

## Part 1

1. 10
2. 6
3. NOT NULL
4. ctr\_number
5. lowest : -99  
highest : 99
6. lowest : -9999999  
highest : 9999999
7. start\_date, start\_time, itm\_number

## Part 2

### Modifying a column :

1.

The screenshot shows the Oracle SQL Developer interface. The left pane displays the database schema with tables like AQS\_INTERNET\_AGENT\_PRIVS, AQS\_INTERNET\_AGENTS, AQS\_KEY\_SHARD\_MAP, AQS\_QUEUE\_TABLES, AQS\_QUEUES, AQS\_SCHEDULES, CUSTOMERS, and ORDERS. The ORDERS table is selected, showing its columns: CTR\_NUMBER, EMAIL, FIRST\_NAME, LAST\_NAME, PHONE\_NUMBER, and CURRENT\_BALANCE. The main pane shows the SQL Worksheet with the following SQL code:

```
ALTER TABLE ordered_items ADD CONSTRAINT ordered_item_order_fk FOREIGN KEY ( odr_id )
REFERENCES orders ( id );

ALTER TABLE sales_rep_addresses ADD CONSTRAINT sales_rep_add_sales_rep_fk FOREIGN KEY ( id )
REFERENCES sales_representatives ( id );

ALTER TABLE sales_representatives ADD CONSTRAINT sales_rep_sales_rep_fk FOREIGN KEY ( supervisor_id ) REFERENCES sales_representatives ( id );

CREATE OR REPLACE TRIGGER fntm_orders BEFORE
UPDATE OF ctr_number ON orders
BEGIN
raise_application_error(
-20225,
'Mon Transferable FK constraint on table orders is violated'
);
END;
```

The Script Output pane shows the results of the SQL execution:

Name	Null?	Type
ID	NOT NULL	VARCHAR2(9)
ORD_DATE	NOT NULL	DATE
ORD_TIME	NOT NULL	DATE
NUMBER_OF_UNITS	NOT NULL	NUMBER(2)
CTR_NUMBER	NOT NULL	VARCHAR2(6)

2.

The screenshot shows the Oracle SQL Developer interface. The left pane displays the database schema with tables like AQS\_INTERNET\_AGENT\_PRIVS, AQS\_INTERNET\_AGENTS, AQS\_KEY\_SHARD\_MAP, AQS\_QUEUE\_TABLES, AQS\_QUEUES, AQS\_SCHEDULES, CUSTOMERS, and ORDERS. The ORDERS table is selected, showing its columns: CTR\_NUMBER, EMAIL, FIRST\_NAME, LAST\_NAME, PHONE\_NUMBER, and CURRENT\_BALANCE. The main pane shows the SQL Worksheet with the following SQL code:

```
ALTER TABLE sales_rep_addresses ADD CONSTRAINT sales_rep_add_sales_rep_fk FOREIGN KEY ( id )
REFERENCES sales_representatives ( id );

ALTER TABLE sales_representatives ADD CONSTRAINT sales_rep_sales_rep_fk FOREIGN KEY ( supervisor_id ) REFERENCES sales_representatives ( id );

CREATE OR REPLACE TRIGGER fntm_orders BEFORE
UPDATE OF ctr_number ON orders
BEGIN
raise_application_error(
-20225,
'Mon Transferable FK constraint on table orders is violated'
);
END;
```

The Script Output pane shows the results of the SQL execution:

Name	Null?	Type
ID	NOT NULL	VARCHAR2(9)
ORD_DATE	NOT NULL	DATE
ORD_TIME	NOT NULL	DATE
NUMBER_OF_UNITS	NOT NULL	NUMBER(2)
CTR_NUMBER	NOT NULL	VARCHAR2(6)

Table ORDERS altered.

3.

The screenshot shows the Oracle SQL Developer interface with a SQL script being executed. The script adds foreign key constraints to the `sales_rep_addresses` and `sales_representatives` tables, and creates a trigger `fnmta_orders` that updates the `ctr_number` on orders. The script output shows the task completed in 0.037 seconds and the structure of the `ORDERS` table.

```

ALTER TABLE sales_rep_addresses ADD CONSTRAINT sales_rep_add_sales_rep_fk FOREIGN KEY ( id )
REFERENCES sales_representatives ( id );

ALTER TABLE sales_representatives ADD CONSTRAINT sales_rep_sales_rep_fk FOREIGN KEY ( supervisor_id ) REFERENCES sales_representatives ( id );

CREATE OR REPLACE TRIGGER fnmta_orders BEFORE
UPDATE OF ctr_number ON orders
BEGIN
    raise_application_error(
        -20225,
        'Non Transferable FK constraint on table orders is violated'
    );
END;
/

describe orders;
alter table orders
modify (odr_date DATE DEFAULT SYSDATE);
describe orders;

```

Name	Null?	Type
ID	NOT NULL	VARCHAR2(9)
ODR_DATE	NOT NULL	DATE
ODR_TIME	NOT NULL	DATE
NUMBER_OF_UNITS	NOT NULL	NUMBER(2)
CTR_NUMBER	NOT NULL	VARCHAR2(6)

Adding a check constraint :

1.

The screenshot shows the Oracle SQL Developer interface with a SQL script being executed. The script adds a check constraint `chk_ctr_number` to the `CTR_NUMBER` column in the `ORDERS` table. The script output shows the task completed in 0.029 seconds and the structure of the `ORDERS` table.

```

ALTER TABLE sales_rep_addresses ADD CONSTRAINT sales_rep_add_sales_rep_fk FOREIGN KEY ( id )
REFERENCES sales_representatives ( id );

ALTER TABLE sales_representatives ADD CONSTRAINT sales_rep_sales_rep_fk FOREIGN KEY ( supervisor_id ) REFERENCES sales_representatives ( id );

CREATE OR REPLACE TRIGGER fnmta_orders BEFORE
UPDATE OF ctr_number ON orders
BEGIN
    raise_application_error(
        -20225,
        'Non Transferable FK constraint on table orders is violated'
    );
END;
/

describe orders;
alter table orders
modify (odr_date DATE DEFAULT SYSDATE);
describe orders;
describe customers;

```

Name	Null?	Type
CTR_NUMBER	NOT NULL	VARCHAR2(6)
EMAIL	NOT NULL	VARCHAR2(50)
FIRST_NAME	NOT NULL	VARCHAR2(20)
LAST_NAME	NOT NULL	VARCHAR2(30)
PHONE_NUMBER	NOT NULL	VARCHAR2(11)
CURRENT_BALANCE	NOT NULL	NUMBER(6,2)
SRE_ID		VARCHAR2(4)
TEM_ID		VARCHAR2(4)
LOYALTY_CARD_NUMBER		VARCHAR2(6)

2.

The screenshot shows the Oracle SQL Developer interface. The left pane displays the database schema with the 'CUSTOMERS' table selected. The main editor contains the following SQL script:

```

ALTER TABLE sales_representatives ADD CONSTRAINT sales_rep_sales_rep_fk FOREIGN KEY ( supervisor_id ) REFERENCES sales_representatives ( id );

CREATE OR REPLACE TRIGGER finta_orders
UPDATE OF ctr_number ON orders
BEGIN
    raise_application_error(
        -20215,
        'Non Transferable FK constraint on table orders is violated'
    );
END;
/

describe orders;
alter table orders
modify (odr_date DATE DEFAULT SYSDATE);
describe orders;

describe customers;
alter table customers
add constraint cus_current_balance check (current_balance >= 0);

```

The 'Script Output' pane shows the results of the execution:

```

Task completed in 0.26 seconds

FIRST_NAME      NOT NULL VARCHAR2(20)
LAST_NAME       NOT NULL VARCHAR2(30)
PHONE_NUMBER    NOT NULL VARCHAR2(11)
CURRENT_BALANCE NOT NULL NUMBER(6,2)
SRE_ID         VARCHAR2(4)
TEM_ID         VARCHAR2(4)
LOYALTY_CARD_NUMBER VARCHAR2(6)

Table CUSTOMERS altered.

```

The status bar at the bottom indicates 'Line 139 Column 65 | Insert | Modified | Windows: C'.

3.

The screenshot shows the Oracle SQL Developer interface. The left pane displays the database schema with the 'CUSTOMERS' table selected. The main editor contains the following SQL script:

```

ALTER TABLE sales_representatives ADD CONSTRAINT sales_rep_sales_rep_fk FOREIGN KEY ( supervisor_id ) REFERENCES sales_representatives ( id );

CREATE OR REPLACE TRIGGER finta_orders
UPDATE OF ctr_number ON orders
BEGIN
    raise_application_error(
        -20215,
        'Non Transferable FK constraint on table orders is violated'
    );
END;
/

describe orders;
alter table orders
modify (odr_date DATE DEFAULT SYSDATE);
describe orders;

describe customers;
alter table customers
add constraint cus_current_balance check (current_balance >= 0);
describe customers;

```

The 'Script Output' pane shows the results of the execution:

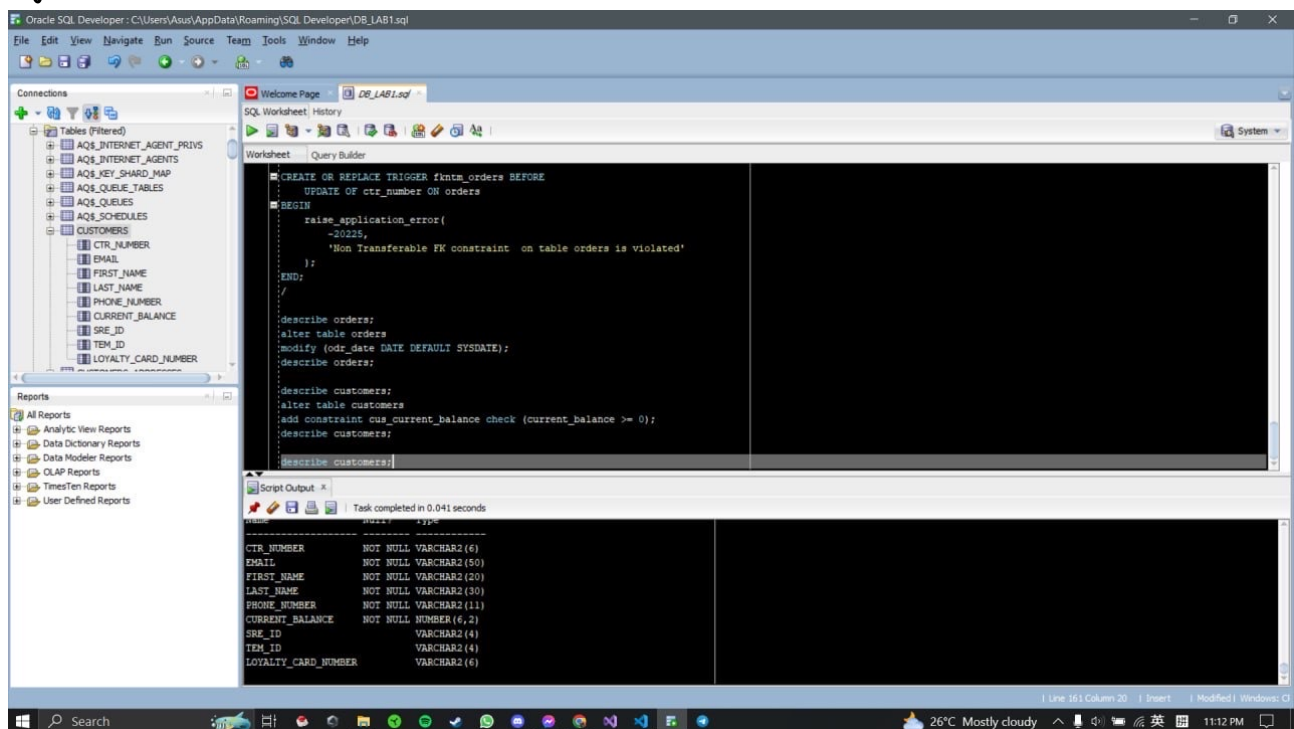
```

Task completed in 0.03 seconds

NAME      TYPE
-----
CTR_NUMBER NOT NULL VARCHAR2(6)
EMAIL      NOT NULL VARCHAR2(50)
FIRST_NAME NOT NULL VARCHAR2(20)
LAST_NAME  NOT NULL VARCHAR2(30)
PHONE_NUMBER NOT NULL VARCHAR2(11)
CURRENT_BALANCE NOT NULL NUMBER(6,2)
SRE_ID     VARCHAR2(4)
TEM_ID     VARCHAR2(4)
LOYALTY_CARD_NUMBER VARCHAR2(6)

```

The status bar at the bottom indicates 'Line 139 Column 20 | Insert | Modified | Windows: C'.





2.

Oracle SQL Developer: C:\Users\Asus\AppData\Roaming\SQL Developer\DB\_1AB1.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

Tables (Filtered)

- AQS\_INTERNET\_AGENT\_PRIVS
- AQS\_INTERNET\_AGENTS
- AQS\_KEY\_SHARD\_MAP
- AQS\_QUEUE\_TABLES
- AQS\_QUEUES
- AQS\_SCHEDULES
- CUSTOMERS
  - CTR\_NUMBER
  - EMAIL
  - FIRST\_NAME
  - LAST\_NAME
  - PHONE\_NUMBER
  - CURRENT\_BALANCE
  - SRE\_ID
  - TEM\_ID
  - LOYALTY\_CARD\_NUMBER

Reports

- All Reports
- Analytic View Reports
- Data Dictionary Reports
- Data Modeler Reports
- OLAP Reports
- TimesTen Reports
- User Defined Reports

SQL Worksheet: History

Worksheet Query Builder

```

raise_application_error(
  -20225,
  'Non Transferable FK constraint on table orders is violated'
);
END;
/

describe orders;
alter table orders
modify (odr_date DATE DEFAULT SYSDATE);
describe orders;

describe customers;
alter table customers
add constraint cus_current_balance check (current_balance >= 0);
describe customers;

describe customers;
alter table customers
add mobile_phone_number number(11);

```

Script Output

Task completed in 0.286 seconds

```

FIRST_NAME      NOT NULL VARCHAR2(20)
LAST_NAME       NOT NULL VARCHAR2(30)
PHONE_NUMBER    NOT NULL VARCHAR2(11)
CURRENT_BALANCE NOT NULL NUMBER(6,2)
SRE_ID          VARCHAR2(4)
TEM_ID          VARCHAR2(4)
LOYALTY_CARD_NUMBER VARCHAR2(6)

Table CUSTOMERS altered.

```

Line 161 Column 26 | Insert | Modified | Windows: C

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3.

Oracle SQL Developer: C:\Users\Asus\AppData\Roaming\SQL Developer\DB\_1AB1.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

Tables (Filtered)

- AQS\_INTERNET\_AGENT\_PRIVS
- AQS\_INTERNET\_AGENTS
- AQS\_KEY\_SHARD\_MAP
- AQS\_QUEUE\_TABLES
- AQS\_QUEUES
- AQS\_SCHEDULES
- CUSTOMERS
  - CTR\_NUMBER
  - EMAIL
  - FIRST\_NAME
  - LAST\_NAME
  - PHONE\_NUMBER
  - CURRENT\_BALANCE
  - SRE\_ID
  - TEM\_ID
  - LOYALTY\_CARD\_NUMBER

Reports

- All Reports
- Analytic View Reports
- Data Dictionary Reports
- Data Modeler Reports
- OLAP Reports
- TimesTen Reports
- User Defined Reports

SQL Worksheet: History

Worksheet Query Builder

```

raise_application_error(
  -20225,
  'Non Transferable FK constraint on table orders is violated'
);
END;
/

describe orders;
alter table orders
modify (odr_date DATE DEFAULT SYSDATE);
describe orders;

describe customers;
alter table customers
add constraint cus_current_balance check (current_balance >= 0);
describe customers;

describe customers;
alter table customers
add mobile_phone_number number(11);
describe customers;

```

Script Output

Task completed in 0.033 seconds

```

CTR_NUMBER      NOT NULL VARCHAR2(6)
EMAIL           NOT NULL VARCHAR2(50)
FIRST_NAME      NOT NULL VARCHAR2(20)
LAST_NAME       NOT NULL VARCHAR2(30)
PHONE_NUMBER    NOT NULL VARCHAR2(11)
CURRENT_BALANCE NOT NULL NUMBER(6,2)
SRE_ID          VARCHAR2(4)
TEM_ID          VARCHAR2(4)
LOYALTY_CARD_NUMBER VARCHAR2(6)
MOBILE_PHONE_NUMBER NUMBER(11)

```

Line 164 Column 20 | Insert | Modified | Windows: C

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Dropping a column :

1.

The screenshot shows the Oracle SQL Developer interface. The left pane displays the 'Tables (Filtered)' tree with the 'CUSTOMERS' table selected. The main workspace shows a SQL script with the following content:

```
/*Mon Transferable FK constraint on table orders is violated*/
END;
/

describe orders;
alter table orders
modify (odr_date DATE DEFAULT SYSDATE);
describe orders;

describe customers;
alter table customers
add constraint cus_current_balance check (current_balance >= 0);
describe customers;

describe customers;
alter table customers
add mobile_phone_number number(11);
describe customers;

describe customers;
```

The 'Script Output' pane at the bottom shows the results of the script execution, completed in 0.029 seconds:

Column Name	Data Type
CTR_NUMBER	NOT NULL VARCHAR2(6)
EMAIL	NOT NULL VARCHAR2(50)
FIRST_NAME	NOT NULL VARCHAR2(20)
LAST_NAME	NOT NULL VARCHAR2(30)
PHONE_NUMBER	NOT NULL VARCHAR2(11)
CURRENT_BALANCE	NOT NULL NUMBER(6,2)
SRE_ID	VARCHAR2(4)
TEM_ID	VARCHAR2(4)
LOYALTY_CARD_NUMBER	VARCHAR2(6)
MOBILE_PHONE_NUMBER	NUMBER(11)

2.

The screenshot shows the Oracle SQL Developer interface. The left pane displays the 'Tables (Filtered)' tree with the 'CUSTOMERS' table selected. The main workspace shows a SQL script with the following content:

```
END;
/

describe orders;
alter table orders
modify (odr_date DATE DEFAULT SYSDATE);
describe orders;

describe customers;
alter table customers
add constraint cus_current_balance check (current_balance >= 0);
describe customers;

describe customers;
alter table customers
add mobile_phone_number number(11);
describe customers;

describe customers;
alter table customers
drop (MOBILE_PHONE_NUMBER);
```

The 'Script Output' pane at the bottom shows the results of the script execution, completed in 0.347 seconds:

Column Name	Data Type
LAST_NAME	NOT NULL VARCHAR2(30)
PHONE_NUMBER	NOT NULL VARCHAR2(11)
CURRENT_BALANCE	NOT NULL NUMBER(6,2)
SRE_ID	VARCHAR2(4)
TEM_ID	VARCHAR2(4)
LOYALTY_CARD_NUMBER	VARCHAR2(6)
MOBILE_PHONE_NUMBER	NUMBER(11)

Table CUSTOMERS altered.

3.

Oracle SQL Developer: C:\Users\Asus\AppData\Roaming\SQL Developer\DB\_LAB1.sql

File Edit View Navigate Run Source Team Tools Window Help

Connections

Tables (Filtered)

- [-] AQ\$\_INTERNET\_AGENT\_PRIVS
- [-] AQ\$\_INTERNET\_AGENTS
- [-] AQ\$\_KEY\_SHARD\_MAP
- [-] AQ\$\_QUEUE\_TABLES
- [-] AQ\$\_QUEUES
- [-] AQ\$\_SCHEDULES
- [-] CUSTOMERS
  - [-] CTR\_NUMBER
  - [-] EMAIL
  - [-] FIRST\_NAME
  - [-] LAST\_NAME
  - [-] PHONE\_NUMBER
  - [-] CURRENT\_BALANCE
  - [-] SRE\_ID
  - [-] TEN\_ID
  - [-] LOYALTY\_CARD\_NUMBER

Reports

- [-] All Reports
- [-] Analytic View Reports
- [-] Data Dictionary Reports
- [-] Data Modeler Reports
- [-] OLAP Reports
- [-] TimesTen Reports
- [-] User Defined Reports

SQL Worksheet: DB\_LAB1.sql

```

describe orders;
alter table orders
modify (odr_date DATE DEFAULT SYSDATE);
describe orders;

describe customers;
alter table customers
add constraint cus_current_balance check (current_balance >= 0);
describe customers;

describe customers;
alter table customers
add mobile_phone_number number(11);
describe customers;

describe customers;
alter table customers
drop (MOBILE_PHONE_NUMBER);
describe customers;
  
```

Script Output

Task completed in 0.029 seconds

NAME	TYPE
CTR_NUMBER	NOT NULL VARCHAR2(6)
EMAIL	NOT NULL VARCHAR2(50)
FIRST_NAME	NOT NULL VARCHAR2(20)
LAST_NAME	NOT NULL VARCHAR2(30)
PHONE_NUMBER	NOT NULL VARCHAR2(11)
CURRENT_BALANCE	NOT NULL NUMBER(6,2)
SRE_ID	VARCHAR2(4)
TEN_ID	VARCHAR2(4)
LOYALTY_CARD_NUMBER	VARCHAR2(6)

Unit: 169 Column: 20 | Insert | Modified | Windows: C

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