Introduction to Data analysis CA





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Due Date: 23-April-2020

**Online jewellery retail business** – *Krie*

Business contexts

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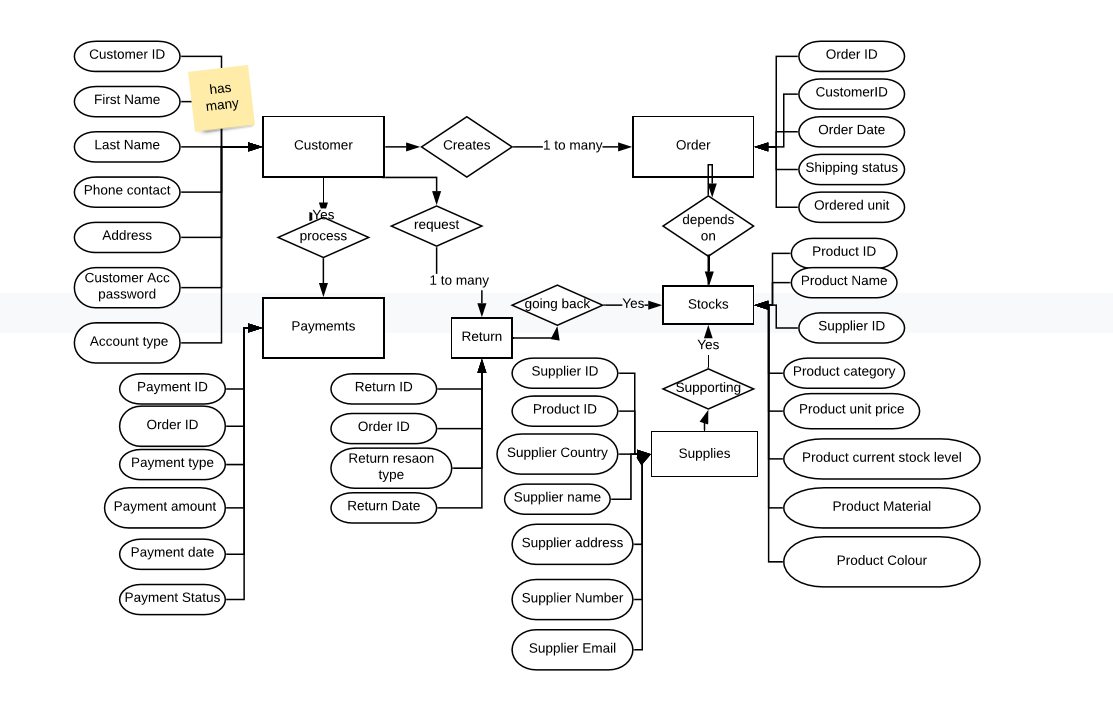
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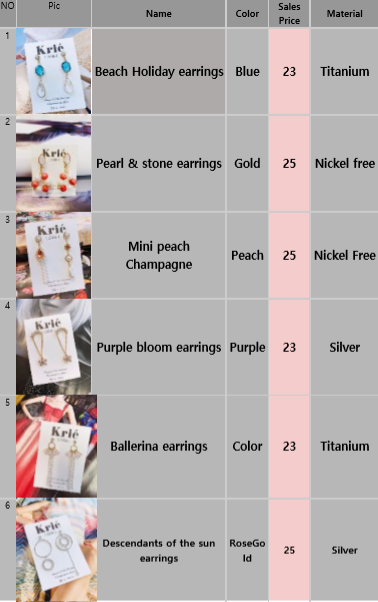
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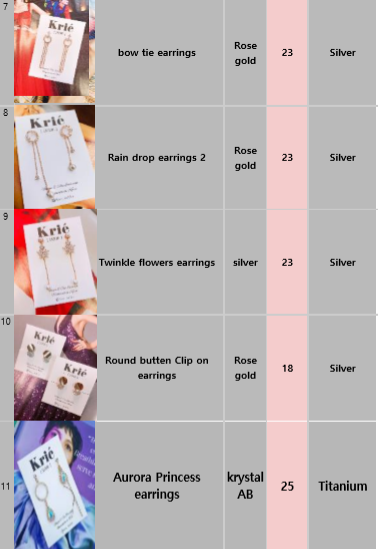
[References 29](#_Toc38218908)

# Business ERD Diagram



# Product Category









# Database creation

CREATE DATABASE Krie;

USE Krie;

CREATE TABLE Customer (

CustomerID varchar(100),

FirstName varchar(100),

LastName varchar(100),

Address varchar(255),

Country varchar(100),

Mobile varchar(100),

Customer\_Account\_Password varchar(250),

Account\_Type varchar(100),

PRIMARY KEY (CustomerID)

);

CREATE TABLE Orders (

OrderID varchar(100),

CustomerID varchar(100),

Order\_Date date,

Shipping\_Status varchar(100),

PRIMARY KEY (OrderID)

);

CREATE TABLE Payment (

PaymentID varchar(100),

OrderID varchar(100),

Payment\_Type varchar(100),

Payment\_Amount varchar(100),

Payment\_Date datetime,

Payment\_Status varchar(100),

PRIMARY KEY (PaymentID)

);

CREATE TABLE Stock (

ProductID varchar(100),

SupplierID varchar(100),

Product\_Name varchar(100),

Product\_Category varchar(100),

Product\_\_Colour varchar(100),

Product\_Material varchar(100),

Product\_Unit\_Price varchar(100),

Product\_\_Stock\_Level varchar(100),

PRIMARY KEY (ProductID)

);

CREATE TABLE Supplies (

SupplierID varchar(100),

Supplier\_Name varchar(100),

Supplier\_Address varchar(250),

Supplier\_Country varchar(100),

Supplier\_Number varchar(100),

Supplier\_Email varchar(250),

PRIMARY KEY (SupplierID)

);

CREATE TABLE Returnings (

ReturnID varchar(100),

OrderID varchar(100),

Return\_Reason\_Type varchar(100),

Return\_Date date,

PRIMARY KEY (ReturnID)

);

## Inserting Value into the tables

INSERT INTO

Customer (CustomerID,FirstName,LastName,Address,Country,Mobile,Customer\_Account\_Password, Account\_Type)

VALUES

('101','Kate','Murphy','41 Little Strand Street','Ireland', '0831223456','20200104','General'),

('102','Pablo','Caracol','61 La calle feliz','Spain','0034831952312','iyayayaya','Subscription'),

('103','Miko','Cheong','1 Happy Street','Ireland','0821313242','okepsdf','General'),

('105','Vivian','Chan','33 Big long Street','Ireland', '0872312345','whaticansay','Subscription'),

('106','Crystal','Murphy','76 Ballyformot Street','Ireland', '0831296253','crystalc','General'),

('107','Poey','Po','21 The middle Street','Ireland', '0831666253','catfish','General'),

('108','Pablo','Roca','88 Ballybough Avenue','Ireland', '0831254234','AAnotgood','General'),

('109','Mika','Murphy','65 Grand Canal Avenue','Ireland', '0859543243','mikami','Subscription'),

('110','Alice','P','7 Wonderland Avenue','Korea','00383245623','Magic123','Subscription'),

('111','Carmen','Molina','78 La calle triste','Spain','0034859543243','carmen01','General'),

('112','Sergio','Molina','80 La calle triste','Spain','0034859543243','sergio000','General'),

('113','Ivan','Murphy','1 Little Strand Street','Ireland', '0831999236','Ivanivan','Subscription'),

('114','Sherry','King','67 Low Avenue','Ireland', '0891923333','SherryK','General'),

('115','Allen','G','Mallow Lower Avenue','Ireland', '0892212555','AllenG','General'),

('116','Mary','Mcknight','163 Tullow Road','Ireland', '0852232155','MaryKnight','General'),

('117','Cody','OBrien','166 Abbey Street','Ireland', '098231223','Cody12356','General'),

('118','Sabrina','Hsiao','Rathma Road','Ireland', '0832235557','CoolBean','Subscription');

INSERT INTO

Stock (ProductID,SupplierID,Product\_Name,Product\_Category,Product\_\_Colour,Product\_Material,Product\_Unit\_Price,Product\_\_Stock\_Level)

VALUES

('1','30001','Beach Holiday earrings','Daily','Blue','Titanium ','23','11'),

('2','30001','Pearl & stone earrings','Daily','Gold','NickelFree','25','14'),

('3','30002','Mini peach Champagne','Special Occasion','Peach','NickelFree','25','12'),

('4','30004','Purple bloom earrings','Special Occasion','Purple','Sliver','23','8'),

('5','30001','Ballerina earrings','Special Occasion','Clear','Titanium ','23','10'),

('6','30005','Descendants of the sun earrings','Classic','RoseGold','Silver','25','13'),

('7','30005','bow tie earrings','Classic','RoseGold','Silver','23','13'),

('8','30004','Rain drop earrings 2','Classic','RoseGold','Silver','23','7'),

('9','30005','Twinkle flowers earrings','Classic','Silver','Silver','23','6'),

('10','30001','Round butten Clip on earrings','Causal','RoseGold','Silver','18','9'),

('11','30002','Aurora Princess earrings','Special Occasion','krystalAB','Titanium','25','13'),

('12','30005','Peanut ring earrings','Causal','Gold','NickelFree','18','7'),

('13','30005','Snow flower earrings','Classic','RoseGold','Silver','25','6'),

('14','30003','Purple promise earrings','Classic','RoseGold','Silver','23','14'),

('15','30003','Black thorn earrings','Classic','RoseGold','Silver','23','8'),

('16','30003','Bloody drop earrings','Daily','Silver','Silver','23','10'),

('17','30002','Dandelion earrings','Classic','RoseGold','Silver','23','11'),

('18','30004','Mini milkey way earrings','Daily','Silver','Silver','20','15'),

('19','30004','Flower Coronet earrings','Daily','RoseGold','Silver','22','7'),

('20','30004','Elegance pearl earrings','Daily','Gold','RealPearl','25','6');

INSERT INTO

Supplies (SupplierID,Supplier\_Name,Supplier\_Address,Supplier\_Country,Supplier\_Number,Supplier\_Email)

VALUES

('30001','Moonyang Studio','Sannam-ro, Yeongtong-gu Suwon-si, Gyeonggi-do','Korea','00821030575115','moonyangstudio.en.ec21.com'),

('30002','TYT Inc','36-12, Toegye-ro 6ga-gil Jung-gu, Seoul','Korea','00821036496495','wolgan.en.ec21.com'),

('30003','Heyshop','The Western of the South Ring, Dongming Community,Yuzhou District, Yulin City, Guangxi Province','China','00867752818295','heyshop999.en.ec21.com'),

('30004','Lifect Center','21, Hwangsaeul-ro 360beon-gil,Seongnam-si Bundang-gu, Gyeonggi-do, Seoul','Korea','00821098806470','lifectcenter.en.ec21.com'),

('30005','KK trading','84, Seocho-daero 4-gil, Seocho-gu,Seoul','Korea','008215973949','nokchawon.co.kr');

INSERT INTO

orders (OrderID,CustomerID,Order\_Date,Shipping\_Status)

VALUES

('T110','102','2020-3-01','Shipped'),

('T111','106','2020-2-11','Shipped'),

('T113','107','2020-3-26','Pending'),

('T114','110','2020-04-02','Pending'),

('T115','115','2020-01-01','Received'),

('T116','118','2020-03-25','Shipped'),

('T117','103','2020-02-25','Shipped'),

('T118','101','2020-03-29','Pending'),

('T119','103','2020-02-15','Shipped'),

('T120','104','2020-01-15','Received'),

('T121','109','2020-01-22','Received'),

('T122','102','2019-07-15','Received'),

('T123','101','2019-05-30','Received'),

('T124','103','2019-08-30','Received'),

('T125','106','2019-09-13','Received'),

('T126','108','2019-10-07','Received'),

('T127','109','2019-11-01','Received'),

('T128','112','2019-11-11','Received'),

('T130','118','2019-12-24','Received'),

('T131','117','2019-12-22','Received'),

('T132','115','2019-04-22','Received'),

('T133','114','2019-05-22','Received'),

('T134','112','2019-06-27','Received'),

('T135','112','2019-08-27','Received'),

('T136','110','2019-08-08','Received'),

('T137','103','2019-01-19','Received'),

('T138','105','2020-02-02','Shipped'),

('T139','109','2020-03-15','Shipped'),

('T140','104','2020-03-22','Shipped'),

('T141','107','2020-03-28','Shipped');

INSERT INTO

payment (PaymentID,OrderID,Payment\_Type,Payment\_Amount,Payment\_Date,Payment\_Status)

VALUES

('00010','T110','VisaDebit','50','2020-01-03','Approved'),

('00011','T111','Paypal','46','2020-2-11','Approved'),

('00012','T113','Voucher','52','2020-3-26','Approved'),

('00013','T114','VisaDebit','36','2020-04-02','Declined'),

('00014','T115','Paypal','44','2020-01-01','Approved'),

('00015','T116','VisaDebit','48','2020-03-25','Approved'),

('00016','T117','VisaDebit','50','2020-02-25','Approved'),

('00017','T118','VisaDebit','46','2020-03-29','Approved'),

('00018','T119','Paypal','54','2020-02-15','Approved'),

('00019','T120','Paypal','44','2020-01-15','Approved'),

('00020','T121','Paypal','46','2020-01-22','Approved'),

('00021','T122','Paypal','50','2019-07-15','Approved'),

('00022','T123','Paypal','48','2019-05-30','Approved'),

('00023','T124','VisaDebit','50','2019-08-30','Approved'),

('00024','T125','VisaDebit','44','2019-09-13','Approved'),

('00025','T126','VisaDebit','52','2019-10-07','Approved'),

('00026','T127','VisaDebit','52','2019-11-01','Approved'),

('00027','T128','Paypal','54','2019-11-11','Approved'),

('00028','T130','Paypal','48','2019-12-24','Approved'),

('00029','T131','Paypal','52','2019-12-22','Approved'),

('00030','T132','Paypal','44','2019-04-22','Approved'),

('00031','T133','Paypal','50','2019-05-22','Approved'),

('00032','T134','Paypal','52','2019-06-27','Approved'),

('00033','T135','VisaDebit','54','2019-08-27','Approved'),

('00034','T136','VisaDebit','52','2019-08-08','Approved'),

('00035','T137','VisaDebit','50','2019-01-19','Approved'),

('00036','T138','VisaDebit','48','2020-02-02','Declined'),

('00037','T139','Voucher','44','2020-03-15','Approved'),

('00038','T140','VisaDebit','36','2020-03-22','Approved'),

('00039','T141','VisaDebit','72','2020-03-28','Approved'),

('00040','T138','VisaDebit','48','2020-02-02','Approved'),

('00041','T114','VisaDebit','36','2020-04-02','Approved');

INSERT INTO

returnings (ReturnID,OrderID,Return\_Reason\_Type,Return\_Date)

VALUES

('CC101','T124','Faulty','2020-09-11'),

('CC102','T126','Mismatch Product','2019-10-27'),

('CC103','T128','Mismatch Product','2019-12-01'),

('CC104','T131','Faulty','2019-12-21'),

('CC105','T131','Faulty','2019-12-21'),

('CC106','T136','Faulty','2019-08-15'),

('CC110','T111','Mismatch Product','2020-02-25');

CA questions

# CA Questions

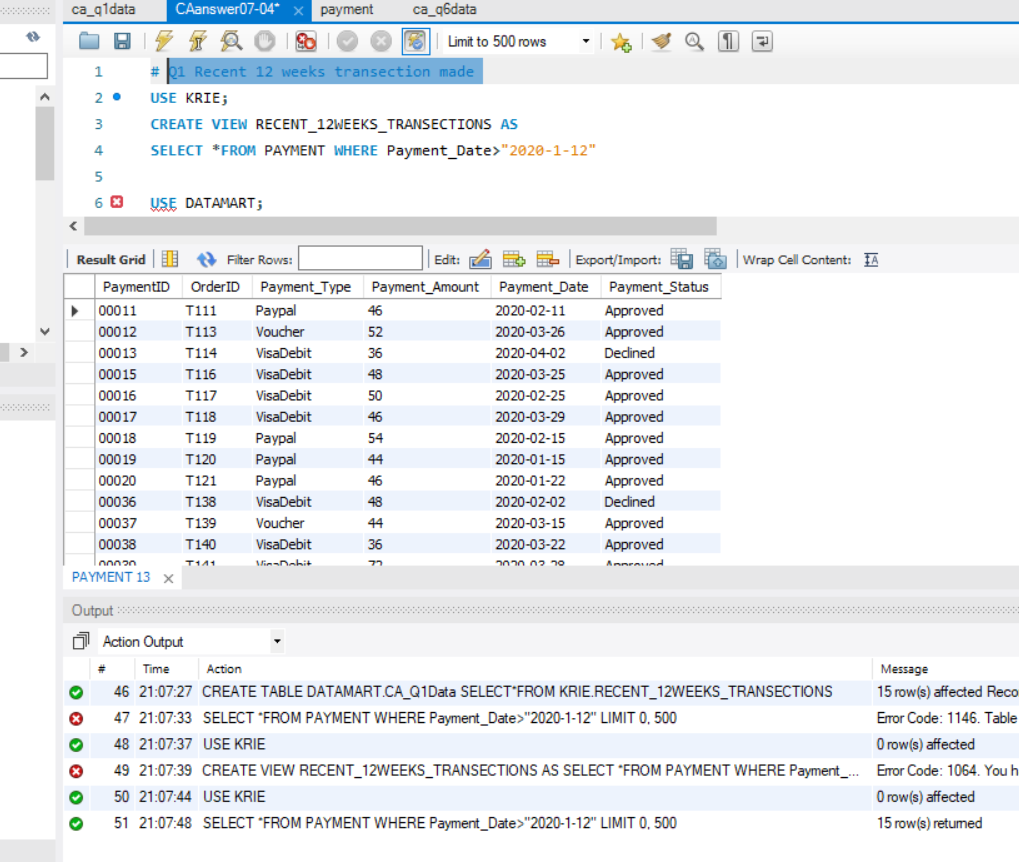
## Q1 Sales transactions for pasted 12 weeks in the business

**Code**

USE KRIE;

CREATE VIEW RECENT\_12WEEKS\_TRANSECTIONS AS

SELECT \*FROM PAYMENT WHERE Payment\_Date>"2020-1-12"



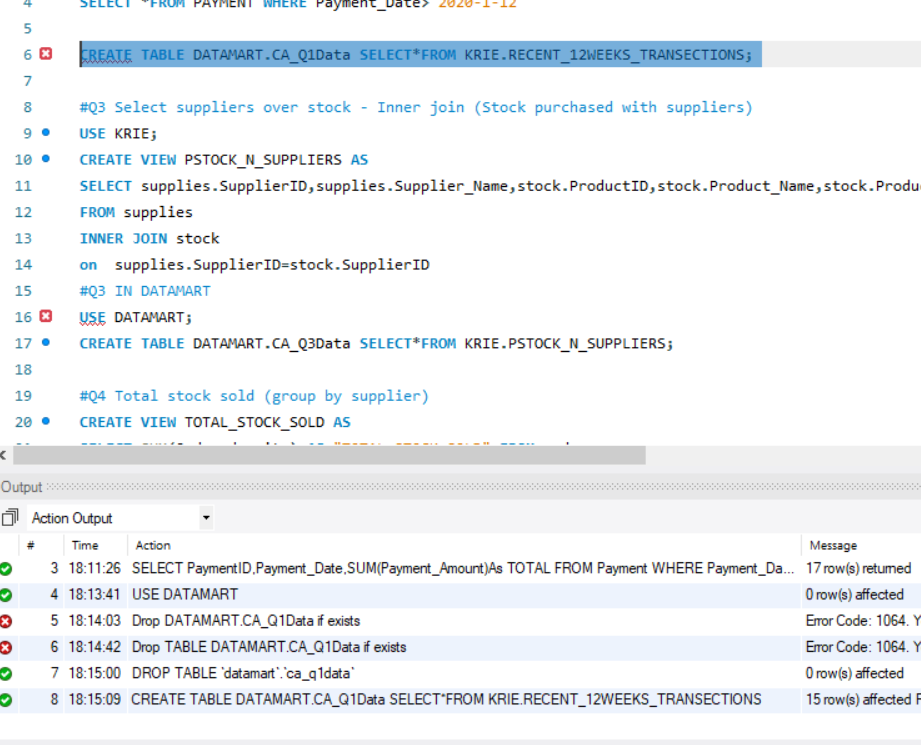
### In DataMart

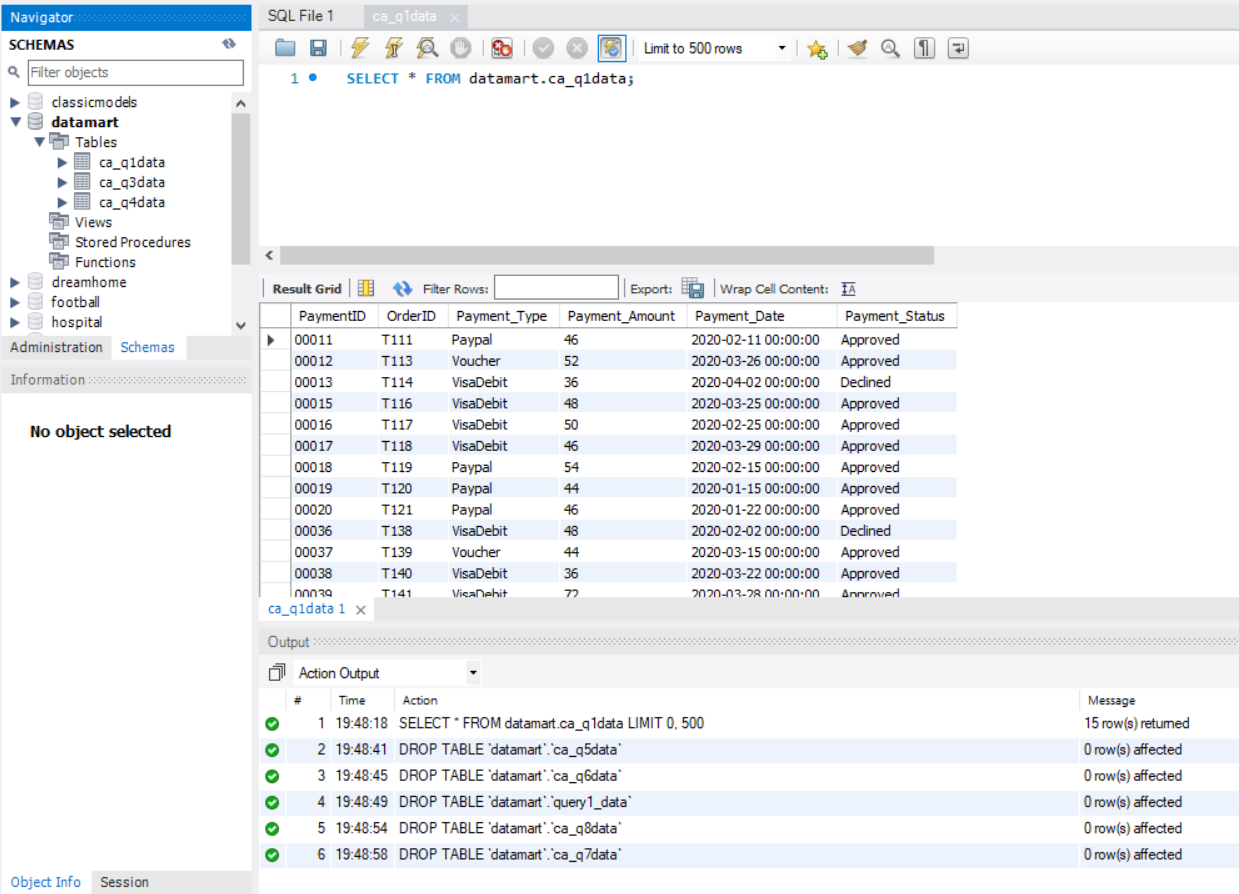
**Code**

USE DATAMART;

CREATE TABLE DATAMART.CA\_Q1Data

SELECT\*FROM KRIE.RECENT\_12WEEKS\_TRANSECTIONS;





#### Excel graph

|  |  |
| --- | --- |
| **Payment Type** | **Time of payments** |
| PayPal | 4 |
| Visa Debit | 9 |
| Voucher | 2 |
| **Grand Total** | **15** |
|  |  |

## Q2 Create a trigger that represent the stock levels when a sales order takes place

Step 1. Create a new Stock\_audit table within Krie to prepare for the trigger

**Code**

USE Krie;

Create table stock\_audit(

ProductID int,

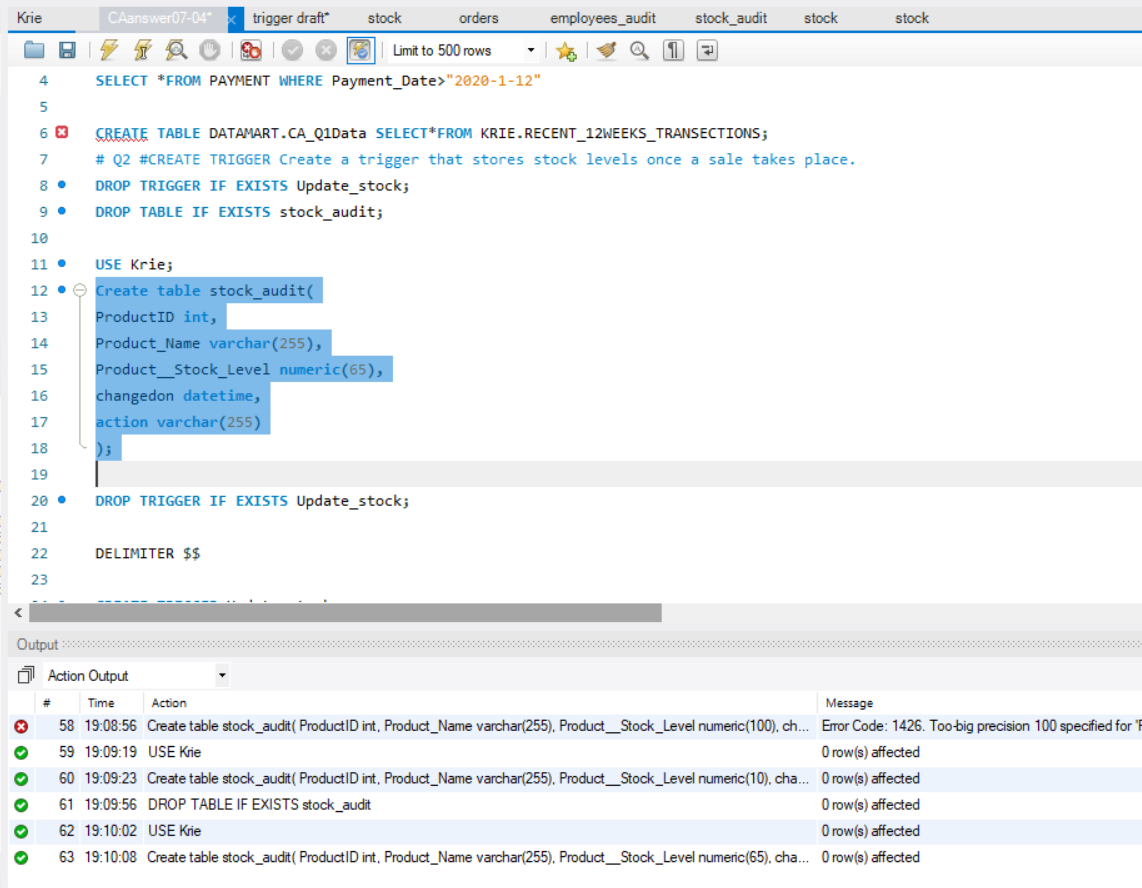
Product\_Name varchar(255),

Product\_\_Stock\_Level numeric(65),

changedon datetime,

action varchar(255)

);



Step 2. Create a trigger

**Code**

DELIMITER $$

CREATE TRIGGER Update\_stock

BEFORE UPDATE ON Stock

FOR EACH ROW BEGIN

INSERT INTO stock\_audit

SET action='update',

ProductID=OLD.ProductID,

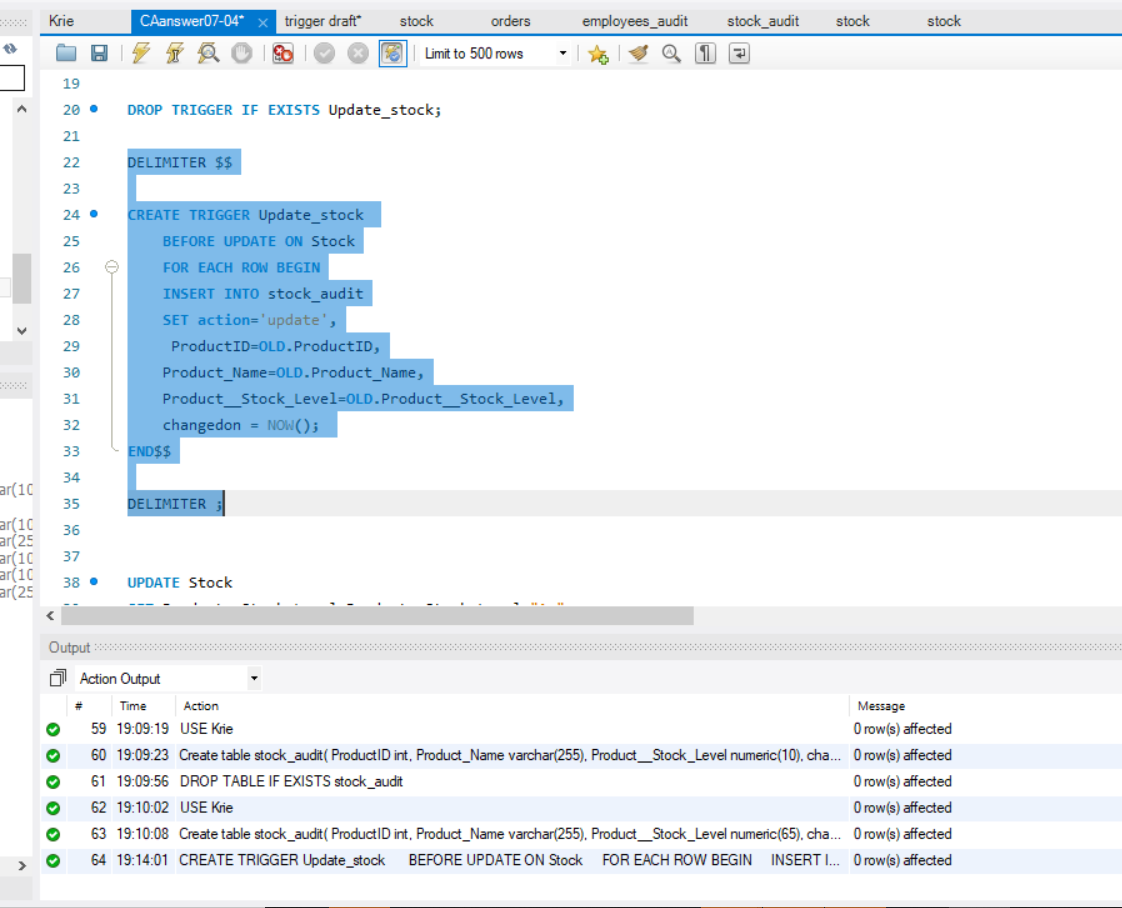
Product\_Name=OLD.Product\_Name,

Product\_\_Stock\_Level=OLD.Product\_\_Stock\_Level,

changedon = NOW();

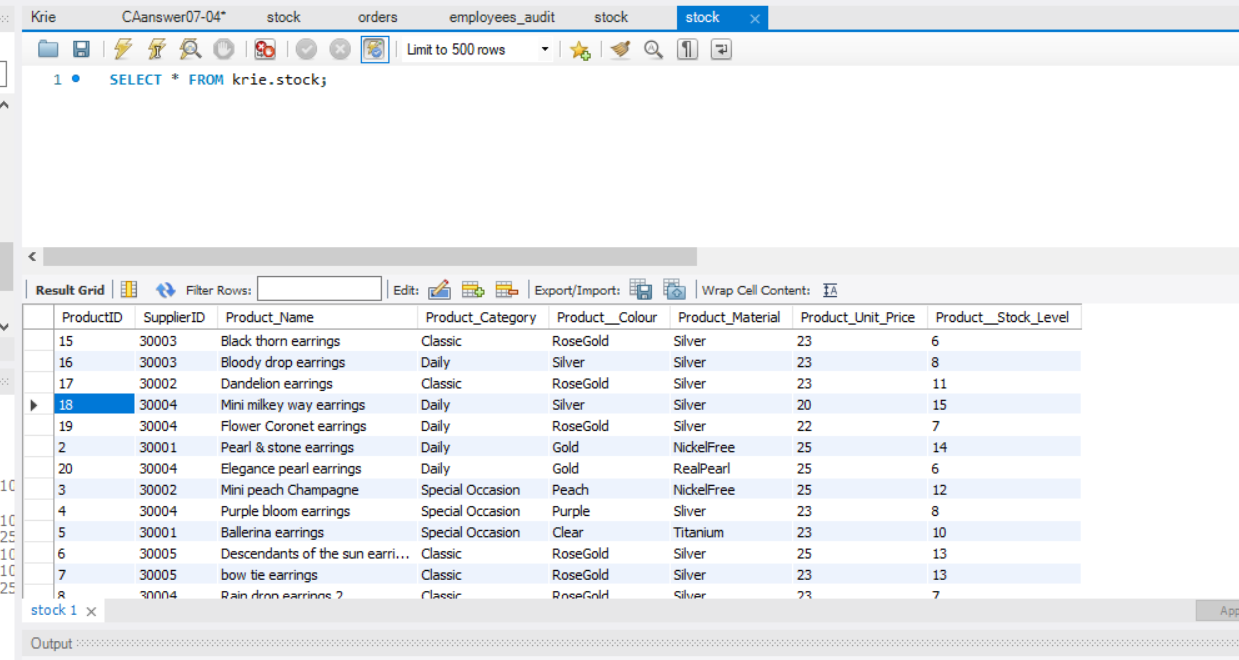
END$$

DELIMITER ;

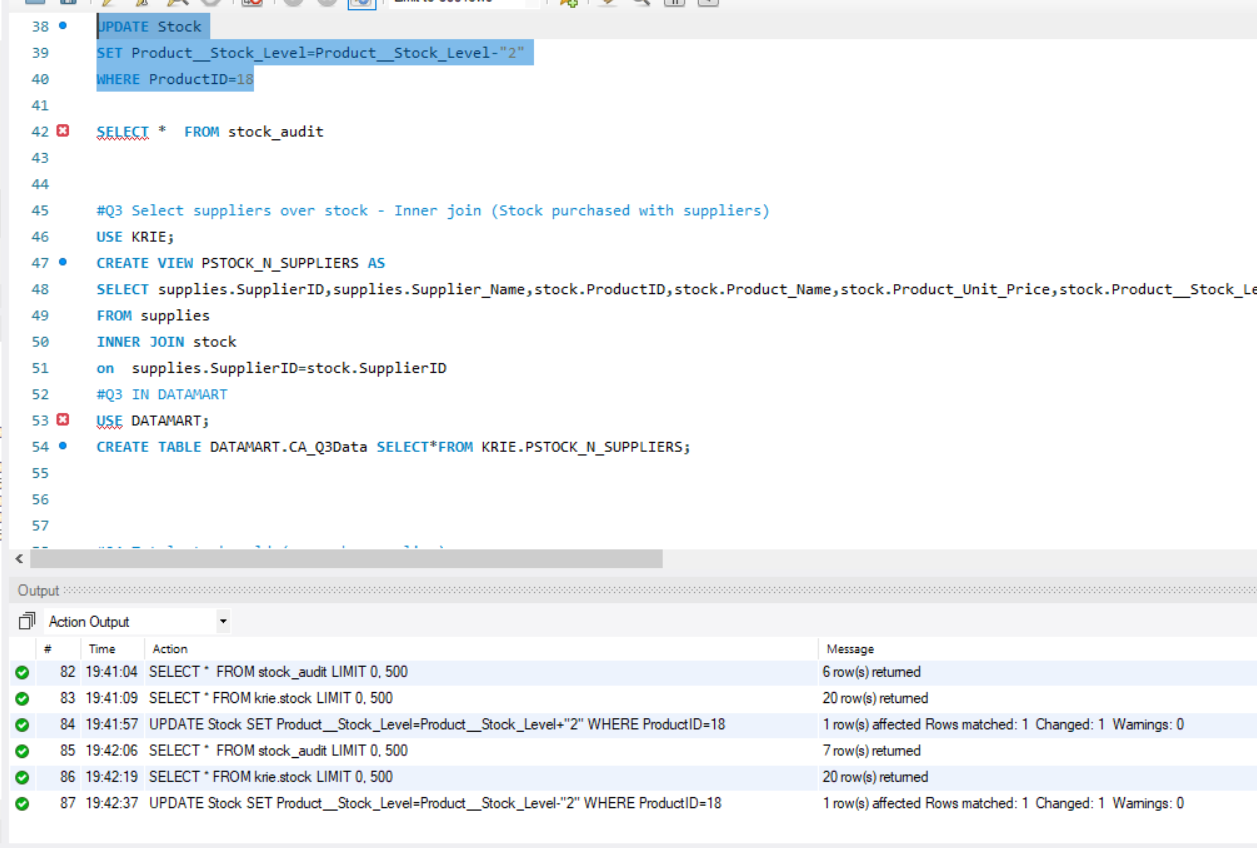


Step3. Check on if this is working correctly

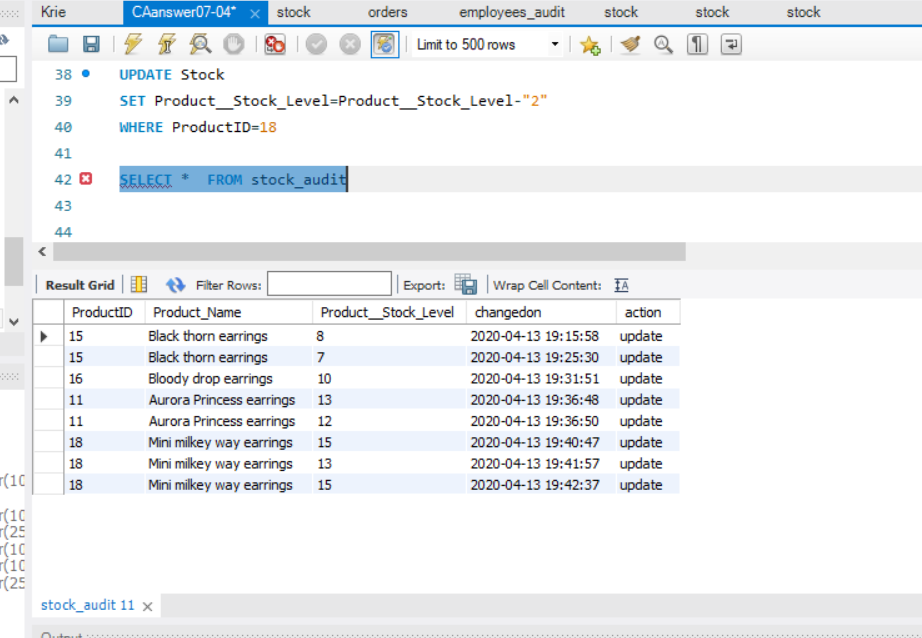
* Product No.18 has 15 units in stock



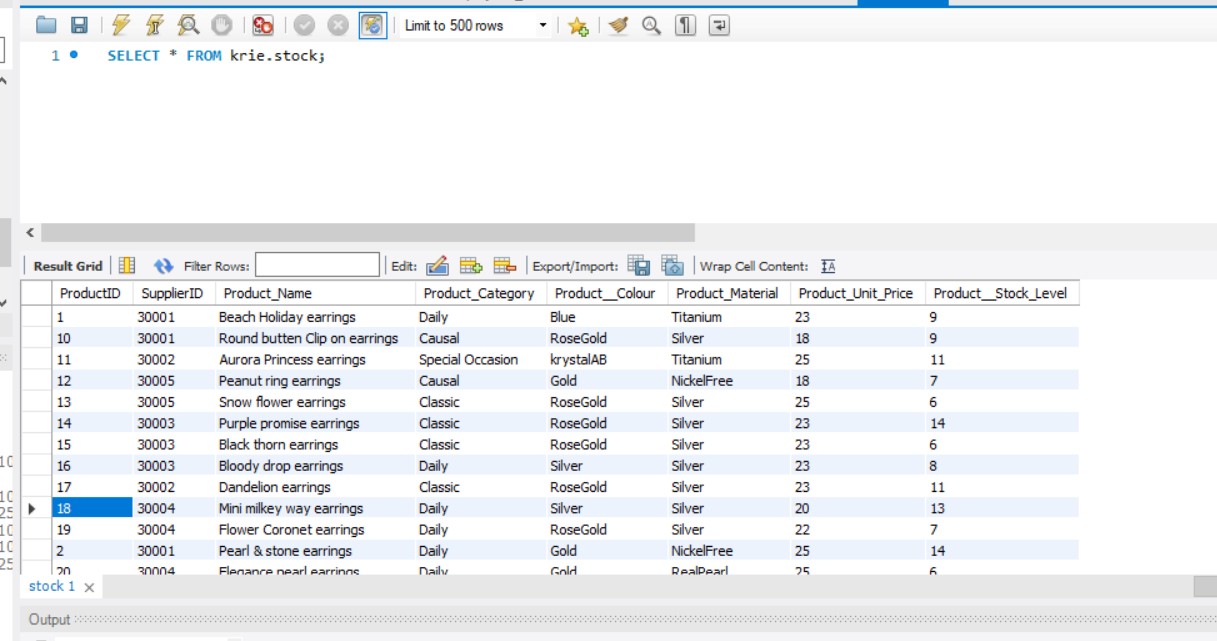
* Take away 2 units from No.18 from stock



* Check on stock edit record



* Current stock level for No.18 is 13 units after updated



## Q3 Purchased stocks from suppliers

**Code**

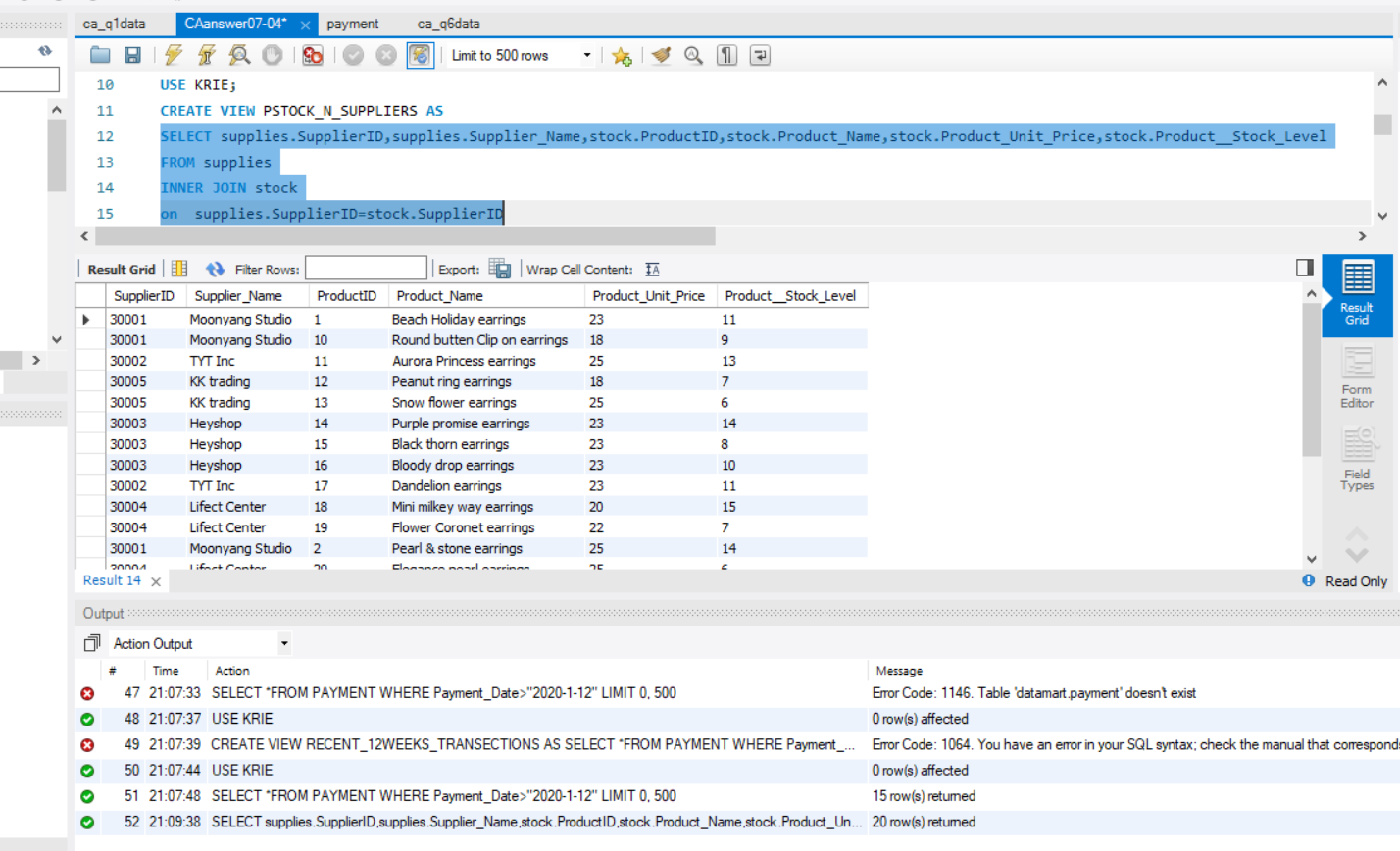
CREATE VIEW PSTOCK\_N\_SUPPLIERS AS

SELECT supplies.SupplierID,supplies.Supplier\_Name,stock.ProductID,stock.Product\_Name,stock.Product\_Unit\_Price,stock.Product\_\_Stock\_Level

FROM supplies

INNER JOIN stock

on supplies.SupplierID=stock.SupplierID

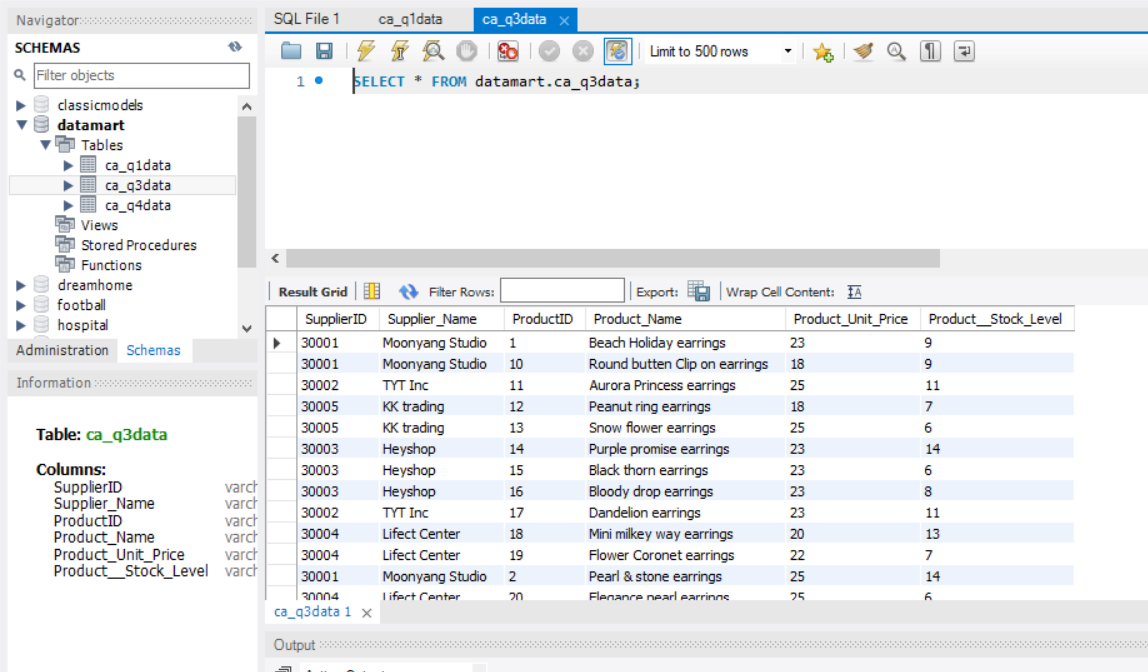
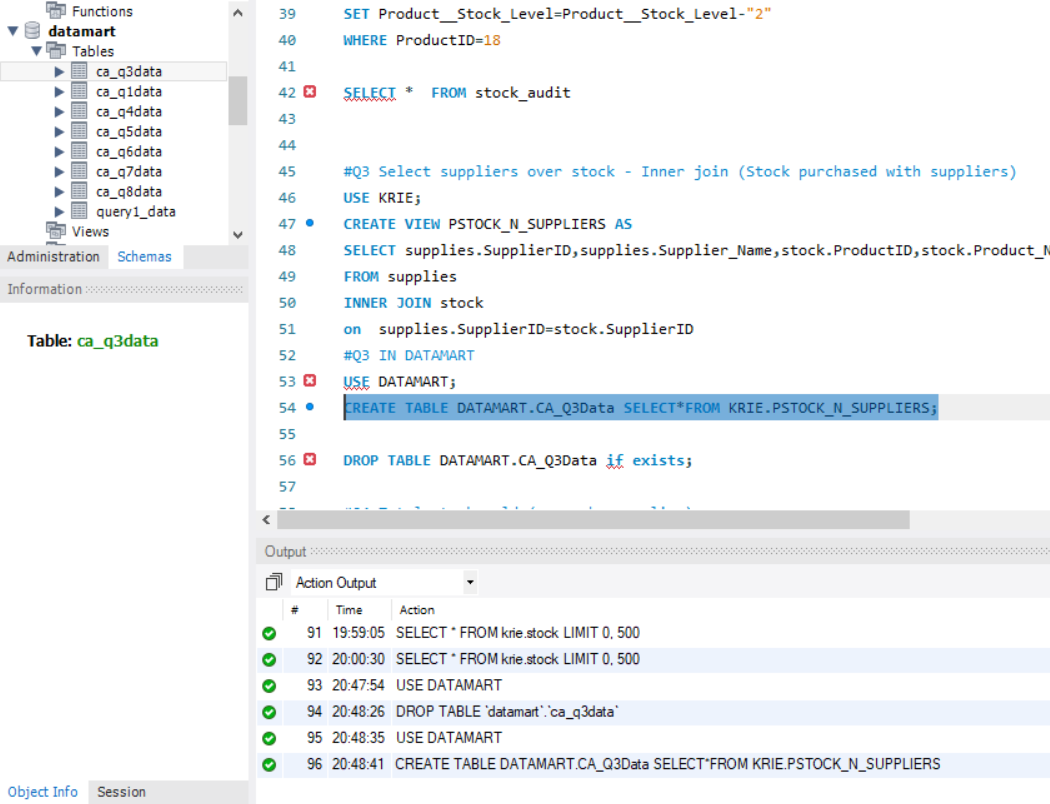


### In DataMart

**Code**

CREATE TABLE DATAMART.CA\_Q3Data

SELECT\*FROM KRIE.PSTOCK\_N\_SUPPLIERS;



#### Excel Graph

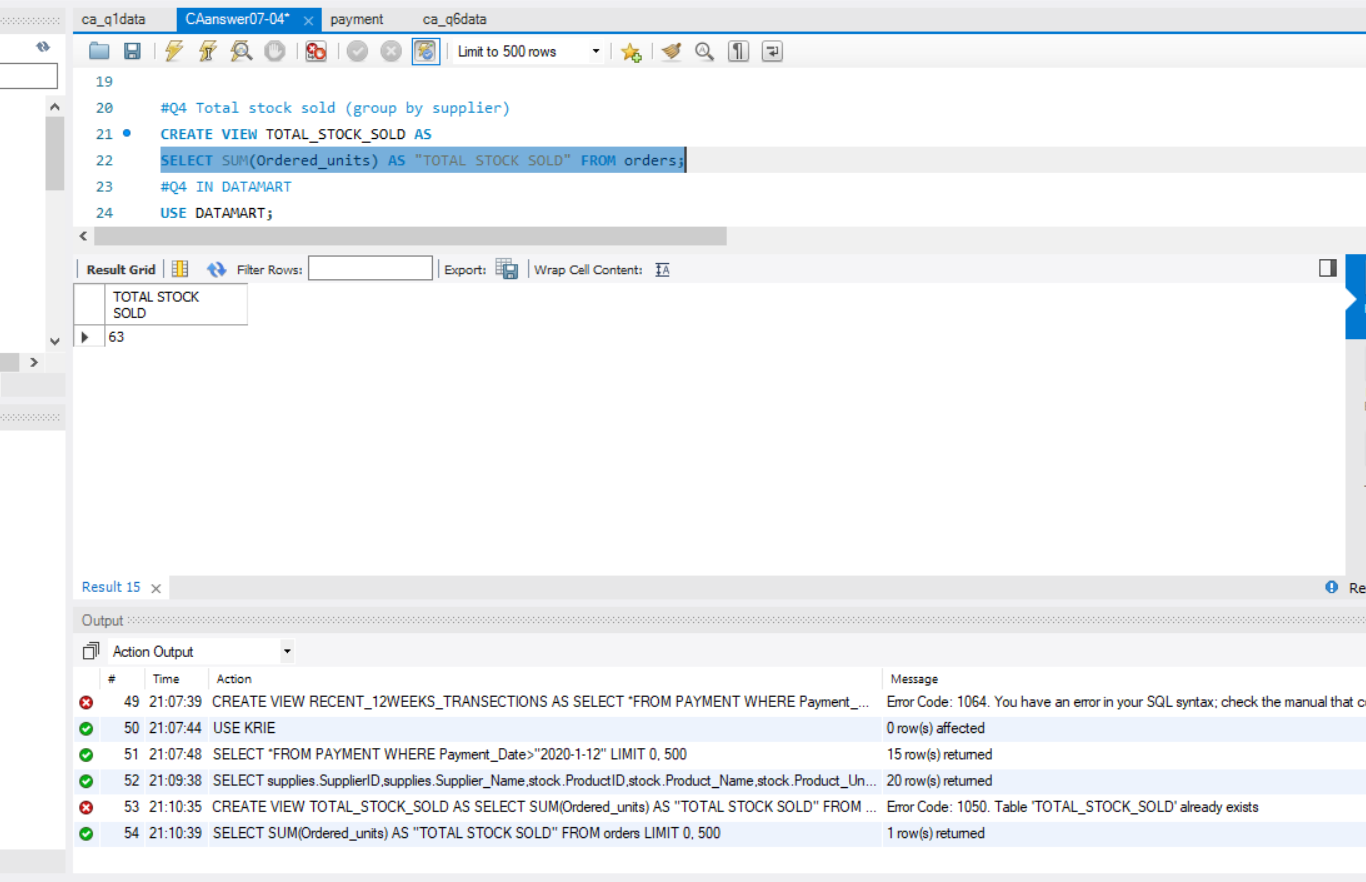
A combine Chart to show more in details

## Q4 Total stock sold to general public (group by supplier)

**Code**

CREATE VIEW TOTAL\_STOCK\_SOLD AS

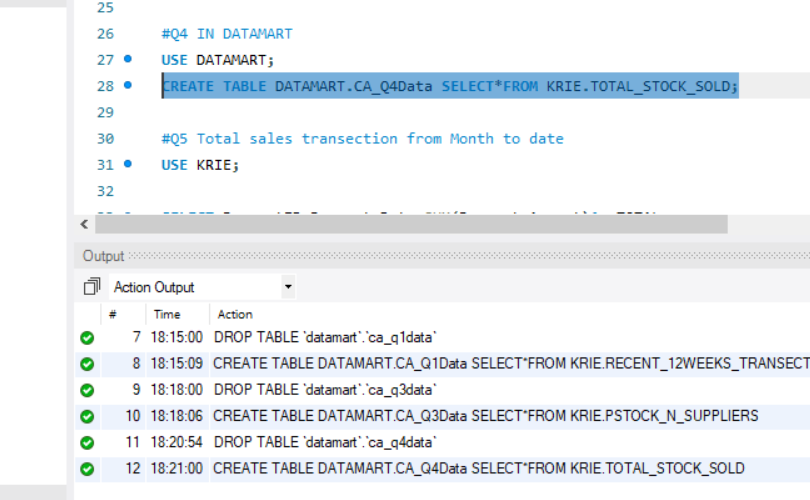
SELECT SUM(Ordered\_units) AS "TOTAL STOCK SOLD" FROM orders;

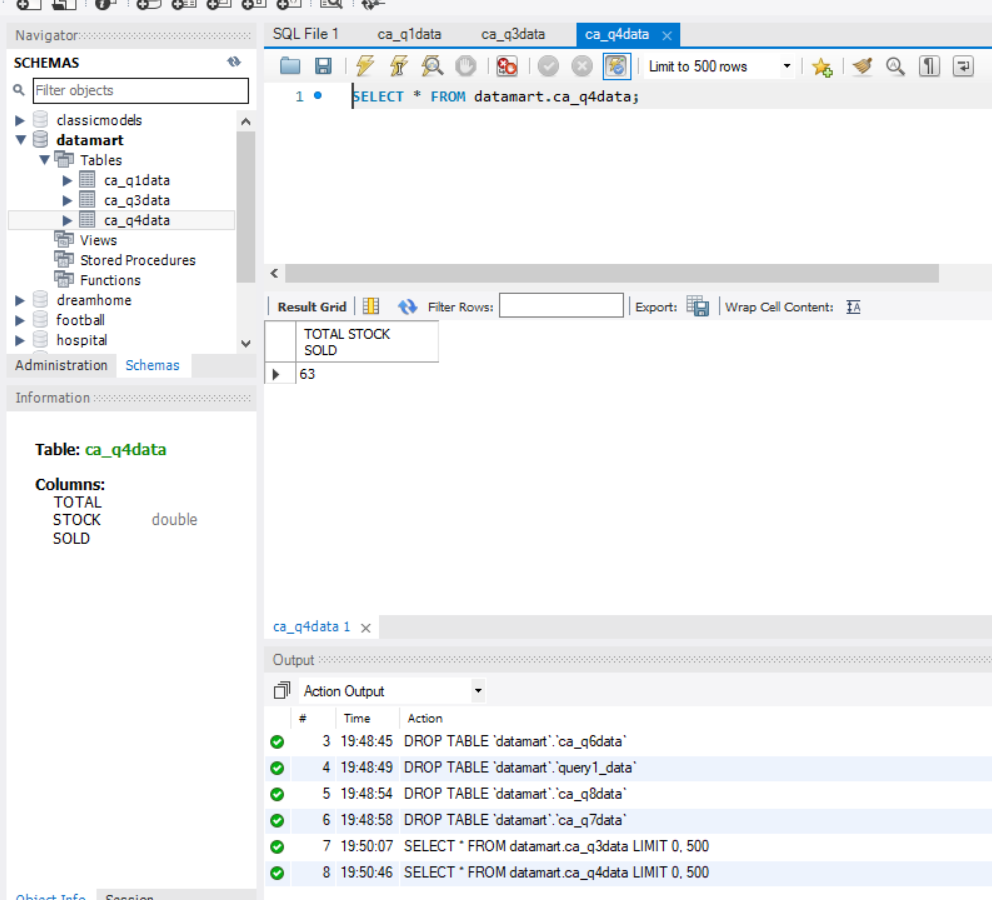


#### In DataMart

CREATE TABLE DATAMART.CA\_Q4Data

SELECT\*FROM KRIE.TOTAL\_STOCK\_SOLD;





## Q5 Total Sales transection month to date (start from March)

**Code**

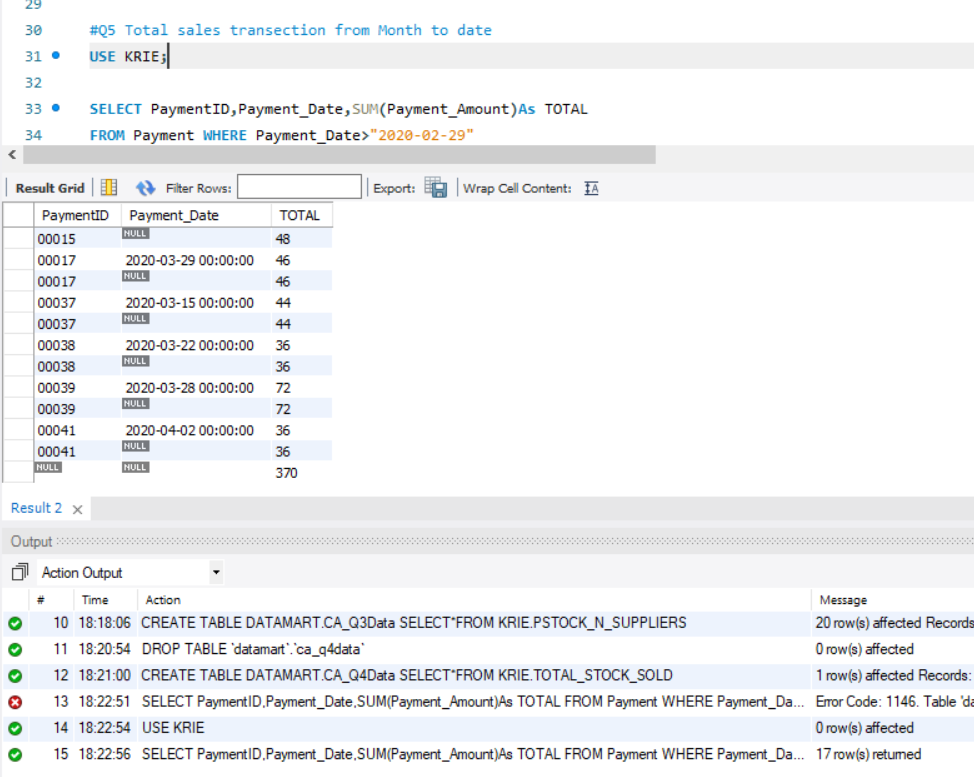
USE KRIE;

CREATE VIEW Q5TOTALSALES\_MONTHTODATE\_2020 AS

SELECT PaymentID,Payment\_Date,SUM(Payment\_Amount)As TOTAL

FROM Payment WHERE Payment\_Date>"2020-02-29"

GROUP BY PaymentID,Payment\_Date WITH ROLLUP



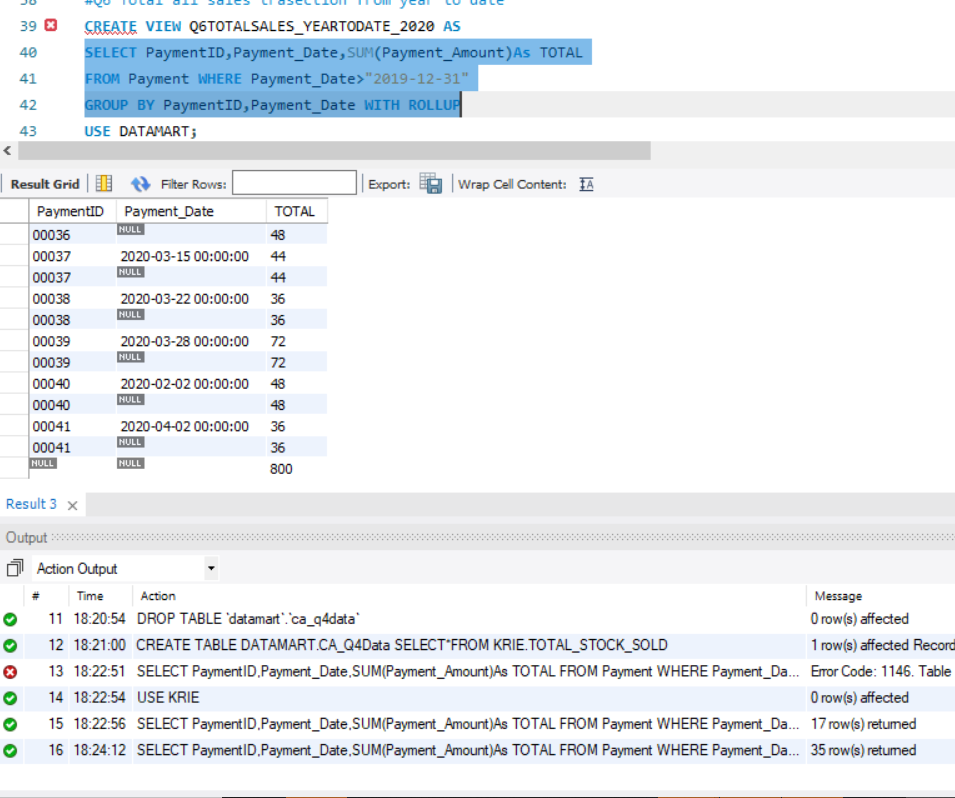
## Q6. Total Sales transection year to date 2020

**Code**

SELECT PaymentID,Payment\_Date,SUM(Payment\_Amount)As TOTAL

FROM Payment WHERE Payment\_Date>"2019-12-31"

GROUP BY PaymentID,Payment\_Date WITH ROLLUP



## Q7. Monthly breakdown for 2019

**Code**

select year(Payment\_Date) as Year,

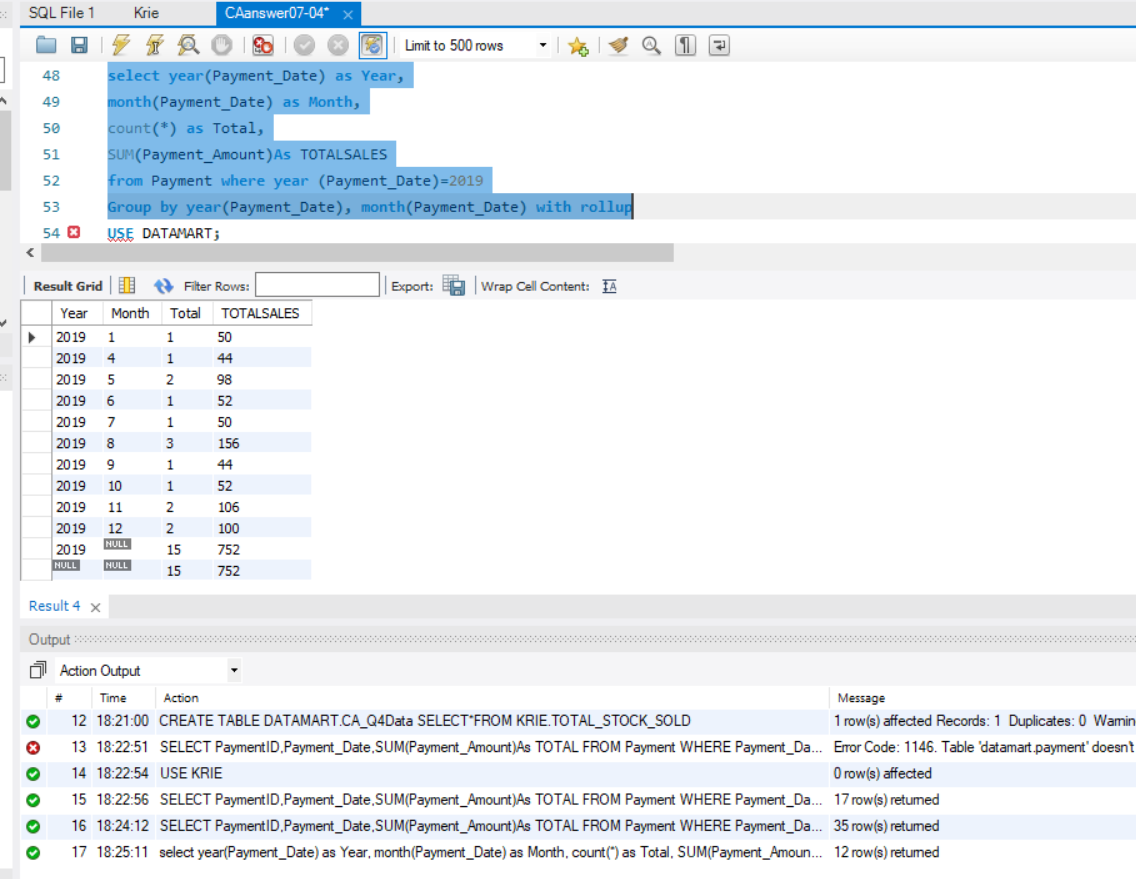
month(Payment\_Date) as Month,

count(\*) as Total,

SUM(Payment\_Amount)As TOTALSALES

from Payment where year (Payment\_Date)=2019

Group by year(Payment\_Date), month(Payment\_Date) with rollup

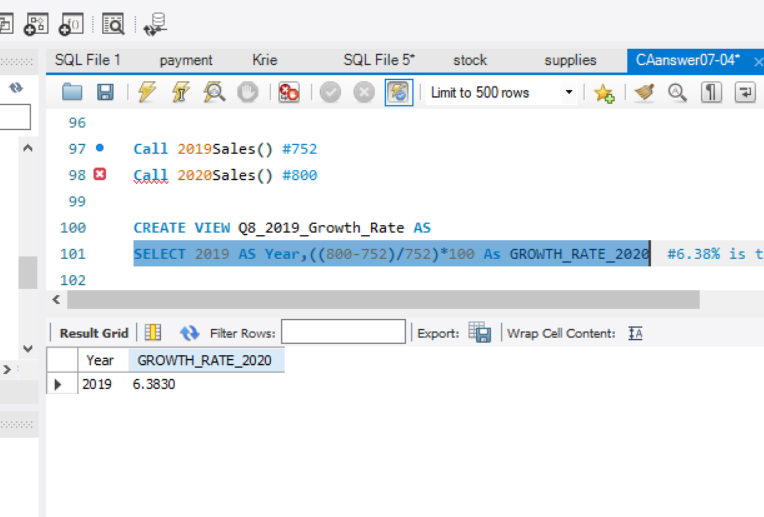


## Q8. Growth rate % from 2019 to now

**Code**

SELECT 2019 AS Year,((800-752)/752)\*100 As GROWTH\_RATE\_2020

6.38% is the growth rate for this business



## *Additional* - Stored procedures

# Sales 2019 and 2020

**Code**

select year(Payment\_Date) as Year,

month(Payment\_Date) as Month,

count(\*) as Total,

SUM(Payment\_Amount)As TOTALSALES

from Payment where year (Payment\_Date)=2020

Group by year(Payment\_Date), month(Payment\_Date) with rollup

DELIMITER //

CREATE PROCEDURE 2019Sales()

BEGIN

select year(Payment\_Date) as Year,

month(Payment\_Date) as Month,

count(\*) as Total,

SUM(Payment\_Amount)As TOTALSALES

from Payment where year (Payment\_Date)=2019

Group by year(Payment\_Date), month(Payment\_Date) with rollup;

END//

DELIMITER //

CREATE PROCEDURE 2020Sales()

BEGIN

select year(Payment\_Date) as Year,

month(Payment\_Date) as Month,

count(\*) as Total,

SUM(Payment\_Amount)As TOTALSALES

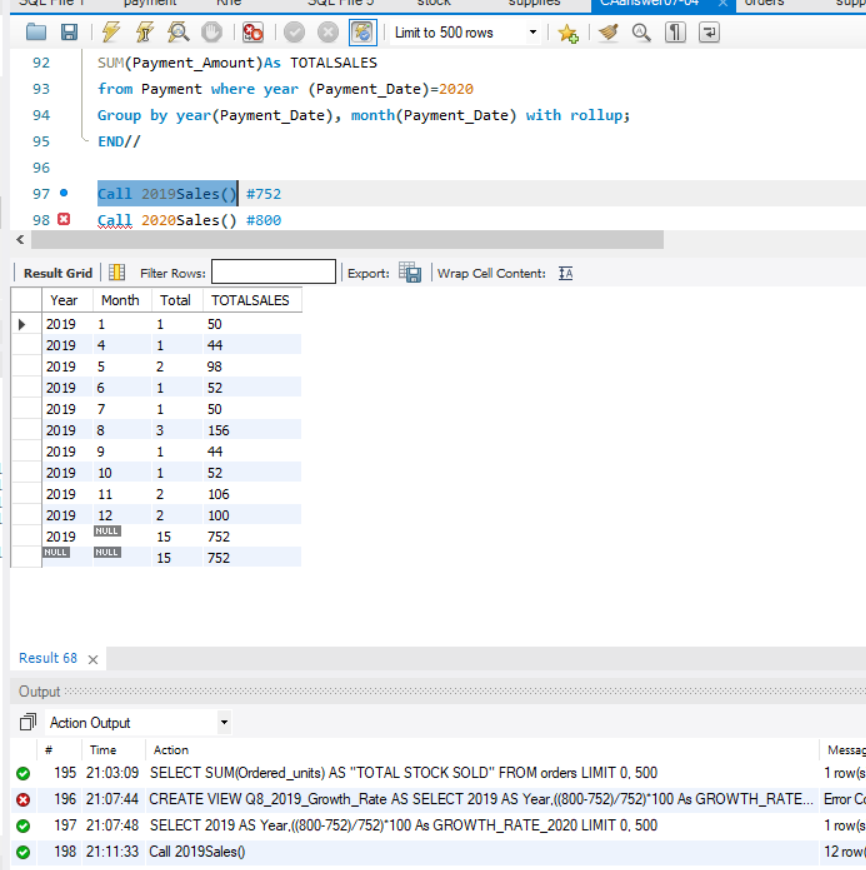
from Payment where year (Payment\_Date)=2020

Group by year(Payment\_Date), month(Payment\_Date) with rollup;

END//

Call 2019Sales() #752

Call 2020Sales() #800



# References

Society programmer, (2018), Abstract SQL database monthly data [Online], Available at:

<https://blog.csdn.net/ao123056/article/details/79443788>

[Accessed on 16-April-2020]

MDCCL, (2018), stock quantity trigger [Online], Available at:

<https://dba.stackexchange.com/questions/204363/stock-quantity-trigger>

[Accessed on 17-April-2020]