. At the bottom, there is a footer with Oracle and Integrated Cloud logos, copyright information for 2020, and details about the Oracle Learning Library and Dev Gym environment.

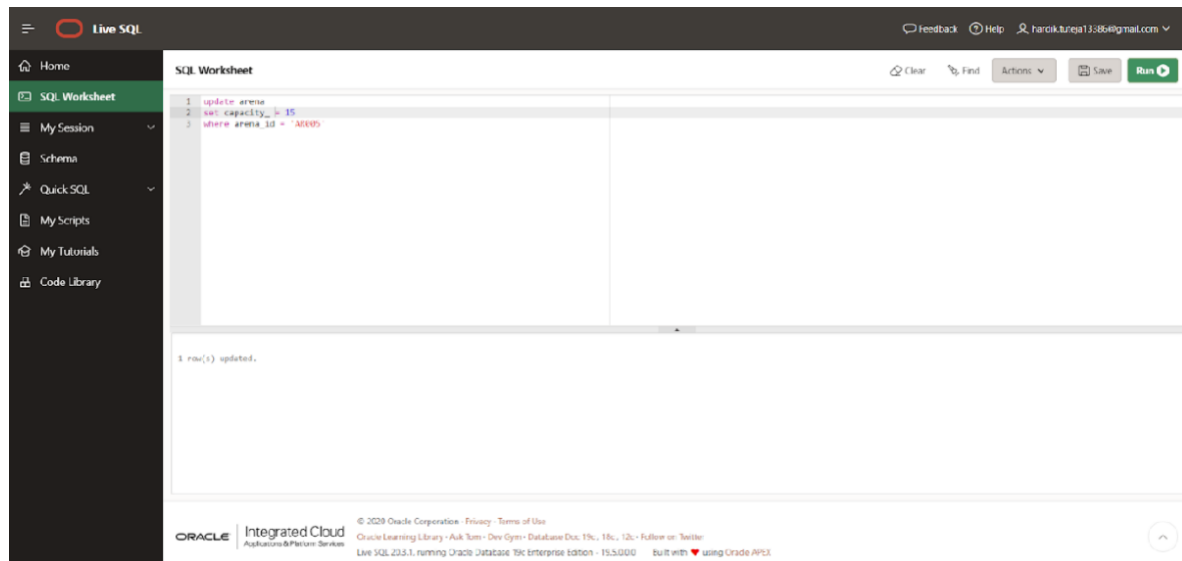
Sale End Date

The screenshot shows the Live SQL web interface. On the left is a dark sidebar with navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains a text editor with the following SQL code:

```
1 update sale
2 set end_date = '31-OCT-2020'
3 where end_date = '05-OCT-2020';
```

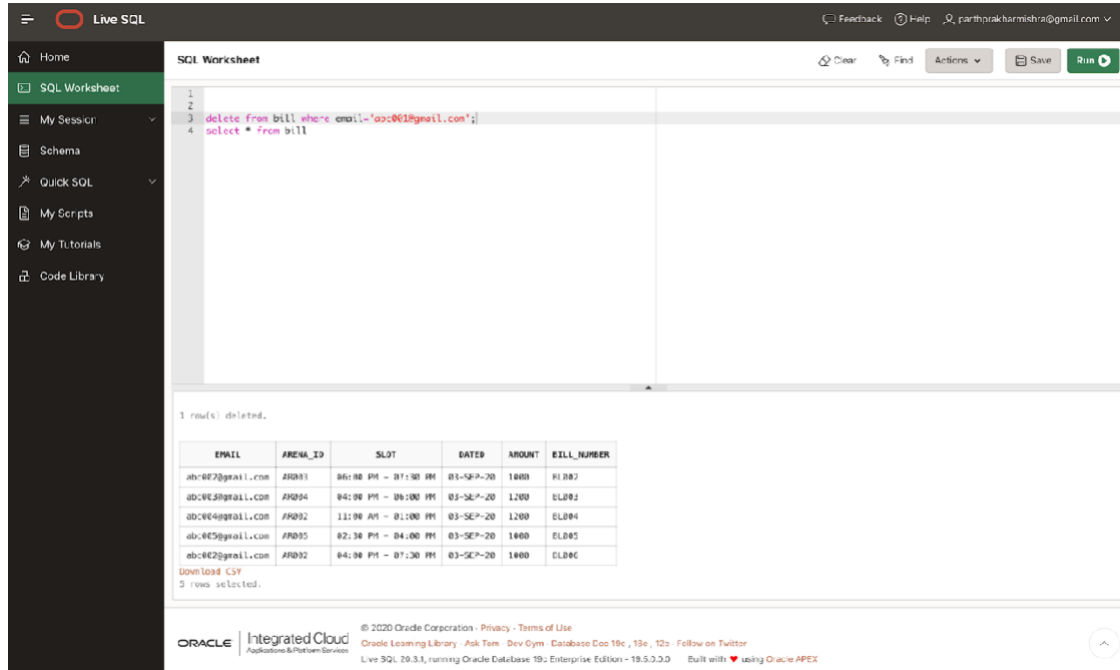
Below the editor, a status bar indicates '1 row(s) updated.' The top right of the interface includes links for Feedback, Help, and a user profile for hardik.tuteja13286@gmail.com. At the bottom, there is a footer with Oracle and Integrated Cloud logos, copyright information for 2020, and details about the Oracle Learning Library and Dev Gym environment.

Capacity of Arena



Deletion

Bill Deletion



The screenshot shows the Live SQL interface with the SQL Worksheet tab active. The SQL code entered is:

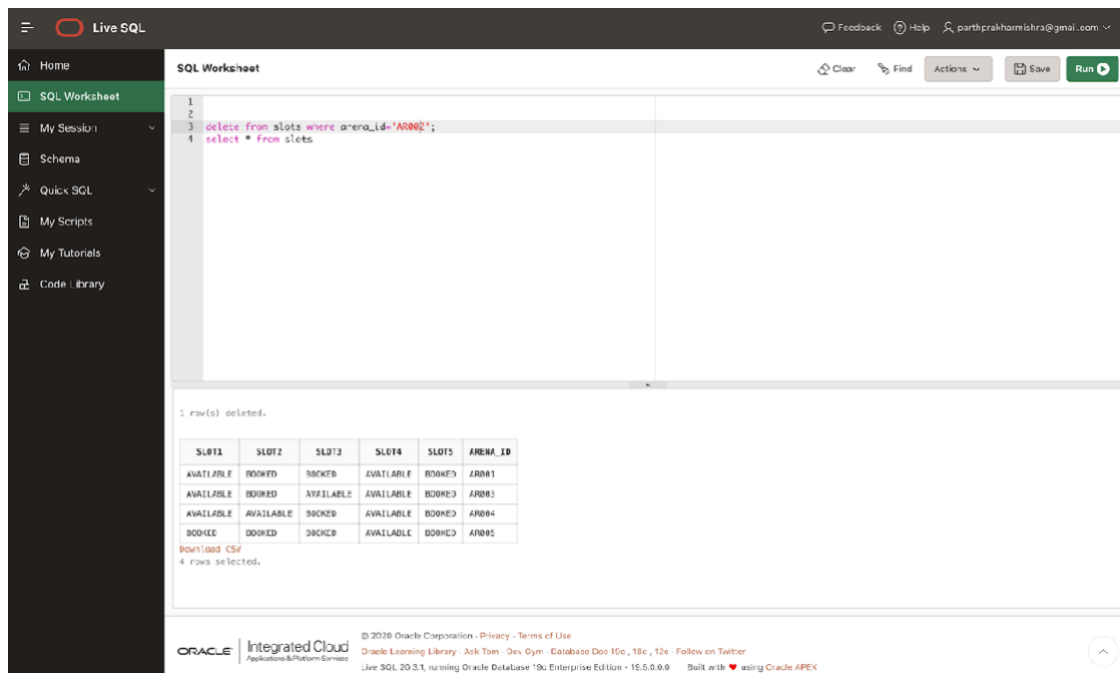
```
1  
2  
3 delete from bill where email='abc001@gmail.com';  
4 select * from bill
```

The execution result shows 1 row(s) deleted. Below the result, a table displays the remaining bill records:

EMAIL	ARENA_ID	SLOT	DATE	AMOUNT	BILL_NUMBER
abc002@gmail.com	AF001	06:00 PM - 07:30 PM	03-SEP-20	1000	EL001
abc003@gmail.com	AF004	04:00 PM - 05:00 PM	03-SEP-20	1200	EL002
abc004@gmail.com	AF002	11:00 AM - 01:00 PM	03-SEP-20	1200	EL004
abc005@gmail.com	AF005	02:30 PM - 04:00 PM	03-SEP-20	1000	EL005
abc002@gmail.com	AF002	04:00 PM - 07:30 PM	03-SEP-20	1000	EL006

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Slot Deletion



The screenshot shows the Live SQL interface with the SQL Worksheet tab active. The SQL code entered is:

```
1  
2  
3 delete from slots where arena_id='AF002';  
4 select * from slots
```

The execution result shows 1 row(s) deleted. Below the result, a table displays the remaining slot records:

SLOT1	SLOT2	SLOT3	SLOT4	SLOT5	ARENA_ID
AVAILABLE	BOOKED	BOOKED	AVAILABLE	BOOKED	AF001
AVAILABLE	BOOKED	AVAILABLE	AVAILABLE	BOOKED	AF003
AVAILABLE	AVAILABLE	BOOKED	AVAILABLE	BOOKED	AF004
BOOKED	BOOKED	BOOKED	AVAILABLE	BOOKED	AF005

At the bottom, the Oracle logo and Integrated Cloud Applications & Platform Services are visible, along with copyright information for 2020 Oracle Corporation.

Sale Deletion

The screenshot shows the Oracle Live SQL web interface. On the left is a dark sidebar with navigation links: Home, SQL Worksheet (selected), My Session, Scheme, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains a text editor with the following SQL code:

```
1  
2  
3 delete from sale where end_date='05-OCT-2020';  
4 select * from sale;
```

Below the editor, the execution results are displayed, showing '1 row(s) deleted.' and a table with the following data:

ARENA_ID	PHONE_ID	START_DATE	END_DATE	DISCOUNT
AR001	DP001	01-SEP-20	05-SEP-20	10

Below the table is a link to 'Download CSV'. At the bottom of the interface, there is a footer with Oracle branding and version information: '© 2020 Oracle Corporation - Privacy - Terms of Use', 'Oracle Learning Library - Ask Tom - Dev Gyaan - Database Doc 19c, 18c, 12c - Follow on Twitter', 'Live SQL 20.3.1, running Oracle Database 19c Enterprise Edition - 19.3.0.0.0', and 'Built with ❤️ using Oracle APEX'.

Queries

Customer in Particular Arena

The screenshot shows the Live SQL interface. The SQL Worksheet contains the following query:

```
1 select names from customer where arena_id = 'AR006Z';
```

The results table shows the following data:

NAMES
AULIYA
ANAN

Download CSV
2 rows selected.

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Drone in Particular Arena

The screenshot shows the Live SQL interface. The SQL Worksheet contains the following query:

```
1 select drone_id, color from drones where arena_id = 'AR006Z';
```

The results table shows the following data:

DRONE_ID	COLOR
DR006Z	RED
DR006Z	GREEN
DR006Z	WHITE
DR006Z	WHITE

Download CSV
4 rows selected.

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Name and Amount from Bill

The screenshot shows the Live SQL interface. The left sidebar contains navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains the following SQL query:

```
1 SELECT customer_names, bill.amount
2 FROM customer
3 INNER JOIN bill
4 ON customer_email = bill_email where bill_number = '10001';
```

Below the query editor, there is a table with the following data:

NAME	PHONE
SURESH	1234

At the bottom, there is a 'Download CSV' link. The footer includes the Oracle logo, 'Integrated Cloud Applications & Platform Services', and copyright information for 2020 Oracle Corporation.

Customer whose age =19

The screenshot shows the Live SQL interface. The left sidebar contains navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains the following SQL query:

```
1 select * from customer where age=19;
```

Below the query editor, there is a table with the following data:

NAME	EMAIL	PHONE	ADDRESS	PHONE_ID	AGE
NEHADE	abc009@gmail.com	9121543216	ADAMS	00005	19

At the bottom, there is a 'Download CSV' link. The footer includes the Oracle logo, 'Integrated Cloud Applications & Platform Services', and copyright information for 2020 Oracle Corporation.

Bill whose Amount >= 1100

The screenshot shows the Live SQL interface. The SQL Worksheet contains the query: `1 SELECT BILL_NUMBER FROM BILL WHERE AMOUNT >= 1100`. The results table shows three rows:

BILL_NUMBER
BL001
BL003
BL004

. Below the table, it says "Download CSV" and "3 rows selected." The footer includes Oracle and Integrated Cloud logos, copyright information for 2020, and mentions "Live SQL 20.3.1, running Oracle Database 19c Enterprise Edition - 19.0.0.0.0".

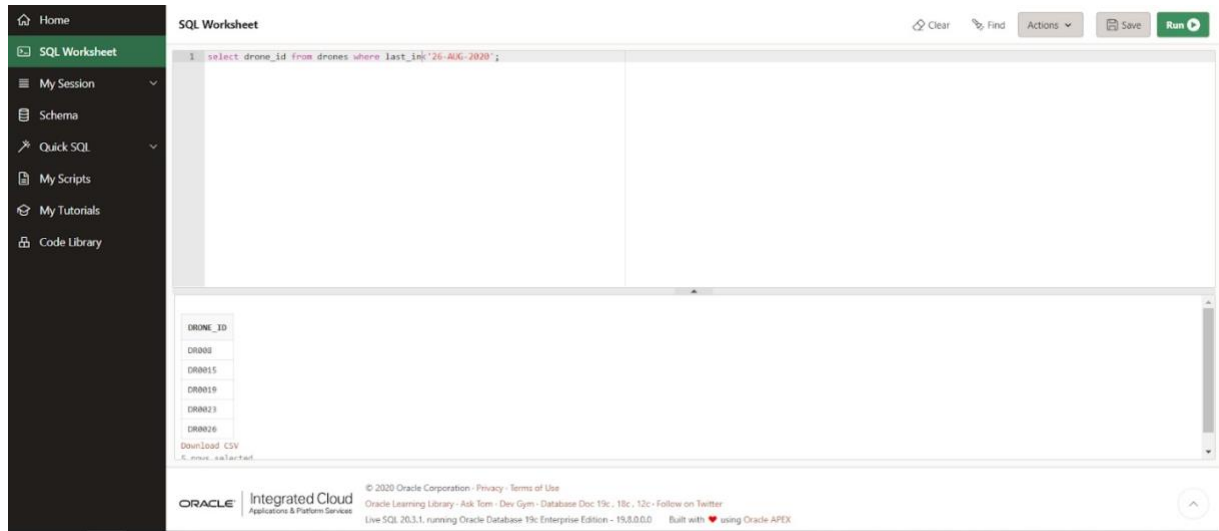
Total Amount Collected in a day

The screenshot shows the Live SQL interface. The SQL Worksheet contains the query: `1 Select SUM(amount) from BILL`. The results table shows one row:

SUM(AMOUNT)
5480

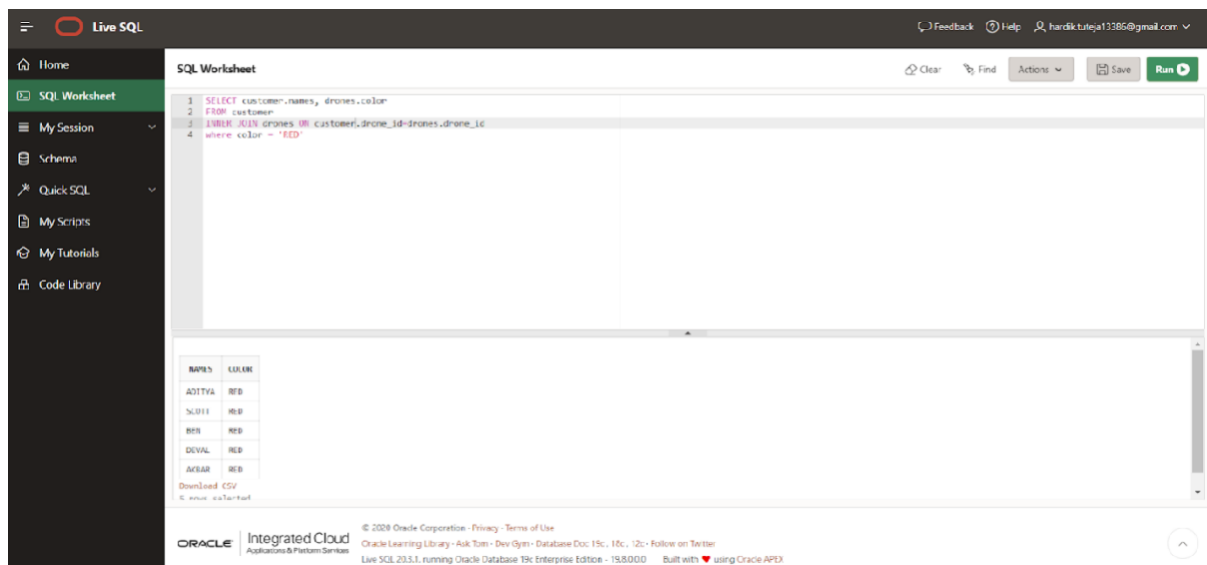
. Below the table, it says "Download CSV". The footer includes Oracle and Integrated Cloud logos, copyright information for 2020, and mentions "Live SQL 20.3.1, running Oracle Database 19c Enterprise Edition - 19.0.0.0.0".

Drones with due inspection



The screenshot shows the Oracle SQL Worksheet interface. The left sidebar contains navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area displays a SQL query: `select drone_id from drones where last_ins:'26-AUG-2020';`. Below the query editor, a table of results is shown with the header `DRONE_ID` and the following values: `DR000`, `DR0015`, `DR0019`, `DR0023`, and `DR0026`. A `Download CSV` link is present below the table. The footer includes the Oracle logo, Integrated Cloud Applications & Platform Services, and copyright information for 2020 Oracle Corporation.

All customers with Red color drones



The screenshot shows the Oracle SQL Worksheet interface. The left sidebar contains navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area displays a SQL query: `SELECT customer_names, drones.color FROM customer JOIN drones ON customer_id=drones.customer_id where color = 'RED';`. Below the query editor, a table of results is shown with the headers `NAMES` and `COLOR` and the following values: `ADITYA`, `SCOTT`, `BOB`, `DEVAL`, and `AKHAR`, all with the color `RED`. A `Download CSV` link is present below the table. The footer includes the Oracle logo, Integrated Cloud Applications & Platform Services, and copyright information for 2020 Oracle Corporation.

Phone number of customers from Email id

The screenshot shows the SQL Worksheet interface with a query to retrieve phone numbers from email IDs. The query is as follows:

```
1 SELECT customer.phone, customer.email, bill.bill_number
2 FROM customer
3 INNER JOIN bill ON customer.email=bill.email;
```

The result set displays the following data:

PHONE	EMAIL	BILL_NUMBER
9376543210	abc001@gmail.com	B-001
9468543210	abc002@gmail.com	B-002
9568543210	abc003@gmail.com	B-011
9367543210	abc004@gmail.com	B-012
9267543210	abc005@gmail.com	B-021
9365475863	abc01@gmail.com	B-078

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Email from name using PL

The screenshot shows the Live SQL interface with a PL/SQL query to retrieve email from a name. The query is as follows:

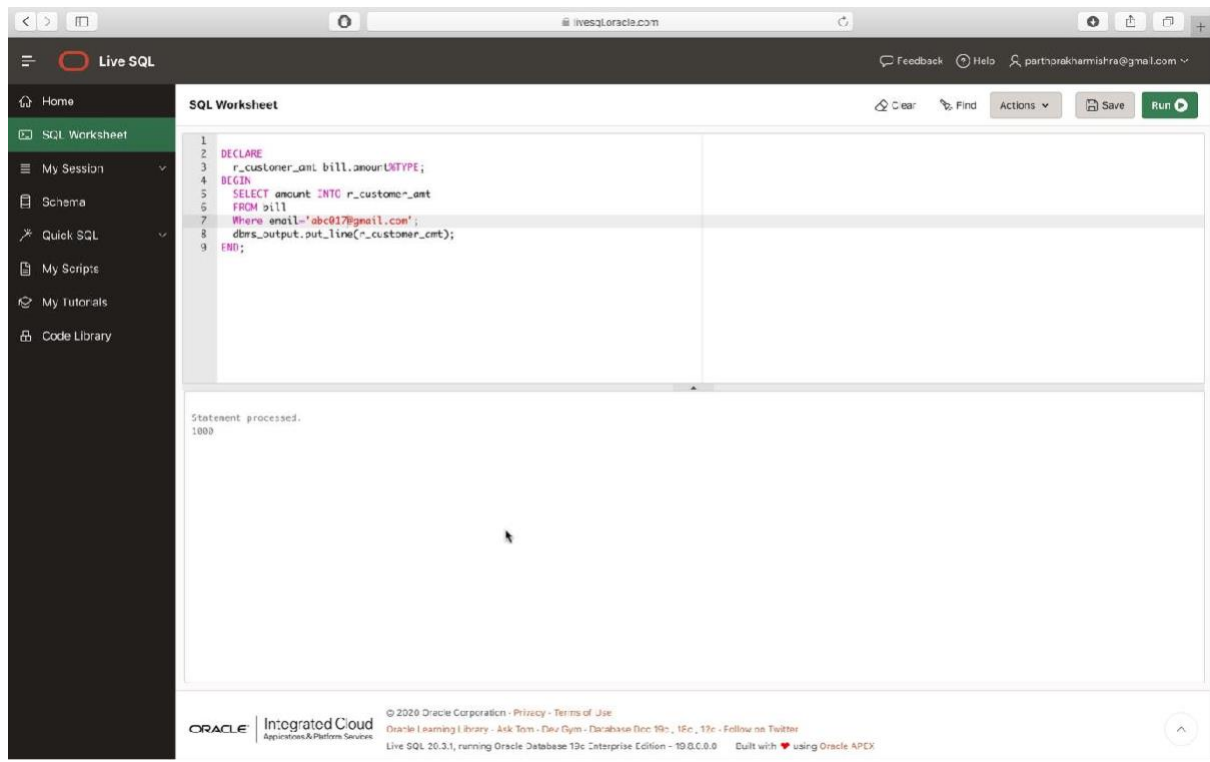
```
1 DECLARE
2   r_customer_email customer.email%TYPE;
3 BEGIN
4   SELECT email INTO r_customer_email
5   FROM customer
6   WHERE names='PARTH';
7   dbms_output.put_line(r_customer_email);
8 END;
```

The result set displays the following data:

```
Statement processed.
abc027@gmail.com
```

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Amount from bill number using PL/SQL



The screenshot shows the Oracle Live SQL web interface. The left sidebar contains navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains a PL/SQL script. The script declares a variable, selects the amount from the 'bill' table for a specific email, and outputs the result. The output shows 'Statement processed.' and '1000'.

```
1 DECLARE
2   r_customer_amt bill.amount%TYPE;
3 BEGIN
4   SELECT amount INTO r_customer_amt
5   FROM bill
6   WHERE email='abc01@gmail.com';
7   dbms_output.put_line(r_customer_amt);
8 END;
```

Statement processed.
1000

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Normalization

Entity	Normalised Form	Conversion	Tables Added
Drone	BCNF	-	-
Slot	1NF	On BCNF	5
Arena	BCNF	-	-
Bills	BCNF	-	-
Customer	BCNF	-	-
Sales	1NF	On BCNF	2

Illustration

For the relations “Sales”, “Slot”, no primary key is there, and candidate key will be all the attributes in the relation. Thus, these two relations are in 1NF normal form.

For the relations “Arena”, “Customer”, “Bill”, “Drones”, the primary key itself is the candidate key. All the functional relationals of the entities will have the primary key on the left side, therefore, the primary keys, “Arena_id”, “email_id”, “bill_no”, “drone_id” respectively are the candidate keys.

All of these relations are in BCNF, as for a relation to be in BCNF, for every functional dependency $\alpha \rightarrow \beta$, It should satisfy either of the following; α be a super key or β be a prime attribute. As every relation satisfies the first condition, they are in BCNF normal form.

On conversion of the 1NF entities in BNCF, 7 tables are further more added, keeping one attribute in same in the entities derived from 1 entity. These derived tables are in BCNF.