

Name: Ching Kung Lin Class: CS331 Date: 5/17 Project4

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Submission Date: 5/17

Project: 4

Tip: (ctrl + A → ctrl + shift + c to copy result with header)

1. Identify users that have not sent an attachment to a text message in the in 2020. Display the customer's name. Use a nested select to answer this question.

```
select
```

```
customer_first, customer_last
```

```
from verizon_customer
```

```
where customer_id in (select customer_id
```

```
                        from verizon_invoice
```

```
                        where device_imei
```

```
                        in (select device_imei
```

```
                        from verizon_texts
```

```
                        where number_of_attachment = 0 and
```

```
                        verizon_texts.text_status = 'sent' and
```

```
                        verizon_texts.text_date >= to_date('01/01/2020', 'DD/MM/YYYY') and
```

```
                        verizon_texts.text_date <= to_date('31/12/2020', 'DD/MM/YYYY')));
```

```
CUSTOMER_FIRST
```

```
CUSTOMER_LAST
```

```
Kain
```

```
Mandy
```

```
Stan
```

```
Parham
```

```
Darren
```

```
Hanson
```

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2. Identify users who have sent an attachment to a text message in the in 2021. Display the customer's name.

```
select
customer_first, customer_last
from verizon_customer
where customer_id in (select customer_id
                      from verizon_invoice
                      where device_imei
                      in (select device_imei
                        from verizon_texts
                        where number_of_attachment != 0
                        and
                        verizon_texts.text_status = 'sent'
                        and
                        verizon_texts.text_date >= to_date('01/01/2021', 'DD/MM/YYYY')
                        and
                        verizon_texts.text_date <= to_date('31/12/2021', 'DD/MM/YYYY')));
```

CUSTOMER_FIRST CUSTOMER_LAST

Doran Harper

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3. Identify users who are active participants in group chats in the last month. Display the customer's name. Use a nested select to answer this question.

```
select
customer_first, customer_last
from verizon_customer
where customer_id in (select customer_id
                      from verizon_sim
                      where verizon_sim.sim_id in (select sim_id
                                                    from verizon_participants
                                                    where verizon_participants.participant_id
in (select participant_id
    from verizon_chat_content))));
```

CUSTOMER_FIRST	CUSTOMER_LAST
----------------	---------------

Skye	Butler
------	--------

Ambrose	Dolton
---------	--------

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4. Identify users who are not active participants in group chats in the last month. For instance, a user is added to a group chat, but doesn't send any text messages. Display the customer's name. Use a nested select to answer this question.

```
select
customer_first, customer_last
from verizon_customer
where customer_id in (select customer_id
                      from verizon_sim
                      where verizon_sim.sim_id in (select sim_id
                                                    from verizon_participants
                                                    where verizon_participants.participant_id
                                                       not in (select participant_id from
verizon_chat_content))));
```

```
CUSTOMER_FIRST CUSTOMER_LAST
Hughie         Bennett
```

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5. Selected users of the database are restricted from accessing customer address, date of birth, age and email. Other users of the database have the ability to view all. columns in the customer table. Create SQL to implement. Login with the new security enabled accounts and demonstrate your implementation will only display the requested columns.

System session

```
alter session set container = xepdb1;  
  
create user other_user IDENTIFIED by superman;  
  
grant connect to other_user;  
  
grant UNLIMITED TABLESPACE to other_user;  
  
grant select on Verizon_customer to other_user;
```

Other_user session

```
select* from Verizon_customer;
```

System session

```
alter session set container = xepdb1;  
  
create user selected_customer IDENTIFIED by superman;  
  
grant connect to selected _customer;  
  
grant UNLIMITED TABLESPACE to selected_customer;  
  
  
  
create view Limited_customer_form as  
select customer_id, customer_first, customer_last  
from verizon_customer;  
  
  
  
GRANT SELECT ON Limited_customer_form to selected_customer;
```

Selected users session

```
select* from Limited_customer_form;
```

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6. Customers calls can be viewed, but not deleted. Create SQL to implement. Login with the new security enabled accounts and demonstrate your implementation will view only and not delete calls.

System Session

```
alter session set container = xepdb1;  
  
create user regular_customer IDENTIFIED by superman;  
  
grant connect to regular_customer;  
  
grant UNLIMITED TABLESPACE to regular_customer;  
  
GRANT SELECT ON Verizon_calls to regular_customer;
```

Regular_customer session

```
select* from Verizon_calls;
```

7. Verizon staff can display all fields of the sent and received text except for the message. Create SQL to implement. Login with the new security enabled accounts and demonstrate your implementation will only display the requested columns.

System Session

```
alter session set container = xepdb1;  
  
create user staff IDENTIFIED by superman;  
  
grant connect to staff;  
  
grant UNLIMITED TABLESPACE to staff;  
  
grant select on Verizon_customer to staff;  
  
create view Limited_text_form as  
  
select text_id, device_imei, text_date, receive_number, sent_number, text_status, text_city,  
text_content  
  
from verizon_text;  
  
grant select on Limited_text_form to staff;
```

Staff session

```
select* from Limited_text_form;
```

8. Verizon staff can change the device IMEI, SIM card, activation date and deactivation date. Other users can only view and not change these columns. Login with the new security enabled accounts and demonstrate your implementation will allow editing of selected fields for only Verizon staff.

System Session

```
alter session set container = xepdb1;  
create user staff IDENTIFIED by superman;
```

```
grant connect to staff;
```

```
grant UNLIMITED TABLESPACE to staff;
```

```
grant update (device IMEI, active_date, deactivate_date, phone_number) on Verizon_sim to staff;
```

```
alter session set container = xepdb1;
```

```
create user other_user IDENTIFIED by superman;
```

```
grant connect to user;
```

```
grant UNLIMITED TABLESPACE to other_user;
```

```
create view Limited_sim_form as
```

```
select device IMEI, active_date, deactivate_date, phone_number
```

```
from Verizon_sim;
```

```
grant select on Limited_sim_form to other_user;
```

other_user session

```
select* from Limited_sim_form ;
```

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9. The Verizon phone 111-11-1111 was stolen will never be allowed on the Verizon network. Identify the SQL to implement.

Update the deactivate_date to the date that phone got stolen.

```
update verizon_sim
set deactivate_date = to_date('01/01/2021', 'DD/MM/YYYY')
where phone_number = '111-111-1111'
```

SIM_ID	DEVICE_IMEI	CUSTOMER_ID	SIM_STATUS	ACTIVE_DATE	DEACTIVATE_DATE	PHONE_NUMBER
phone-1	device-1	111	activate	01-JAN-2020 20:00:00	01-JAN-2021 00:00:00	111-111-1111
phone-2	device-2	222	activate	01-FEB-2020 20:00:00		222-222-2222
phone-3	device-3	333	activate	01-MAR-2020 20:00:00		333-333-3333
phone-4	device-4	444	activate	01-APR-2020 20:00:00		444-444-4444
phone-5	device-5	555	activate	01-MAY-2020 20:00:00		555-555-5555
phone-6	device-6	666	activate	01-JUN-2020 20:00:00		666-666-6666
phone-7	device-7	777	activate	01-JUL-2020 20:00:00		777-777-7777
phone-8	device-8	888	activate	01-AUG-2020 20:00:00		888-888-8888
phone-9	device-9	999	activate	01-SEP-2020 20:00:00		999-999-9999
phone-10	device-10	999	activate	01-OCT-2020 20:00:00		111-999-9999
phone-11	device-11	111	activate	01-NOV-2020 20:00:00		222-999-9999
phone-12	device-12	222	activate	01-DEC-2020 20:00:00		333-999-9999
phone-13	device-13	333	activate	01-JAN-2021 20:00:00		444-999-9999
phone-14	device-14	444	activate	01-FEB-2021 20:00:00		555-999-9999
phone-15	device-15	1000	deactivate	01-MAR-2021 20:00:00	01-APR-2021 20:00:00	666-999-9999

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10. The customer Joe Smith at 20 Harvard Street never pays his bills and will never be allowed on the Verizon network. Identify the SQL to implement.

Update the deactivate_date to the customer's address whose phone bill doesn't pay.

```
update verizon_sim
set deactivate_date = to_date('02/01/2021', 'DD/MM/YYYY')
where customer_id in (select customer_id
                      from verizon_customer
                      where verizon_customer.customer_street = '20 Harvard Street')
```

CUSTOMER_FIRST	CUSTOMER_LAST	CUSTOMER_STREET	CUSTOMER_CITY	CUSTOMER_STATE	CUSTOMER_ZIPCODE
Kain	Mandy	9937 Cemetery Street	Banning	NY	10011
Stan	Parham	20 Harvard Street	Brighton	NY	10001
Doran	Harper	87 W. Arnold Dr.	Merrillville	NY	10003
Robert	Chandler	60 Jackson St.	San Antonio	NY	10004
Skye	Butler	508 Ridgewood Ave.	Nutley	NY	10005
Ambrose	Dolton	121 Atlantic Drive	Suitland	NY	10006
Hughie	Bennett	4 Birchpond Street	Fernandina Beach	NY	10007
Darren	Hanson	227 San Carlos Dr.	Woburn	NY	10008
Gale	Greer	9223 N. Pilgrim St.	Anaheim	NY	10009
Vere	Shaw	95 State St.	Wyandotte	NY	10010

SIM_ID	DEVICE_IMEI	CUSTOMER_ID	SIM_STATUS	ACTIVE_DATE	DEACTIVATE_DATE	PHONE_NUMBER
phone-1	device-1	111	activate	01-JAN-2020 20:00:00		111-111-1111
phone-2	device-2	222	activate	01-FEB-2020 20:00:00	02-JAN-2021 00:00:00	222-222-2222
phone-3	device-3	333	activate	01-MAR-2020 20:00:00		333-333-3333
phone-4	device-4	444	activate	01-APR-2020 20:00:00		444-444-4444
phone-5	device-5	555	activate	01-MAY-2020 20:00:00		555-555-5555
phone-6	device-6	666	activate	01-JUN-2020 20:00:00		666-666-6666
phone-7	device-7	777	activate	01-JUL-2020 20:00:00		777-777-7777
phone-8	device-8	888	activate	01-AUG-2020 20:00:00		888-888-8888
phone-9	device-9	999	activate	01-SEP-2020 20:00:00		999-999-9999
phone-10	device-10	999	activate	01-OCT-2020 20:00:00		111-999-9999
phone-11	device-11	111	activate	01-NOV-2020 20:00:00		222-999-9999
phone-12	device-12	222	activate	01-DEC-2020 20:00:00	02-JAN-2021 00:00:00	333-999-9999
phone-13	device-13	333	activate	01-JAN-2021 20:00:00		444-999-9999
phone-14	device-14	444	activate	01-FEB-2021 20:00:00		555-999-9999
phone-15	device-15	1000	deactivate	01-MAR-2021 20:00:00	01-APR-2021 20:00:00	666-999-9999

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11. In one SQL window, delete all texts in 2020. Don't commit. In another SQL window, add five new texts. Don't commit. In each SQL window, identify the number of texts. Explain your results. Show all SQL to perform these operations. Demonstrate the functionality of your SQL by displaying the before and after results.

System Session: Create the second administrator with all privileges from system administrator

```
alter session set container = xepdb1;
create user secondAdmin IDENTIFIED by superman;
grant connect, resource, dba to secondAdmin;
grant create session to secondAdmin;
grant all privileges to secondAdmin;
grant UNLIMITED TABLESPACE to secondAdmin;
```

System Session: Display the number of text before deletion

```
select count(*) "Number of Texts"
from verizon_texts
```

result

```
Number of Texts
              15
```

System Session: Deletion

```
delete
from verizon_texts
where text_date >= to_date('01/01/2020', 'DD/MM/YYYY')
and text_date <= to_date('31/12/2020', 'DD/MM/YYYY');
```

System Session: Display the remaining text after Deletion.

```
select*
from verizon_texts
```

result

TEXT_ID	DEVICE_IMEI	TEXT_DATE	RECEIVE_NUMBER	SENT_NUMBER	TEXT_STATUS	TEXT_CITY	TEXT_CONTENT	NUMBER_OF_ATTACHMENT
text-10	device-10	20-FEB-2021	15:00:00	888-888-8888	sent	NY	hi, 0	0
text-11	device-3	12-JAN-2021	16:00:00	987-987-9987	sent	NY	for you 1	1
text-12	device-3	12-FEB-2021	16:00:00	987-987-9987	sent	NY	for you 1	1
text-13	device-3	12-MAR-2021	16:00:00	987-987-9987	sent	NY	for you 1	1
text-14	device-4	12-JAN-2021	22:00:00	111-111-1111	receive	NY	for you 1235	1
text-15	device-4	12-FEB-2021	22:00:00	111-111-1111	receive	NY	for you 1235	2

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System Session: After deletion

```
select count(*) "Number of Texts"
from verizon_texts
```

result

```
Number of Texts
        6
```

SecondAdmin Session: Display the number of text before deletion

```
select count(*) "Number of Texts"
from system.verizon_texts
```

result

```
Number of Texts
        15
```

SecondAdmin Session: Add five new texts

```
insert into system.verizon_texts
(text_id, device_imei, text_date, receive_number, sent_number, text_status, text_city,
text_content, number_of_attachment)
VALUES
('text-16', 'device-3', to_date('12/01/2021 16:00:00', 'DD/MM/YYYY HH24:MI:SS'), null, '987-987-
9987', 'sent', 'NY', 'for you 1', 1);

insert into system.verizon_texts
(text_id, device_imei, text_date, receive_number, sent_number, text_status, text_city,
text_content, number_of_attachment)
VALUES
('text-17', 'device-3', to_date('12/02/2021 16:00:00', 'DD/MM/YYYY HH24:MI:SS'), null, '987-987-
9987', 'sent', 'NY', 'for you 1', 1);
insert into system.verizon_texts
(text_id, device_imei, text_date, receive_number, sent_number, text_status, text_city,
text_content, number_of_attachment)
VALUES
('text-18', 'device-3', to_date('12/03/2021 16:00:00', 'DD/MM/YYYY HH24:MI:SS'), null, '987-987-
9987', 'sent', 'NY', 'for you 1', 1);
```

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```
insert into system.verizon_texts
(text_id, device_imei, text_date, receive_number, sent_number, text_status, text_city,
text_content, number_of_attachment)
VALUES
('text-19', 'device-4', to_date('12/04/2021 22:00:00', 'DD/MM/YYYY HH24:MI:SS'),'111-111-1111',
null, 'reveive','NY', 'for you 1235', 1);
```

```
insert into system.verizon_texts
(text_id, device_imei, text_date, receive_number, sent_number, text_status, text_city,
text_content, number_of_attachment)
VALUES
('text-20', 'device-4', to_date('12/05/2021 22:00:00', 'DD/MM/YYYY HH24:MI:SS'),'111-111-1111',
null, 'reveive','NY', 'for you 1235', 2);
```

SecondAdmin Session: Display the number of text after insertion

```
select count(*) "Number of Texts"
from SYSTEM.verizon_texts
```

result

```
Number of Texts
20
```

Analysis:

After performing the deletion from the System session, we have our number of texts from 15 to 6. Then, we check the number of texts on the SecondAdmin session. The number is still 15, which is the number before the System session performed deletion.

The reason for that is because of the aborted transaction and isolation. System session does not commit its changes, causing aborted transactions, so the SecondAdmin would be rolled back. And each table follows the property of isolation, which allows tables to work on their data without affecting others. That also explains why the number of texts is 20 after SecondAdmin performed adding to the text table ($15 + 5 = 20$).

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12. In one SQL window, delete all PIXEL 5 phones. Don't commit. In another SQL window, delete all phones. Don't commit. Explain your results. Resolve the problem. Create a backup of your table before implementing. To create a backup table, enter CREATE TABLE <NEWTABLE> AS SELECT * FROM <ORIGINALTABLE>; COMMIT; Then you can rename a table using the RENAME TABLE commit. Disable the auto commit flag at the top of the window before performing this operation. Show all SQL to perform these operations. Demonstrate the functionality of your SQL by displaying the before and after results.

System Session: Display the device table

```
select* from verizon_device
```

result

DEVICE_IMEI	DEVICE_MANUFACTURER	DEVICE_MODEL	DEVICE_STORAGE
device-1	APPLE	IPHONE6	16G
device-2	APPLE	IPHONE7	64G
device-3	APPLE	IPAD	256G
device-4	APPLE	IPAD	256G
device-5	APPLE	IPHONEX	64G
device-6	APPLE	IPHONEX	256G
device-7	SAMSUNG	GALAXY S21	128G
device-8	SAMSUNG	GALAXY S21	128G
device-9	SAMSUNG	NOTE	256G
device-10	SAMSUNG	NOTE	256G
device-11	SAMSUNG	NOTE	256G
device-12	SAMSUNG	GALAXY S10	128G
device-13	GOOGLE	PIXEL 5	128G
device-14	GOOGLE	PIXEL 5	128G
device-15	GOOGLE	PIXEL 5	128G

System Session: Back up table

```
create table backup_table as  
select* from verizon_device;  
commit
```

result

Table BACKUP_TABLE created.

System Session: Delete all PIXEL 5

```
delete  
from verizon_device  
where device_model = 'PIXEL 5'
```

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result

3 rows deleted.

System Session: Display the device table after deletion.

```
select* from verizon_device
```

result

DEVICE_IMEI	DEVICE_MANUFACTURER	DEVICE_MODEL	DEVICE_STORAGE
device-1	APPLE	IPHONE6	16G
device-2	APPLE	IPHONE7	64G
device-3	APPLE	IPAD	256G
device-4	APPLE	IPAD	256G
device-5	APPLE	IPHONEX	64G
device-6	APPLE	IPHONEX	256G
device-7	SAMSUNG	GALAXY S21	128G
device-8	SAMSUNG	GALAXY S21	128G
device-9	SAMSUNG	NOTE	256G
device-10	SAMSUNG	NOTE	256G
device-11	SAMSUNG	NOTE	256G
device-12	SAMSUNG	GALAXY S10	128G

SecondAdmin: Delete all phones

```
delete from SYSTEM.verizon_device
```

result

15 rows deleted.

SecondAdmin: Display table after deleting all phones

result

DEVICE_IMEI	DEVICE_MANUFACTURER	DEVICE_MODEL	DEVICE_STORAGE
-------------	---------------------	--------------	----------------

(no result)

System Session: Rename the backup table

```
rename backup_table to verizon_device
```

Analysis:

There are 15 phone data in the device table. After performing deletion in the System session, three rows got deleted, and 12 data remained. Then, we performed deletion of all phones in the SecondAdim session and expected that 12 phones got deleted, but the result showed 15 rows

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deleted. The reason for that is still because of fail transactions and isolation. The modification (deletion) hasn't been committed in the System session, so the SecondAdmin still fetched the original data of the device table.

13. In one SQL window, change the last name for the customer Kain Mandy. Don't commit. In another SQL window, change the address of customer Kain Mandy (use the same name as above). Don't commit. Quit both Oracle sessions. Login to Oracle again and display all columns for the customer Kain Mandy. Explain your results. Disable the auto commit flag at the top of the windows before performing this operation. Show all SQL to perform these operations. Demonstrate the functionality of your SQL by displaying the before and after results.

System Session: Original Data of Kain Mandy

```
111 Kain Mandy 9937 Cemetery Street Banning NY 10011 11-JAN-1998 00:00:00 23 clahbu@ysbnx.com
```

System Session: Update the last name of Kain Mandy from Kain to Lin

```
update verizon_customer  
set customer_last = 'Lin'  
where customer_id = '111'
```

result

```
111 Kain Lin 9937 Cemetery Street Banning NY 10011 11-JAN-1998 00:00:00 23 clahbu@ysbnx.com
```

SecondAdmin session: Update the address (street) from '9937 Cemetery Street Banning' to '101 fifth Ave'

```
update system.verizon_customer  
set customer_street = '101 fifth Ave'  
where customer_id = '111'
```

result

The operation cannot be done due to the row locking that caused by System Session because the System Session hasn't committed its modification.

After re-Login to oracle

Main session

```
select* from verizon_customer  
where customer_id = '111'
```

```
111 Kain Lin 9937 Cemetery Street Banning NY 10011 11-JAN-1998 00:00:00 23  
clahbu@ysbnx.com
```

System Session: display the data of Kain Mandy

```
select* from system.verizon_customer  
where customer_id = '111'
```

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result

111 Kain Mandy 9937 Cemetery Street Banning NY 10011 11-JAN-1998 00:00:00 23 clahbu@ysbnx.com

Analysis:

Because two sessions were trying to update the same row, it would cause a problem when one of them didn't commit their modification. If one of them updates the value and doesn't commit, the other will keep waiting after sending the update command. This is also known as Row Locking. That explains why we got the result when performing **the SecondAdmin session: Update the address (street) from '9937 Cemetery Street Banning' to '101 fifth Ave'**. To avoid row locking, we need to commit one of the first to avert the fail transaction.

14. Use the SQL DESCRIBE operation to display the structure for all tables.

verizon_customer

Name	Null?	Type
CUSTOMER_ID	NOT NULL	NUMBER
CUSTOMER_FIRST		VARCHAR2 (255)
CUSTOMER_LAST		VARCHAR2 (255)
CUSTOMER_STREET		VARCHAR2 (255)
CUSTOMER_CITY		VARCHAR2 (255)
CUSTOMER_STATE		VARCHAR2 (255)
CUSTOMER_ZIPCODE		VARCHAR2 (255)
CUSTOMER_DOB		DATE
CUSTOMER_AGE		NUMBER
CUSTOMER_EMAIL		VARCHAR2 (255)

verizon_angry_words

Name	Null?	Type
ANGRY_WORD_ID	NOT NULL	VARCHAR2 (255)
TEXT_ID		VARCHAR2 (255)
WORDS		VARCHAR2 (255)
FULL_CONTENT		VARCHAR2 (255)

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verizon_calls

Name	Null?	Type
CALL_ID	NOT NULL	VARCHAR2 (255)
DEVICE_IMEI		VARCHAR2 (255)
CALL_STATUS		VARCHAR2 (255)
CALL_BEGIN		DATE
CALL_END		DATE
PHONE_NUMBER		VARCHAR2 (255)
CALL_CITY		VARCHAR2 (255)

verizon_device

Name	Null?	Type
DEVICE_IMEI	NOT NULL	VARCHAR2 (255)
DEVICE_MANUFACTURER		VARCHAR2 (255)
DEVICE_MODEL		VARCHAR2 (255)
DEVICE_STORAGE		VARCHAR2 (255)

verizon_device_ownership

Name	Null?	Type
DEVICE_IMEI	NOT NULL	VARCHAR2 (255)
CUSTOMER_ID		NUMBER

verizon_invoice

Name	Null?	Type
INVOICE_ID	NOT NULL	VARCHAR2 (255)
INVOICE_DATE		VARCHAR2 (255)
DEVICE_IMEI		VARCHAR2 (255)
CUSTOMER_ID		NUMBER
INVOICE_COST		NUMBER
PAYMENT		VARCHAR2 (255)

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verizon_sim

Name	Null?	Type
SIM_ID	NOT NULL	VARCHAR2 (255)
DEVICE_IMEI		VARCHAR2 (255)
CUSTOMER_ID		NUMBER
SIM_STATUS		VARCHAR2 (255)
ACTIVE_DATE		DATE
DEACTIVATE_DATE		DATE
PHONE_NUMBER		VARCHAR2 (255)

verizon_texts

Name	Null?	Type
TEXT_ID	NOT NULL	VARCHAR2 (255)
DEVICE_IMEI		VARCHAR2 (255)
TEXT_DATE		DATE
RECEIVE_NUMBER		VARCHAR2 (255)
SENT_NUMBER		VARCHAR2 (255)
TEXT_STATUS		VARCHAR2 (255)
TEXT_CITY		VARCHAR2 (255)
TEXT_CONTENT		VARCHAR2 (255)
NUMBER_OF_ATTACHMENT		NUMBER

verizon_web

Name	Null?	Type
WEB_ID	NOT NULL	VARCHAR2 (255)
DEVICE_IMEI		VARCHAR2 (255)
WEB_DATE		DATE
URL		VARCHAR2 (255)
WEB_STATUS		VARCHAR2 (255)
WEB_BYTES		NUMBER

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verizon_chat_content

Name	Null?	Type
CONTENT_ID	NOT NULL	VARCHAR2(255)
MESSAGE		VARCHAR2(400)
MESSAGE_TIME		DATE
PARTICIPANT_ID		VARCHAR2(255)

verizon_group_chat

Name	Null?	Type
ROOMID	NOT NULL	VARCHAR2(255)
NUMBER_OF_PARTICIPANTS		NUMBER
BEGIN_TIME		DATE
END_TIME		DATE
ROOM_CITY		CHAR(2)

verizon_participants

Name	Null?	Type
PARTICIPANT_ID	NOT NULL	VARCHAR2(255)
ROOMID		VARCHAR2(255)
SIM_ID		VARCHAR2(255)

15. Display the version of Oracle. Enter:

```
SELECT *  
FROM v$version;
```

BANNER	BANNER_FULL	BANNER_LEGACY	CON_ID
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Oracle Database 18c Express Edition Release 18.0.0.0.0 - Production	"Oracle Database 18c Express Edition Release 18.0.0.0.0 - Production
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Version 18.4.0.0.0" Oracle Database 18c Express Edition Release 18.0.0.0.0 - Production	0
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All SQL Commands during the process of updating data.

```
//Add new column to verizon_texts
```

```
alter table verizon_texts
```

```
add ( number_of_attachment number );
```

```
update verizon_texts
```

```
set number_of_attachment = 0
```

```
where text_id = 'text-1' or text_id = 'text-2' or text_id = 'text-3' or text_id = 'text-4'
```

```
or text_id = 'text-5' or text_id = 'text-6'
```

```
or text_id = 'text-7' or text_id = 'text-8'
```

```
or text_id = 'text-9' or text_id = 'text-10'
```

```
insert into verizon_texts
```

```
(text_id, device_imei, text_date, receive_number, sent_number, text_status, text_city,  
text_content, number_of_attachment)
```

```
VALUES
```

```
('text-11', 'device-3', to_date('12/01/2021 16:00:00', 'DD/MM/YYYY HH24:MI:SS'), null, '987-987-  
9987', 'sent', 'NY', 'for you 1', 1);
```

```
insert into verizon_texts
```

```
(text_id, device_imei, text_date, receive_number, sent_number, text_status, text_city,  
text_content, number_of_attachment)
```

```
VALUES
```

```
('text-12', 'device-3', to_date('12/02/2021 16:00:00', 'DD/MM/YYYY HH24:MI:SS'), null, '987-987-  
9987', 'sent', 'NY', 'for you 1', 1);
```

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```
insert into verizon_texts
```

```
(text_id, device_imei, text_date, receive_number, sent_number, text_status, text_city,  
text_content, number_of_attachment)
```

```
VALUES
```

```
('text-13', 'device-3', to_date('12/03/2021 16:00:00', 'DD/MM/YYYY HH24:MI:SS'), null, '987-987-  
9987', 'sent', 'NY', 'for you 1', 1);
```

```
insert into verizon_texts
```

```
(text_id, device_imei, text_date, receive_number, sent_number, text_status, text_city,  
text_content, number_of_attachment)
```

```
VALUES
```

```
('text-14', 'device-4', to_date('12/04/2021 22:00:00', 'DD/MM/YYYY HH24:MI:SS'), '111-111-1111',  
null, 'reveive', 'NY', 'for you 1235', 1);
```

```
insert into verizon_texts
```

```
(text_id, device_imei, text_date, receive_number, sent_number, text_status, text_city,  
text_content, number_of_attachment)
```

```
VALUES
```

```
('text-15', 'device-4', to_date('12/05/2021 22:00:00', 'DD/MM/YYYY HH24:MI:SS'), '111-111-1111',  
null, 'reveive', 'NY', 'for you 1235', 2);
```

```
//verizon_group_chat
```

```
create table verizon_group_chat
```

```
( roomID VARCHAR(255) primary key,  
  number_of_participants number,
```

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```
begin_time date,  
end_time date,  
room_city char(2)  
);
```

```
insert into verizon_group_chat  
(roomID, number_of_participants, begin_time, end_time, room_city)  
VALUES  
( 'room-1', 2, to_date('15/01/2021 13:00:00', 'DD/MM/YYYY HH24:MI:SS'),to_date('15/01/2021  
14:00:00', 'DD/MM/YYYY HH24:MI:SS'),'NY');
```

```
insert into verizon_group_chat  
(roomID, number_of_participants, begin_time, end_time, room_city)  
VALUES  
( 'room-1', 2, to_date('15/02/2021 13:00:00', 'DD/MM/YYYY HH24:MI:SS'),to_date('15/02/2021  
14:00:00', 'DD/MM/YYYY HH24:MI:SS'),'NY');
```

```
insert into verizon_group_chat  
(roomID, number_of_participants, begin_time, end_time, room_city)  
VALUES
```

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```
('room-1', 2, to_date('15/03/2021 13:00:00', 'DD/MM/YYYY HH24:MI:SS'),to_date('15/03/2021
14:00:00', 'DD/MM/YYYY HH24:MI:SS'),'NY');
```

```
insert into verizon_group_chat
```

```
(roomID, number_of_participants, begin_time, end_time, room_city)
```

```
VALUES
```

```
('room-1', 2, to_date('15/04/2021 13:00:00', 'DD/MM/YYYY HH24:MI:SS'),to_date('15/04/2021
14:00:00', 'DD/MM/YYYY HH24:MI:SS'),'NY');
```

```
insert into verizon_group_chat
```

```
(roomID, number_of_participants, begin_time, end_time, room_city)
```

```
VALUES
```

```
('room-5', 3, to_date('15/05/2021 13:00:00', 'DD/MM/YYYY HH24:MI:SS'),to_date('15/05/2021
14:00:00', 'DD/MM/YYYY HH24:MI:SS'),'NY');
```

```
// create participants
```

```
create table verizon_participants
```

```
( participant_ID VARCHAR(255) primary key,
```

```
  roomID VARCHAR(255),
```

```
  SIM_ID VARCHAR(255)
```

```
);
```

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```
insert into verizon_participants
```

```
(participant_ID, roomID, SIM_ID)
```

```
VALUES
```

```
('participant-1', 'room-1', 'phone-5')
```

```
insert into verizon_participants
```

```
(participant_ID, roomID, SIM_ID)
```

```
VALUES
```

```
('participant-2', 'room-1', 'phone-6')
```

```
insert into verizon_participants
```

```
(participant_ID, roomID, SIM_ID)
```

```
VALUES
```

```
('participant-3', 'room-2', 'phone-5')
```

```
insert into verizon_participants
```

```
(participant_ID, roomID, SIM_ID)
```

```
VALUES
```

```
('participant-4', 'room-2', 'phone-6')
```


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```
insert into verizon_participants
```

```
(participant_ID, roomID, SIM_ID)
```

```
VALUES
```

```
('participant-5', 'room-3', 'phone-5')
```

```
insert into verizon_participants
```

```
(participant_ID, roomID, SIM_ID)
```

```
VALUES
```

```
('participant-6', 'room-3', 'phone-6')
```

```
insert into verizon_participants
```

```
(participant_ID, roomID, SIM_ID)
```

```
VALUES
```

```
('participant-7', 'room-4', 'phone-5')
```

```
insert into verizon_participants
```

```
(participant_ID, roomID, SIM_ID)
```

```
VALUES
```

```
('participant-8', 'room-4', 'phone-6')
```

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```
insert into verizon_participants
```

```
(participant_ID, roomID, SIM_ID)
```

```
VALUES
```

```
('participant-9', 'room-5', 'phone-5')
```

```
insert into verizon_participants
```

```
(participant_ID, roomID, SIM_ID)
```

```
VALUES
```

```
('participant-10', 'room-5', 'phone-6')
```

```
insert into verizon_participants
```

```
(participant_ID, roomID, SIM_ID)
```

```
VALUES
```

```
('participant-11', 'room-5', 'phone-7')
```

```
//verizon_chat_content
```

```
create table verizon_chat_content
```

```
( content_ID VARCHAR(255) primary key,
```

```
message VARCHAR(400),
```

```
message_time date,
```

```
participant_id VARCHAR(255)
```

```
);
```

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```
insert into verizon_chat_content
```

```
(content_ID, message, message_time, participant_id)
```

```
VALUES
```

```
('content-1', 'hi', to_date('20/01/2021 13:00:00', 'DD/MM/YYYY HH24:MI:SS'), 'participant-1')
```

```
insert into verizon_chat_content
```

```
(content_ID, message, message_time, participant_id)
```

```
VALUES
```

```
('content-2', 'hi', to_date('20/01/2021 14:00:00', 'DD/MM/YYYY HH24:MI:SS'), 'participant-2')
```

```
insert into verizon_chat_content
```

```
(content_ID, message, message_time, participant_id)
```

```
VALUES
```

```
('content-3', 'HOLA', to_date('20/01/2021 13:00:00', 'DD/MM/YYYY HH24:MI:SS'), 'participant-3')
```

```
insert into verizon_chat_content
```

```
(content_ID, message, message_time, participant_id)
```

```
VALUES
```

```
('content-4', 'HOLA', to_date('20/01/2021 14:00:00', 'DD/MM/YYYY HH24:MI:SS'), 'participant-4')
```

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```
insert into verizon_chat_content
```

```
(content_ID, message, message_time, participant_id)
```

```
VALUES
```

```
('content-9', 'who wants some pizza?', to_date('20/05/2021 13:00:00', 'DD/MM/YYYY HH24:MI:SS'),  
'participant-9')
```

```
insert into verizon_chat_content
```

```
(content_ID, message, message_time, participant_id)
```

```
VALUES
```

```
('content-10', 'me.', to_date('20/05/2021 13:30:00', 'DD/MM/YYYY HH24:MI:SS'), 'participant-10')
```

```
insert into verizon_chat_content
```

```
(content_ID, message, message_time, participant_id)
```

```
VALUES
```

```
('content-11', 'me too.', to_date('20/05/2021 14:00:00', 'DD/MM/YYYY HH24:MI:SS'), 'participant-  
11')
```