

Database Requirements

Your design must include the following requirements. All references to

“dates” refer to month, day, year and time.

- Customers

- o Identify the customer first name, last name, billing address, date of birth, age and email

- Device

- o Identify the device manufacturer and device model. For instance, Apple iPhone 8 Plus, 64 GB

- o Identify the unique device IMEI number, assigned SIM card, date the customer activated device and date customer deactivated the device.

- o Devices are owned by customers. Only 1 customer can own 1 device.

- o 1 customer can own many devices

- o Devices access the Verizon Wireless network to:

- § send/receive calls

- § send/receive texts

- § access the web

- Customer Texts

- o Identify the device, text date, text number, if a text was sent or received, location of the sender, location of the receiver and text message.

- Customer Calls

- o Identify the device, call date, call number, if a call was sent or received, location of the sender, location of the receiver

- Customer Web
 - o Identify the device, start web access date, bytes sent/received, URL accessed
- Invoices
 - o Invoices are created monthly
 - o Identify the customer, device, cost and method of payment

Data

You will create

- At least 10 customers
- At least 15 devices
- All customers except for 1 will own a device
- At least 10 phone calls
- At least 10 text messages
- At least 10 web access

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

1. Identify customers with no text and phone call activity in 2020. Display the customer's name and device model.

```
select
verizon_customer.customer_first,
verizon_customer.customer_last,
verizon_device.device_model
from verizon_device_ownership
join verizon_customer on verizon_customer.customer_id =
verizon_device_ownership.customer_id
join verizon_texts on verizon_texts.device_imei =
verizon_device_ownership.device_imei
join verizon_calls on verizon_calls.device_imei =
verizon_device_ownership.device_imei
join verizon_device on verizon_device.device_imei =
verizon_device_ownership.device_imei
where text_date <= to_date('01/01/2020', 'DD/MM/YYYY') or text_date
>= to_date('31/12/2020', 'DD/MM/YYYY')
```

CUSTOMER_FIRST	CUSTOMER_LAST	DEVICE_MODEL
Vere	Shaw	NOTE

2. Identify customers without phones. Display the customer's name and email.

```
select
verizon_customer.customer_first,
verizon_customer.customer_last,
verizon_customer.customer_email
from verizon_sim
join verizon_customer on verizon_customer.customer_id =
verizon_sim.customer_id
where verizon_sim.sim_status = 'deactivate'
```

CUSTOMER_FIRST	CUSTOMER_LAST	CUSTOMER_EMAIL
Vere	Shaw	0ali_a@n3tflx.club

3. Identify bytes sent and received by customers **in Jan, 2020**. Display 6 columns: Customer first, Customer last, Device model, total bytes sent, total bytes received, total bytes (sent and received). Display the bytes as GB. Display 1 row for each distinct customer.

```
select
verizon_customer.customer_first,
verizon_customer.customer_last,
verizon_device.device_model,
verizon_web.web_status,
sum(verizon_web.web_bytes / 1000000000) "Total Bytes / GB"
from verizon_web
join verizon_device on verizon_device.device_imei =
verizon_web.device_imei
join verizon_device_ownership on verizon_device_ownership.device_imei
= verizon_web.device_imei
join verizon_customer on verizon_customer.customer_id =
verizon_device_ownership.customer_id
where verizon_web.web_date >= to_date('01/01/2020', 'DD/MM/YYYY') and
verizon_web.web_date <= to_date('31/01/2020', 'DD/MM/YYYY')
```

```
group by
verizon_customer.customer_first,verizon_customer.customer_last,verizon_device.device_model,verizon_web.web_status
```

CUSTOMER_FIRST	CUSTOMER_LAST	DEVICE_MODEL	WEB_STATUS	Total Bytes / GB
Stan	Parham	GALAXY S10	sent	0.000030473
Doran	Harper	PIXEL 5	receive	0.000004695
Doran	Harper	PIXEL 5	sent	0.000111684
Stan	Parham	GALAXY S10	receive	0.000092634

4. Identify the most popular phone number called **in 2020 in NY**. Display 2 columns: Phone number called and number of calls. Display the most popular phone number called first. Display 1 row for each distinct phone number called.

```
SELECT phone_number, COUNT(1)"number of calls"
FROM verizon_calls
WHERE call_begin >= TO_DATE('01-JAN-2020', 'DD-MM-YYYY') AND
call_begin <= TO_DATE('31-DEC-2020', 'DD-MM-YYYY') and call_city =
'NY'

GROUP BY phone_number
ORDER BY 2 DESC
```

PHONE_NUMBER	number of calls
888-888-8888	5
111-111-1111	2
215-595-1358	1
215-595-1364	1
355-555-6615	1

5. Identify customers who sent or received calls from **355-555-6615 last October**. Display the customer's name, date of call and length of call.

```
select
verizon_customer.customer_first,
verizon_customer.customer_last,
call_begin,
call_end,
24* (call_end - call_begin) "Length (hr)"
from verizon_calls
join verizon_device_ownership on verizon_device_ownership.device_imei
= verizon_calls.device_imei
join verizon_customer on verizon_customer.customer_id =
verizon_device_ownership.customer_id
where phone_number = '355-555-6615' and call_begin >=
TO_DATE('01/10/2020', 'DD-MM-YYYY') AND call_begin <=
TO_DATE('30/10/2020', 'DD-MM-YYYY')
```

CUSTOMER_FIRST	CUSTOMER_LAST	CALL_BEGIN	CALL_END	Length (hr)
Vere	Shaw	11-OCT-2020 15:00:00	11-OCT-2020 16:00:00	1

6. Identify customers who included angry words in text messages **in Jan 2020**. Display the customer's name, date of text and text message.

```
select
verizon_customer.customer_first,
verizon_customer.customer_last,
verizon_texts.text_date,
verizon_angry_words.full_content
from verizon_texts
join verizon_angry_words on verizon_angry_words.text_id =
verizon_texts.text_id
```

```
join verizon_device_ownership on verizon_device_ownership.device_imei
= verizon_texts.device_imei

join verizon_customer on verizon_customer.customer_id =
verizon_device_ownership.customer_id

where verizon_texts.text_date >= TO_DATE('01/01/2020', 'DD-MM-YYYY')
AND verizon_texts.text_date <= TO_DATE('31/01/2020', 'DD-MM-YYYY')

and verizon_angry_words.words like 'retard' or
verizon_angry_words.words like 'asshole' or verizon_angry_words.words
like 'cum'
```

CUSTOMER_FIRST	CUSTOMER_LAST	TEXT_DATE	FULL_CONTENT
Kain Mandy	01-JAN-2020 15:00:00		she is a retard, asshole cum.
Kain Mandy	01-JAN-2020 15:00:00		she is a retard, asshole cum.
Kain Mandy	01-JAN-2020 15:00:00		she is a retard, asshole cum.

7. Identify the most popular device model for **NY** active customers **in 2020**. Display 4 columns: Customer first, customer last, device model, number of devices. Display the most popular device first. Display 1 distinct row for each customer.

```
select
verizon_customer.customer_first,
verizon_customer.customer_last,
verizon_device.device_model,
count(verizon_device.device_model)"number of device"
from verizon_sim
join verizon_device_ownership on verizon_device_ownership.customer_id
= verizon_sim.customer_id
join verizon_customer on verizon_sim.customer_id =
verizon_customer.customer_id
join verizon_device on verizon_device_ownership.device_imei =
verizon_device.device_imei
where verizon_sim.active_date >= to_date('01/01/2020', 'DD/MM/YYYY')
      and verizon_sim.active_date <= to_date('31/12/2020',
'DD/MM/YYYY')
      and verizon_customer.customer_state = 'NY'
```

```
group by verizon_customer.customer_first,  
verizon_customer.customer_last, verizon_device.device_model  
order by count(verizon_device.device_model) desc
```

CUSTOMER_FIRST	CUSTOMER_LAST	DEVICE_MODEL	number of device
Gale	Greer	NOTE	2
Kain	Mandy	IPHONE6	2
Kain	Mandy	NOTE	2
Stan	Parham	IPHONE7	2
Stan	Parham	GALAXY S10	2
Robert	Chandler	IPAD	1
Darren	Hanson	GALAXY S21	1
Doran	Harper	PIXEL 5	1
Doran	Harper	IPAD	1
Skye	Butler	PIXEL 5	1
Robert	Chandler	PIXEL 5	1
Ambrose	Dolton	IPHONEX	1
Skye	Butler	IPHONEX	1
Hughie	Bennett	GALAXY S21	1

8. Identify text messages exchanged between **Kain and Stan in Jan 2020**. Display the date of text, sender, receiver and text message. Display the messages in chronological order.

```
select  
verizon_customer.customer_first,  
text_date,  
text_status,  
text_content  
from verizon_texts  
join verizon_device_ownership on verizon_device_ownership.device_imei  
= verizon_texts.device_imei
```



```
join verizon_customer on verizon_device_ownership.customer_id =
verizon_customer.customer_id

where verizon_customer.customer_first = 'Kain' or
verizon_customer.customer_first = 'Stan'

order by text_date asc
```

CUSTOMER_FIRST	TEXT_DATE	TEXT_STATUS	TEXT_CONTENT
Kain	01-JAN-2020 10:00:00	sent	hi, 123
Stan	01-JAN-2020 11:00:00	receive	hi, 1234
Stan	01-JAN-2020 12:00:00	sent	hi, 12345
Kain	01-JAN-2020 13:00:00	receive	hi, 123456
Kain	01-JAN-2020 14:00:00	sent	hi, 1234567
Stan	01-JAN-2020 15:00:00	receive	hi, 12345678
Kain	01-JAN-2020 15:00:00	sent	hi, 123456789
Kain	30-JAN-2020 15:00:00	sent	hi, 1234567890

9. Identify text messages exchanged **in NY on Jan 1 between 10 am and 1 pm**. Display the date of text, sender, receiver and text message. Display the messages in chronological order.

```
select
verizon_customer.customer_first,
text_date,
text_status,
text_content
from verizon_texts
join verizon_device_ownership on verizon_device_ownership.device_imei
= verizon_texts.device_imei
join verizon_customer on verizon_device_ownership.customer_id =
verizon_customer.customer_id
where verizon_texts.text_date >= to_date ('01/01/2020 10:00:00',
'DD/MM/YYYY HH24:MI:SS')
```

```
and verizon_texts.text_date <= to_date ('01/01/2020 13:00:00',
'DD/MM/YYYY HH24:MI:SS')
```

```
and verizon_texts.text_city = 'NY'
```

```
order by text_date asc
```

CUSTOMER_FIRST	TEXT_DATE	TEXT_STATUS	TEXT_CONTENT
Kain	01-JAN-2020 10:00:00	sent	hi, 123
Stan	01-JAN-2020 11:00:00	receive	hi, 1234
Stan	01-JAN-2020 12:00:00	sent	hi, 12345
Kain	01-JAN-2020 13:00:00	receive	hi, 123456

10. Identify customers with more than 1 phone. Display the customer's name and number of phones. Display 1 distinct row for each customer.

```
select
```

```
verizon_customer.customer_first,
```

```
verizon_customer.customer_last,
```

```
count(verizon_device.device_model)"number of device"
```

```
from verizon_sim
```

```
join verizon_device_ownership on verizon_device_ownership.customer_id
= verizon_sim.customer_id
```

```
join verizon_customer on verizon_sim.customer_id =
verizon_customer.customer_id
```

```
join verizon_device on verizon_device_ownership.device_imei =
verizon_device.device_imei
```

```
group by verizon_customer.customer_first,
verizon_customer.customer_last, verizon_device.device_model
```

```
HAVING count(verizon_device.device_model) > 1
```

CUSTOMER_FIRST	CUSTOMER_LAST	number of device
Kain	Mandy	2
Robert	Chandler	2
Stan	Parham	2

Name: Ching Kung Lin Class: CS331 Date: 4/20 Project3

Stan	Parham	2
Kain	Mandy	2
Doran	Harper	2
Robert	Chandler	2
Doran	Harper	2
Gale	Greer	2

11. Display the structure of ALL tables using SQL Describe.

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)

	CUSTOMER_ID	CUSTOMER_FIRST	CUSTOMER_LAST	CUSTOMER_STREET	CUSTOMER_CITY	CUSTOMER_STATE	CUSTOMER_ZIPCODE	CUSTOMER_DOB	CUSTOMER_AGE	CUSTOMER_EMAIL
1	111	Kain	Mandy	9937 Cemetery Street	Banning	NY	10011	11-JAN-1998 00:00:00	23	clahbu@ysbmx.com
2	222	Stan	Farham	20 Harvard Street	Brighton	NY	10001	06-AUG-1971 00:00:00	50	ybahacsb@ecallen.com
3	333	Doran	Harper	87 W. Arnold Dr.	Merrillville	NY	10003	19-SEP-1980 00:00:00	41	7issaelcris@ysyl777.com
4	444	Robert	Chandler	60 Jackson St.	San Antonio	NY	10004	11-MAY-1975 00:00:00	46	3ijfh.lhvbvx@hontaosi.com
5	555	Skye	Butler	508 Ridgewood Ave.	Nutley	NY	10005	28-JAN-1959 00:00:00	62	cgustavo.praia.ih@pickuplanet.com
6	666	Ambrose	Dolton	121 Atlantic Drive	Suitland	NY	10006	04-FEB-1980 00:00:00	41	hmostafa.mahdy.50@wakultimbo.buzz
7	777	Hughie	Bennett	4 Birchpond Street	Fernandina Beach	NY	10007	29-FEB-1992 00:00:00	29	eadbo.arafat.7@ivalli.com
8	888	Darren	Hanson	227 San Carlos Dr.	Woburn	NY	10008	22-DEC-1954 00:00:00	67	himan@guideliot.site
9	999	Gale	Greer	9223 N. Pilgrim St.	Anaheim	NY	10009	06-JAN-1972 00:00:00	49	8follow100@zippc.site
10	1000	Vere	Shaw	95 State St.	Wyandotte	NY	10010	09-JAN-1969 00:00:00	52	0ali_e@n3tflix.club

verizon_angry_words

Name Null? Type

```

-----
ANGRY_WORD_ID NOT NULL VARCHAR2(255)
TEXT_ID          VARCHAR2(255)
WORDS            VARCHAR2(255)
FULL_CONTENT     VARCHAR2(255)

```

❖ ANGRY_WORD_ID	❖ TEXT_ID	❖ WORDS	❖ FULL_CONTENT
1 100	text-7	retard	she is retard and asshole, cum
2 101	text-7	asshole	she is retard and asshole, cum
3 102	text-7	cum	she is retard and asshole, cum
4 103	text-10	Hodor	hodor

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)

```

❖ CALL_ID	❖ DEVICE_IMEI	❖ CALL_STATUS	❖ CALL_BEGIN	❖ CALL_END	❖ PHONE_NUMBER	❖ CALL_CITY
1 call-1	device-1	receive	13-JAN-2020 10:00:00	13-JAN-2020 11:0...	888-888-8888	NY
2 call-2	device-2	receive	13-FEB-2020 10:00:00	13-FEB-2020 11:0...	888-888-8888	NY
3 call-3	device-3	receive	06-MAR-2020 09:00:00	06-MAR-2020 10:0...	888-888-8888	NY
4 call-4	devuce-4	sent	23-APR-2020 15:00:00	23-APR-2020 16:0...	111-111-1111	NY
5 call-5	device-5	receive	11-MAY-2020 15:00:00	11-MAY-2020 16:0...	111-111-1111	NY
6 call-6	device-6	receive	11-JUN-2020 15:00:00	11-JUN-2020 16:0...	888-888-8888	NY
7 call-7	device-7	receive	11-JUL-2020 15:00:00	11-JUL-2020 16:0...	215-595-1364	NY
8 call-8	device-8	receive	11-AUG-2020 15:00:00	11-AUG-2020 16:0...	215-595-1358	NY
9 call-9	device-9	sent	11-SEP-2020 15:00:00	11-SEP-2020 16:0...	888-888-8888	NY
10 call-10	device-10	receive	11-OCT-2020 15:00:00	11-OCT-2020 16:0...	355-555-6615	NY

verizon_device

Name	Null?	Type

DEVICE_IMEI	NOT NULL	VARCHAR2 (255)
DEVICE_MANUFACTURER		VARCHAR2 (255)
DEVICE_MODEL		VARCHAR2 (255)
DEVICE_STORAGE		VARCHAR2 (255)

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

verizon_device_ownership

Name	Null?	Type

DEVICE_IMEI	NOT NULL	VARCHAR2 (255)
CUSTOMER_ID		NUMBER

	DEVICE_IMEI	CUSTOMER_ID
1	device-1	111
2	device-2	222
3	device-3	333
4	device-4	444
5	device-5	555
6	device-6	666
7	device-7	777
8	device-8	888
9	device-9	999
10	device-10	1000
11	device-11	111
12	device-12	222
13	device-13	333
14	device-14	444
15	device-15	555

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)

	INVOICE_ID	INVOICE_DATE	DEVICE_IMEI	CUSTOMER_ID	INVOICE_COST	PAYMENT
1	invoice-1	JAN-2020	device-1	111	200	cash
2	invoice-2	FEB-2020	device-2	222	500	cash
3	invoice-3	MAR-2020	device-3	333	600	cash
4	invoice-4	APR-2020	device-4	444	600	cash
5	invoice-5	MAY-2020	device-5	555	700	cash
6	invoice-6	JUN-2020	device-6	666	800	cash
7	invoice-7	JUL-2020	device-7	777	699	cash
8	invoice-8	AUG-2020	device-8	888	699	cash
9	invoice-9	SEP-2020	device-9	999	799	credit card
10	invoice-10	OCT-2020	device-10	1000	799	credit card
11	invoice-11	NOV-2020	device-11	111	799	credit card
12	invoice-12	DEC-2020	device-12	222	699	credit card
13	invoice-13	JAN-2021	device-13	333	699	credit card
14	invoice-14	FEB-2021	device-14	444	699	credit card
15	invoice-15	MAR-2021	device-15	555	699	credit card

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)

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

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)

```

	⚡TEXT_ID	⚡DEVICE_IMEI	⚡TEXT_DATE	⚡RECEIVE_NUMBER	⚡SENT_NUMBER	⚡TEXT_STATUS	⚡TEXT_CITY	⚡TEXT_CONTENT
1	text-1	device-1	01-JAN-2020 10:00:00	(null)	222-222-2222	sent	NY	hi, 123
2	text-2	device-2	01-JAN-2020 11:00:00	111-111-1111	(null)	receive	NY	hi, 1234
3	text-3	device-2	01-JAN-2020 12:00:00	(null)	111-111-1111	sent	NY	hi, 12345
4	text-4	device-1	01-JAN-2020 13:00:00	222-222-2222	(null)	receive	NY	hi, 123456
5	text-5	device-1	01-JAN-2020 14:00:00	(null)	222-222-2222	sent	NY	hi, 1234567
6	text-6	device-2	01-JAN-2020 15:00:00	111-111-1111	(null)	receive	NY	hi, 12345678
7	text-7	device-11	01-JAN-2020 15:00:00	(null)	888-888-8888	sent	NY	hi, 123456789
8	text-8	device-11	30-JAN-2020 15:00:00	(null)	888-888-8888	sent	NY	hi, 1234567890
9	text-9	device-8	15-FEB-2020 15:00:00	(null)	888-888-8888	sent	NY	hi, 12345678901
10	text-10	device-10	20-FEB-2021 15:00:00	(null)	888-888-8888	sent	NY	hi, 0

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

```

	WEB_ID	DEVICE_IMEI	WEB_DATE	URL	WEB_STATUS	WEB_BYTES
1	web-1	device-12	01-JAN-2020 10:00:00	https://www.google.com/	receive	10000
2	web-2	device-12	01-JAN-2020 11:00:00	https://www.google.com/	sent	11516
3	web-3	device-12	01-JAN-2020 12:00:00	https://www.youtube.com/	receive	63659
4	web-4	device-12	01-JAN-2020 13:00:00	https://www.youtube.com/	sent	18957
5	web-5	device-12	01-JAN-2020 14:00:00	https://www.youtube.com/	receive	18975
6	web-6	device-13	01-JAN-2020 15:00:00	https://github.com/	receive	4695
7	web-7	device-13	01-JAN-2020 16:00:00	https://github.com/	sent	55842
8	web-8	device-13	01-JAN-2020 18:00:00	https://github.com/	sent	55842
9	web-9	device-13	01-FEB-2020 14:00:00	https://www.amazon.com/	receive	6658
10	web-10	device-13	01-FEB-2020 15:00:00	https://www.amazon.com/	sent	2516

12. Display the version of Oracle. Enter:

```
SELECT *
```

```
FROM v$version;
```

```
BANNER          BANNER_FULL          BANNER_LEGACY  CON_ID
```

```

Oracle Database 18c Express Edition Release 18.0.0.0.0 - Production
        "Oracle Database 18c Express Edition Release 18.0.0.0.0 -
Production

```

```

Version 18.4.0.0.0" Oracle Database 18c Express Edition Release
18.0.0.0.0 - Production  0

```


Need SQL: (presenting with an example)

create form:

```
create table VERIZON_DEVICE
(DEVICE_IMEI VARCHAR(255) PRIMARY KEY,
DEVICE_MANUFACTURER VARCHAR(255) ,
DEVICE_MODEL VARCHAR(255),
DEVICE_STORAGE VARCHAR(255));
```

Insert value:

```
INSERT INTO VERIZON_DEVICE
(DEVICE_IMEI, DEVICE_MANUFACTURER, DEVICE_MODEL, DEVICE_STORAGE )
VALUES
('device-15', 'GOOGLE', 'PIXEL 5', '128G' );
```

Update value:

```
update verizon_customer
set customer_id = 1000
where customer_first = 'Vere'
```

create primary key with chronological value

create sequence staff_ID_SEQ

increment by 1

start with 10000;

```
insert whole column
INSERT
INTO verizon_device_ownership
(
device_imei
)
SELECT device_imei
FROM verizon_device;
```

```
Alter datatype
alter table
    verizon_invoice
modify
(
    invoice_date    varchar(255)
);
```

```
Delete value
delete
from verizon_invoice
where invoice_date = '02-JAN-20'
```