```sql
DROP TABLE warehouse;
DROP TABLE address;
DROP TABLE color;

CREATE TABLE warehouse
(warehouse_id INTEGER NOT NULL,
location_name VARCHAR (50) NOT NULL,
out_of_stock INTEGER NOT NULL);

CREATE TABLE product
(product_id INTEGER NOT NULL,
type_id VARCHAR(50) NOT NULL,
brand_id VARCHAR (50)NOT NULL,
model_id VARCHAR (50)NOT NULL,
accessories_id INTEGER NOT NULL,
color_id VARCHAR(50) NOT NULL
);

CREATE TABLE orders
(product_id INTEGER NOT NULL,
customer_id INTEGER NOT NULL,
order_id INTEGER NOT NULL,
order_date DATE NOT NULL,
quantity INTEGER NOT NULL,
tax_id INTEGER NOT NULL,
associate_id INTEGER NOT NULL
);

CREATE TABLE customer
(customer_id INTEGER DEFAULT,
customer_name VARCHAR (50) NOT NULL,
address_id INTEGER NOT NULL
);

CREATE TABLE tax_history
(tax_id INTEGER NOT NULL,
start_date DATE NOT NULL,
end_date DATE NOT NULL
);

CREATE TABLE brand
(brand_id INTEGER DEFAULT);

CREATE TABLE accessories
(accessories_id INTEGER NOT NULL,
cable VARCHAR(50) NOT NULL);

CREATE TABLE color
(color_id VARCHAR (50) NOT NULL,
product_color VARCHAR (50) NOT  NULL);

CREATE TABLE associate_id
(associate_id INTEGER NOT NULL,
associate_name VARCHAR (50) NOT NULL);

CREATE TABLE model
(model_id INTEGER NOT NULL,
dimensions INTEGER NOT NULL,
motor VARCHAR (50) NOT NULL,
heat VARCHAR (50) DEFAULT,
speed VARCHAR (50) NOT NULL,
```

```sql
serial_num INTEGER NOT NULL,
unit_price INTEGER NOT NULL,
noise VARCHAR (50) NOT NULL,
review VARCHAR (50) NOT NULL,
warranty VARCHAR (50) NOT NULL,
technology_id INTEGER NOT NULL);

CREATE TABLE technology
(technology_id INTEGER NOT NULL);

CREATE TABLE address
(address_id INTEGER NOT NULL,
house_num INTEGER NOT NULL,
street_name VARCHAR(50)  NOT NULL,
province VARCHAR(50) NOT NULL,
pincode_id INTEGER NOT NULL);

CREATE TABLE pincode
(pincode_id INTEGER NOT NULL);

CREATE TABLE warehouse_product
(warehouse_id INTEGER NOT NULL,
product_id INTEGER NOT NULL);

--keys
ALTER TABLE warehouse
ADD CONSTRAINT warehouse_id_pk PRIMARY KEY (warehouse_id);

ALTER TABLE product
ADD CONSTRAINT product_id_pk PRIMARY KEY (product_id);

ALTER TABLE orders
ADD CONSTRAINT order_id_pk PRIMARY KEY (order_id);

ALTER TABLE model
ADD CONSTRAINT model_id_pk PRIMARY KEY (model_id);

ALTER TABLE customer
ADD CONSTRAINT customer_id_pk PRIMARY KEY (customer_id);

ALTER TABLE color
ADD CONSTRAINT color_id_pk PRIMARY KEY (color_id);

ALTER TABLE associate_id
ADD CONSTRAINT associate_id_pk PRIMARY KEY (associate_id);

ALTER TABLE accessories
ADD CONSTRAINT accessories_id_pk PRIMARY KEY (accessories_id);

ALTER TABLE technology
ADD CONSTRAINT technology_id_pk PRIMARY KEY (technology_id);

ALTER TABLE address
ADD CONSTRAINT address_id_pk PRIMARY KEY (address_id);

ALTER TABLE tax_history
ADD CONSTRAINT tax_id_pk PRIMARY KEY (tax_id);

ALTER TABLE brand
ADD CONSTRAINT brand_id_pk PRIMARY KEY (brand_id);
```

```
ALTER TABLE model
ADD CONSTRAINT motor UNIQUE (motor);

ALTER TABLE model
ADD CONSTRAINT serial_num UNIQUE (serial_num);

ALTER TABLE address
ADD CONSTRAINT house_num UNIQUE (house_num);

ALTER TABLE product
ADD CONSTRAINT brand_id_fk FOREIGN KEY (brand_id)
REFERENCES brand (brand_id);

ALTER TABLE product
ADD CONSTRAINT accessories_id_fk FOREIGN KEY (accessories_id)
REFERENCES accessories (accessories_id);

ALTER TABLE product
ADD CONSTRAINT color_id_fk FOREIGN KEY (color_id)
REFERENCES color (color_id);

ALTER TABLE warehouse_product
ADD CONSTRAINT warehouse_id_fk FOREIGN KEY (warehouse_id)
REFERENCES warehouse (warehouse_id);

ALTER TABLE warehouse_product
ADD CONSTRAINT product_id_fk FOREIGN KEY (product_id)
REFERENCES product (product_id);

ALTER TABLE orders
ADD CONSTRAINT product_id_fk FOREIGN KEY (product_id)
REFERENCES product (product_id);

ALTER TABLE orders
ADD CONSTRAINT customer_id_fk FOREIGN KEY (customer_id)
REFERENCES customer (customer_id);

ALTER TABLE orders
ADD CONSTRAINT tax_id_fk FOREIGN KEY (tax_id)
REFERENCES tax_history (tax_id);

ALTER TABLE orders
ADD CONSTRAINT associate_id_fk FOREIGN KEY (associate_id)
REFERENCES associate_id (associate_id);

ALTER TABLE model
ADD CONSTRAINT technology_id_fk FOREIGN KEY (technology_id)
REFERENCES technology (technology_id);

ALTER TABLE address
ADD CONSTRAINT pincode_id_fk FOREIGN KEY (pincode_id)
REFERENCES pincode (pincode_id);

--CHECKS
ALTER TABLE warehouse
ADD CONSTRAINT out_of_stock_ck
CHECK (out_of_stock IN (0,10));

ALTER TABLE address
ADD CONSTRAINT province_ck
CHECK (province IN ('Ontario'));
```

```sql
ALTER TABLE color
ADD CONSTRAINT product_color_ck
CHECK (product_color IN ('grey'));


--populate warehouse table
INSERT INTO warehouse VALUES
(101,'sarnia',1),
(102,'london',20);

--populate product table
INSERT INTO product VALUES
 (201,'infrared','A231','B60IP',1001,'F00F1'),
 (202,'infrared','A231','HJ76G',1002,'Go98'),
 (203,'infrared','A767','H765G',1003,'YUH7'),
 (204,'infrared','A87u','B60IP',1004,'FOOF2'),
 (205,'infrared','A87y','N8F6H',1005,'JUDYH'),
 (206,'infrared','JUDTG','DJI8EJ',1006,'DJU8'),
 (207,'infrared','A236','B61IP',1007,'F00F7'),
 (208,'infrared','A237','B62IP',1008,'F00F8'),
 (209,'infrared','A238','B63IP',1009,'F00F9'),
 (210,'infrared','A239','B64IP',1010,'F00410');

--populate order table
INSERT INTO orders VALUES
(201,001,8001,'2019-12-20',20,839,321),
(202,002,8002,'2019-12-13',39,840,322),
(203,003,8003,'2019-12-09',58,841,323),
(204,004,8004,'2019-12-01',12,842,324),
(205,005,8005,'2019-11-29',54,843,325),
(206,006,8006,'2019-11-15',7,844,326),
(207,007,8007,'2019-11-4',10,845,327),
(208,008,8008,'2019-10-15',9,846,328),
(209,009,8009,'2019-10-6',11,847,329),
(210,010,8010,'2019-10-31',00,848,330),
(202,001,8001,'2019-12-20',20,839,321),
(203,002,8002,'2019-12-13',39,840,322),
(208,003,8003,'2019-12-09',58,841,323),
(209,004,8004,'2019-12-01',12,842,324),
(204,005,8005,'2019-11-29',54,843,325),
(210,006,8006,'2019-11-15',7,844,326),
(209,007,8007,'2019-11-4',10,845,327),
(201,008,8008,'2019-10-15',9,846,328),
(203,009,8009,'2019-10-6',11,847,329),
(201,010,8010,'2019-10-31',00,848,330);

--populate customer table
INSERT INTO customer VALUES
(001,'Aman Beniwal',501),
(002,'Dhrashti Seth',502),
(003,'Abhinav Singh',503),
(004,'Sachin Narula',504),
(005,'Lipika S',505);

--populate tax_history table
INSERT INTO tax_history VALUES
('321','2019-03-31','2020-02-28'),
('322','2019-04-01','2020-3-3');

--populate brand table
```

```sql
INSERT INTO brand VALUES
('A231');

--populate accessories table
INSERT INTO accessories VALUES
(1001,'20 metres');

--populate color table
INSERT INTO color VALUES
('F00F9','BLACK');

--populate associate table
INSERT INTO associate_id VALUES
(330,'Dean Curtis'),
(331,'Bary Daniels'),
(332,'Joe Becter');

--populate model table
INSERT INTO model VALUES
('B601IP',23,'1855 watt','moderate','strong',050,150,'40 percent','4 start','2
years',6001);

--populate technology table
INSERT INTO technology VALUES
(6001);

--populate address table
INSERT INTO address VALUES
(501,921,'Indian Road','Ontario',458978);

--populate pincode table
INSERT INTO pincode VALUES
(458978);

--populate warehouse_product table
INSERT INTO warehouse_product VALUES
(101,201);

CREATE TABLE customers
customer_id INTEGER NOT NULL
GENERATED ALWAYS AS IDENTITY
(START WITH 100 INCREMENT BY 10)
customer_id INTEGER,
customer_name VARCHAR(50),
address_id INTEGER;

CREATE TABLE orders (
order_id INTEGER NOT NULL
GENERATED ALWAYS AS IDENTITY
(START WITH 100 INCREMENT BY 10)
product_id INTEGER,
customer_id INTEGER,
order_id INTEGER,
order_date DATE,
quantity INTEGER,
tax_id INTEGER,
associate_id INTEGER
);

--Constraint NOT NULL test
--Description: Constraint CHECK for CHECK constraint
```

```
--Expected Results : Insertion will not be allowed
INSERT INTO address VALUES
(501,921,'Indian Road','Ontario',NULL)
--Actual Results:
--SQL Error [23502]: [SQL0407] Null values not allowed in column or variable
PINCODE_ID.

--Constraint DEFAULT test
--Description: Constraint CHECK for CHECK constraint
--Expected Results : Insertion will not be allowed
INSERT INTO associate_id VALUES
(DEFAULT,'Bary Daniels')
--Actual Results:
--SQL Error [23502]: [SQL0407] Null values not allowed in column or variable
ASSOCIATE_ID.

--Constraint Primary Key test
--Description: Constraint CHECK for CHECK constraint
--Expected Results : Insertion will not be allowed
INSERT INTO warehouse VALUES
(101,'sarnia','one')
--Actual Results:
SQL Error [23505]: [SQL0803] Duplicate key value specified.

--Constraint Primary Key check
--Description: Constraint CHECK for CHECK constraint
--Expected Results : Insertion will not be allowed
INSERT INTO tax_history VALUES
('321','2019-03-31','2020-02-28')
--Actual Results:
--SQL Error [23505]: [SQL0803] Duplicate key value specified.

--Constraint Unique Key test
--Description: Constraint CHECK for CHECK constraint
--Expected Results : Insertion will not be allowed
INSERT INTO address VALUES
(501,921,'Indian Road','Ontario',458978);
--Actual Results:
--SQL Error [23505]: [SQL0803] Duplicate key value specified.



--Constraint Foriegn Key test
--Description: Constraint CHECK for CHECK constraint
--Expected Results : Insertion will not be allowed
INSERT INTO product VALUES
 (201,'infrared','A231','B60IP',1001,'F00F1')
--Actual Results:
--SQL Error [23503]: [SQL0530] Operation not allowed by referential constraint
COLOR_ID_FK in IBM7955.

--Constraint Foriegn Key test
--Description: Constraint CHECK for CHECK constraint
--Expected Results : Insertion will not be allowed
INSERT INTO product VALUES
(NULL,'sarnia','one')
--Actual Results:
--SQL Error [23503]: [SQL0530] Operation not allowed by referential constraint
PRODUCT_ID_FK in IBM7955.

--Constraint Foriegn Key test
--Description: Constraint CHECK for CHECK constraint
```

```
--Expected Results : Insertion will not be allowed
INSERT INTO warehouse_product VALUES
(101,201)
--Actual Results:
--SQL Error [23503]: [SQL0530] Operation not allowed by referential constraint
PRODUCT_ID_FK in IBM7955.

--Constraint Foriegn Key test
--Description: Constraint CHECK for CHECK constraint
--Expected Results : Insertion will not be allowed
INSERT INTO orders VALUES
(201,001,8001,'2019-12-20',20,839,321)
--Actual Results:
--SQL Error [23503]: [SQL0530] Operation not allowed by referential constraint
ASSOCIATE_ID_FK in IBM7955.


--Constraint check

 --Constraint test 1
--Description: Constraint CHECK for CHECK constraint
--Expected Results : Insertion will not be allowed
INSERT INTO warehouse VALUES
(101,'sarnia',20)
--Actual Results:
--SQL Error [23513]: [SQL0545] INSERT, UPDATE, or MERGE not allowed by CHECK
constraint.

 --Constraint test 2
--Description: Constraint CHECK for CHECK constraint
--Expected Results : Insertion will not be allowed
INSERT INTO address VALUES
(501,921,'Indian Road','nova scotia',458978)
--Actual Results:
--SQL Error [23513]: [SQL0545] INSERT, UPDATE, or MERGE not allowed by CHECK
constraint.

--Constraint test 3
--Description: Constraint CHECK for CHECK constraint
--Expected Results : Insertion will not be allowed
INSERT INTO color VALUES
('F00F9','BLACK')
--Actual Results:
--SQL Error [23513]: [SQL0545] INSERT, UPDATE, or MERGE not allowed by CHECK
constraint.
```