Cicero Coffee Corner

ITMD 523 – Advanced Topics in Data Management

Final Project

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CWID: A20376662

Professor: Luke papademas

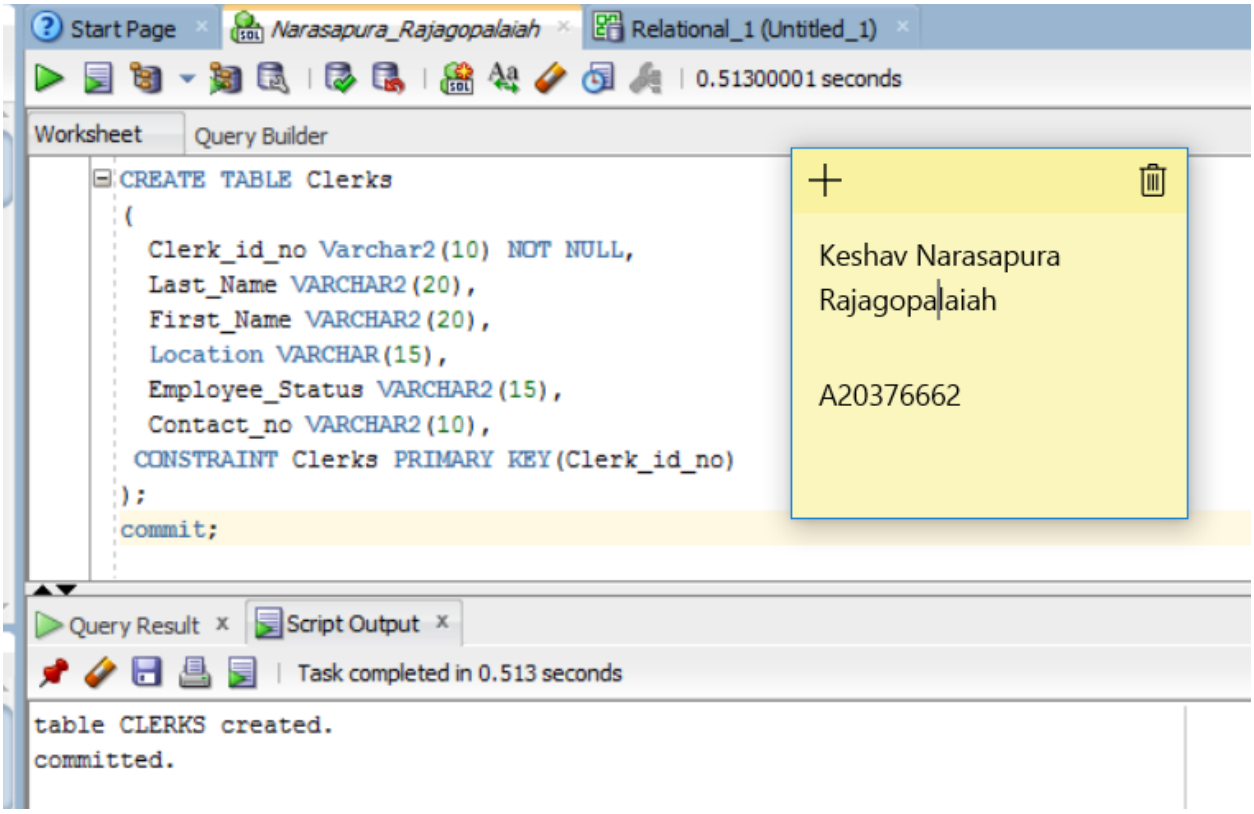
T.A: Rajesh Azmeera

Phase IV: Designing the Physical Application

<u>Clerks Table:</u>

Clerk is a type of Job function in CCC. Clerks Table consist of clerk's personal details like clerk's ID, Name, Employee Status, Contact No. The Clerk ID is assigned a Primary Key.

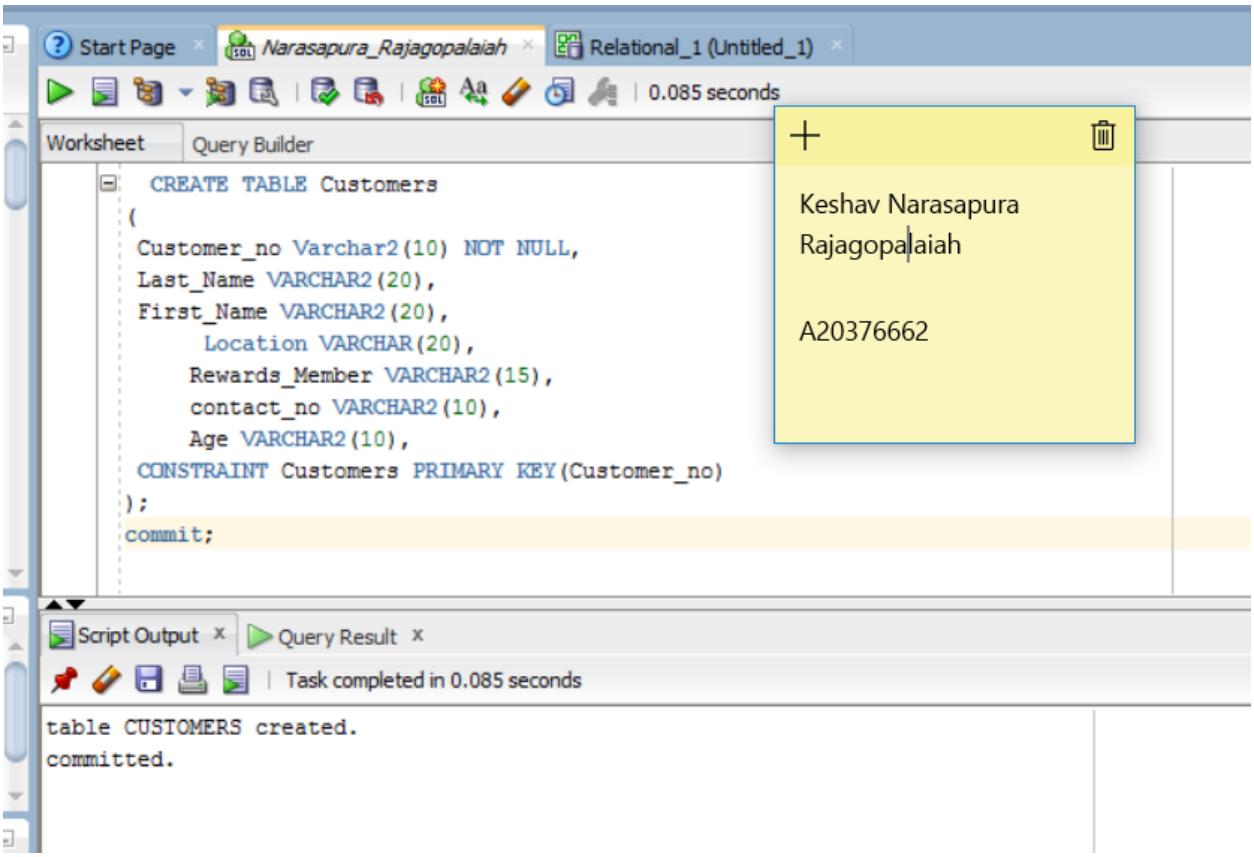
SQL Query to Create Clerk Table.



Customers Table:

Customers visit to the CCC. Customers personal details like Name, Location of residence, Contact No and Age is recorded and henceforth a Table is created by name Customers. Each customer is identified by a unique ID and hence customer_no is defined to Primary Key.

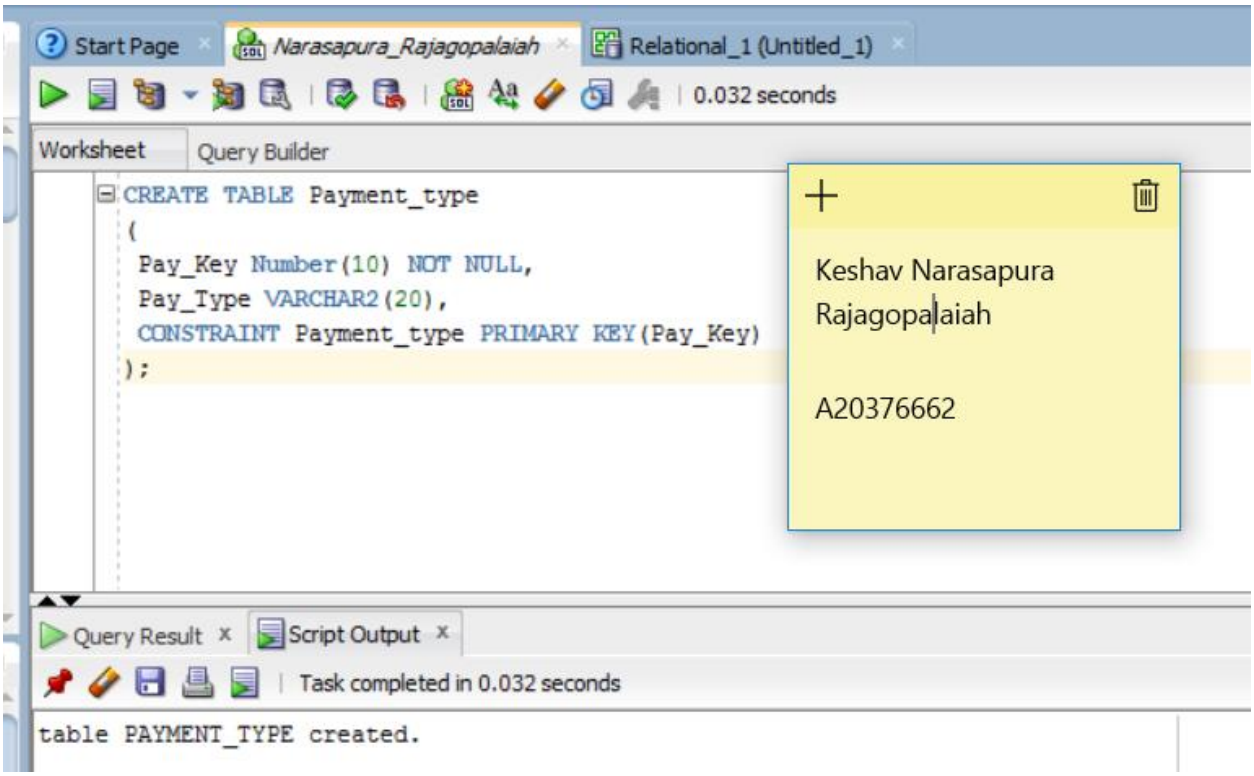
SQL Query to create Customers Table:



Payment_type Table:

Different payments methods are available in CCC and each method is identified by a Pay_key and hence a primary key is defined. The Pay_type contains the payment method name.

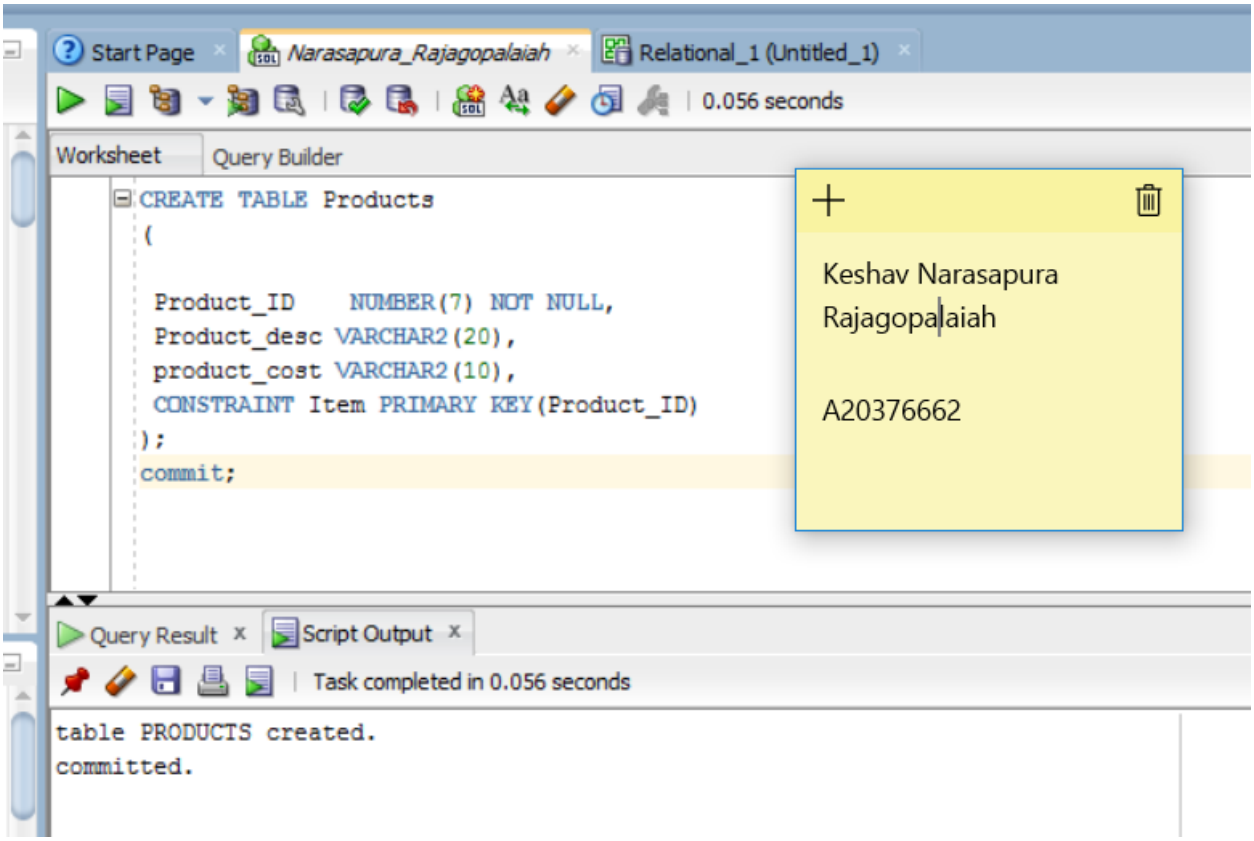
SQL Query to Create Payment_type Table.



Products Table

The products available in the CCC store are stored in a database. The products can be identified by Product_ID which is unique to a specific product, product_desc which describes the product and product_cost describes the cost of the product.

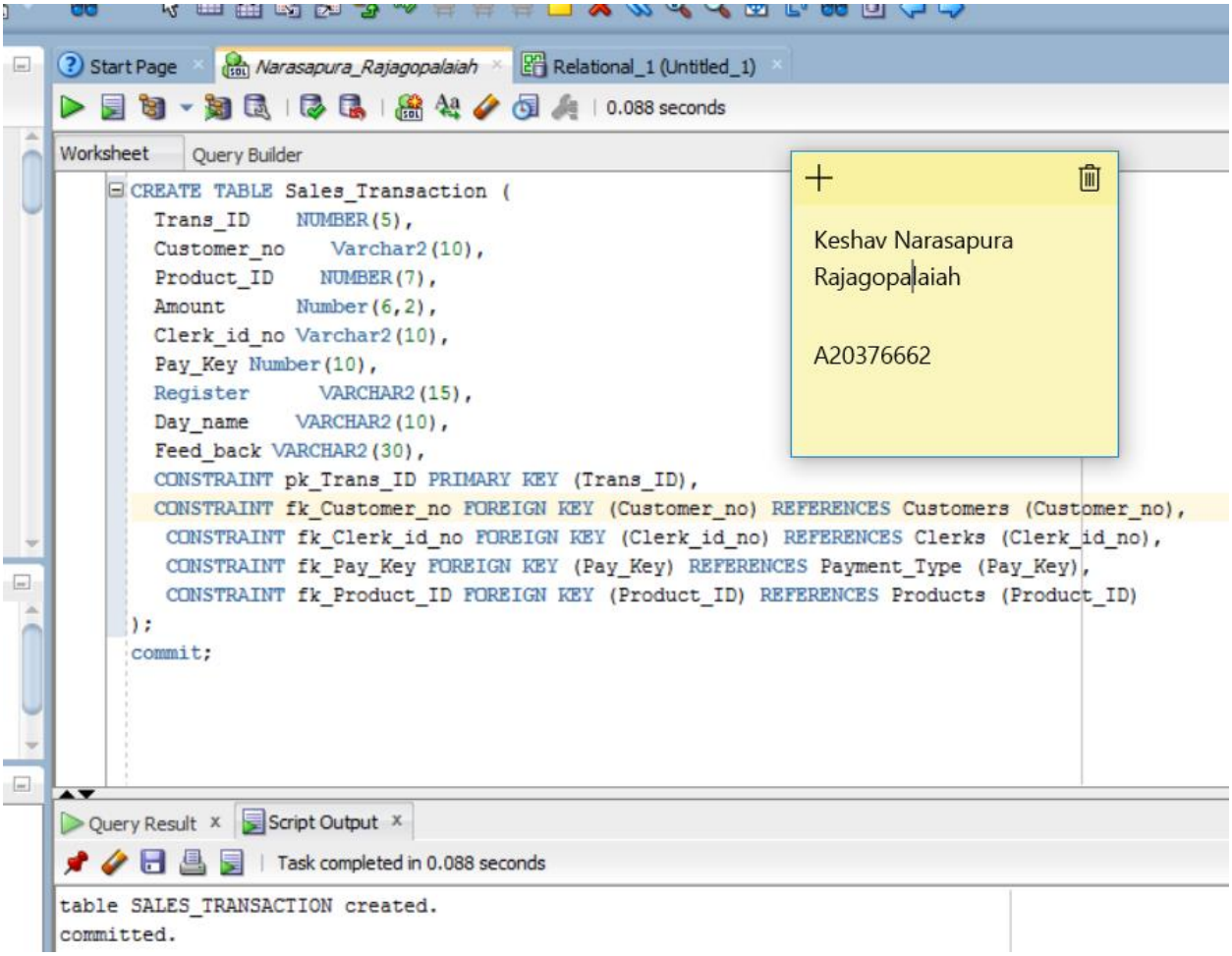
SQL Query to create the Products Table:



Sales_Transaction Table:

Sales Transaction Table consists of the transaction details at CCC. This table will include transaction id which is unique per transaction hence the Primary Key, customer no who is resplonsible for the transaction, amount to be paid, day of transaction and customer feed back.

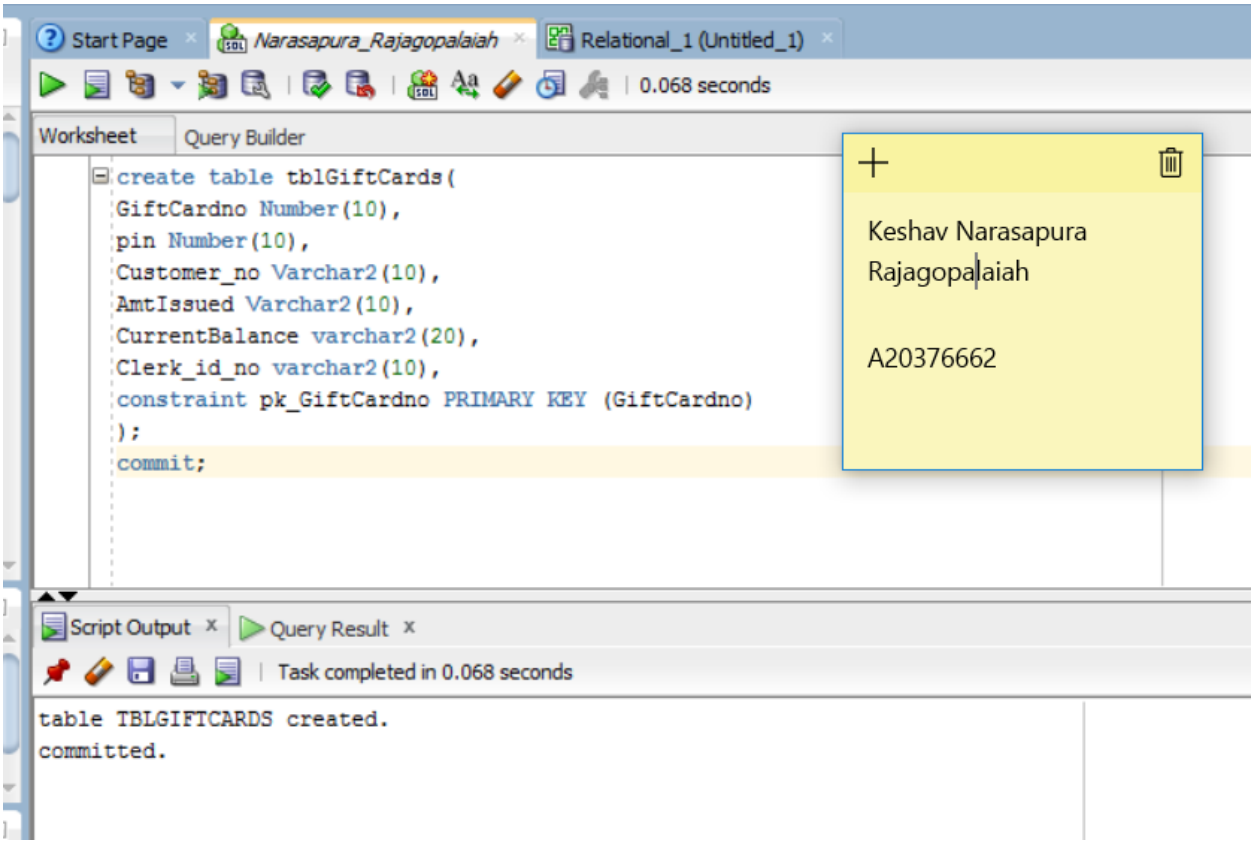
SQL query to create sales_transaction table:



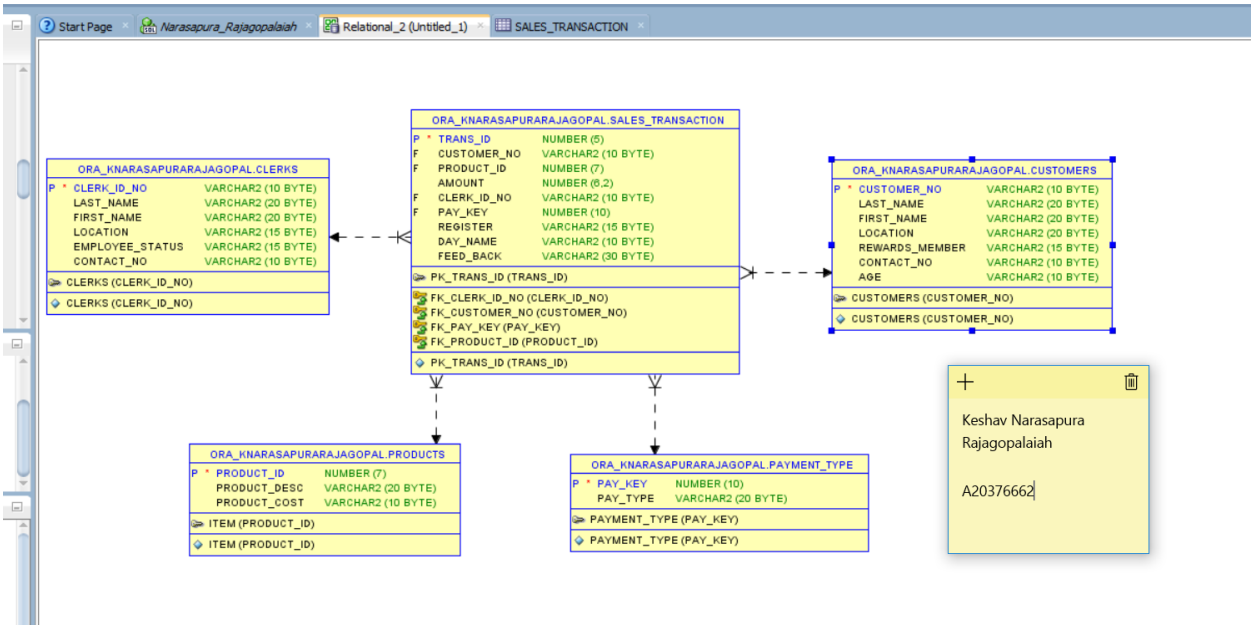
tblGiftCards Table:

This table consists of giftcardno, pin, customer_no who purchases the gift, amount of the transaction.

SQL Query to create tblGiftCards table:



ERD Diagram:


Start Page
Narasapura_Rajagopalaiah
Relational_2 (Untitled_1)
SALES_TRANSACTION
ORA_KNARASAPURARAJAGOPAL.CLERKS
P * CLERK_ID_NO VARCHAR2 (10 BYTE)
LAST_NAME VARCHAR2 (20 BYTE)
FIRST_NAME VARCHAR2 (20 BYTE)
LOCATION VARCHAR2 (15 BYTE)
EMPLOYEE_STATUS VARCHAR2 (15 BYTE)
CONTACT_NO VARCHAR2 (10 BYTE)
CLERKS (CLERK_ID_NO)
CLERKS (CLERK_ID_NO)
ORA_KNARASAPURARAJAGOPAL.SALES_TRANSACTION
P * TRANS_ID NUMBER (5)
F CUSTOMER_NO VARCHAR2 (10 BYTE)
F PRODUCT_ID NUMBER (7)
AMOUNT NUMBER (6,2)
F CLERK_ID_NO VARCHAR2 (10 BYTE)
F PAY_KEY NUMBER (10)
REGISTER VARCHAR2 (15 BYTE)
DAY_NAME VARCHAR2 (10 BYTE)
FEED_BACK VARCHAR2 (30 BYTE)
PK_TRANS_ID (TRANS_ID)
FK_CLERK_ID_NO (CLERK_ID_NO)
FK_CUSTOMER_NO (CUSTOMER_NO)
FK_PAY_KEY (PAY_KEY)
FK_PRODUCT_ID (PRODUCT_ID)
PK_TRANS_ID (TRANS_ID)
ORA_KNARASAPURARAJAGOPAL.CUSTOMERS
P * CUSTOMER_NO VARCHAR2 (10 BYTE)
LAST_NAME VARCHAR2 (20 BYTE)
FIRST_NAME VARCHAR2 (20 BYTE)
LOCATION VARCHAR2 (20 BYTE)
REWARDS_MEMBER VARCHAR2 (15 BYTE)
CONTACT_NO VARCHAR2 (10 BYTE)
AGE VARCHAR2 (10 BYTE)
CUSTOMERS (CUSTOMER_NO)
CUSTOMERS (CUSTOMER_NO)
ORA_KNARASAPURARAJAGOPAL.PRODUCTS
P * PRODUCT_ID NUMBER (7)
PRODUCT_DESC VARCHAR2 (20 BYTE)
PRODUCT_COST VARCHAR2 (10 BYTE)
ITEM (PRODUCT_ID)
ITEM (PRODUCT_ID)
ORA_KNARASAPURARAJAGOPAL.PAYMENT_TYPE
P * PAY_KEY NUMBER (10)
PAY_TYPE VARCHAR2 (20 BYTE)
PAYMENT_TYPE (PAY_KEY)
PAYMENT_TYPE (PAY_KEY)
Keshav Narasapura
Rajagopalaiah
A20376662

PHASE VII: Loading the Tables with valid Data.

SQL Query to populate Clerks Table Data:

Start Page | Narasapura_Rajagopalaiah | Relational_1 (Untitled_1)

0.27200001 seconds

Worksheet | Query Builder

```
INSERT INTO Clerks VALUES ('A100','Clerk','Clancy','Downtown','PT','3124837290');
INSERT INTO Clerks VALUES ('B214','Dollars','Darryl','Uptown','PT','3124837291');
INSERT INTO Clerks VALUES ('A200','Embers','Emily','Uptown','FT','3124837292');
INSERT INTO Clerks VALUES ('C212','Ginger','George','Bridgeport','FT','3124837293');
INSERT INTO Clerks VALUES ('B019','Fender','Faith','Mall Plaza','PT','3124837294');
INSERT INTO Clerks VALUES ('C106','Andrews','Alice','Bronzeville','FT','3124837295');
INSERT INTO Clerks VALUES ('D100','Steve','Jones','Downtown','FT','3124837296');
INSERT INTO Clerks VALUES ('E100','Jose','Joe','Downtown','FT','3124837297');
INSERT INTO Clerks VALUES ('F100','Joseph','Monica','Downtown','PT','3124837298');
INSERT INTO Clerks VALUES ('G100','Potter','Harry','Downtown','PT','3124837299');
commit;
```

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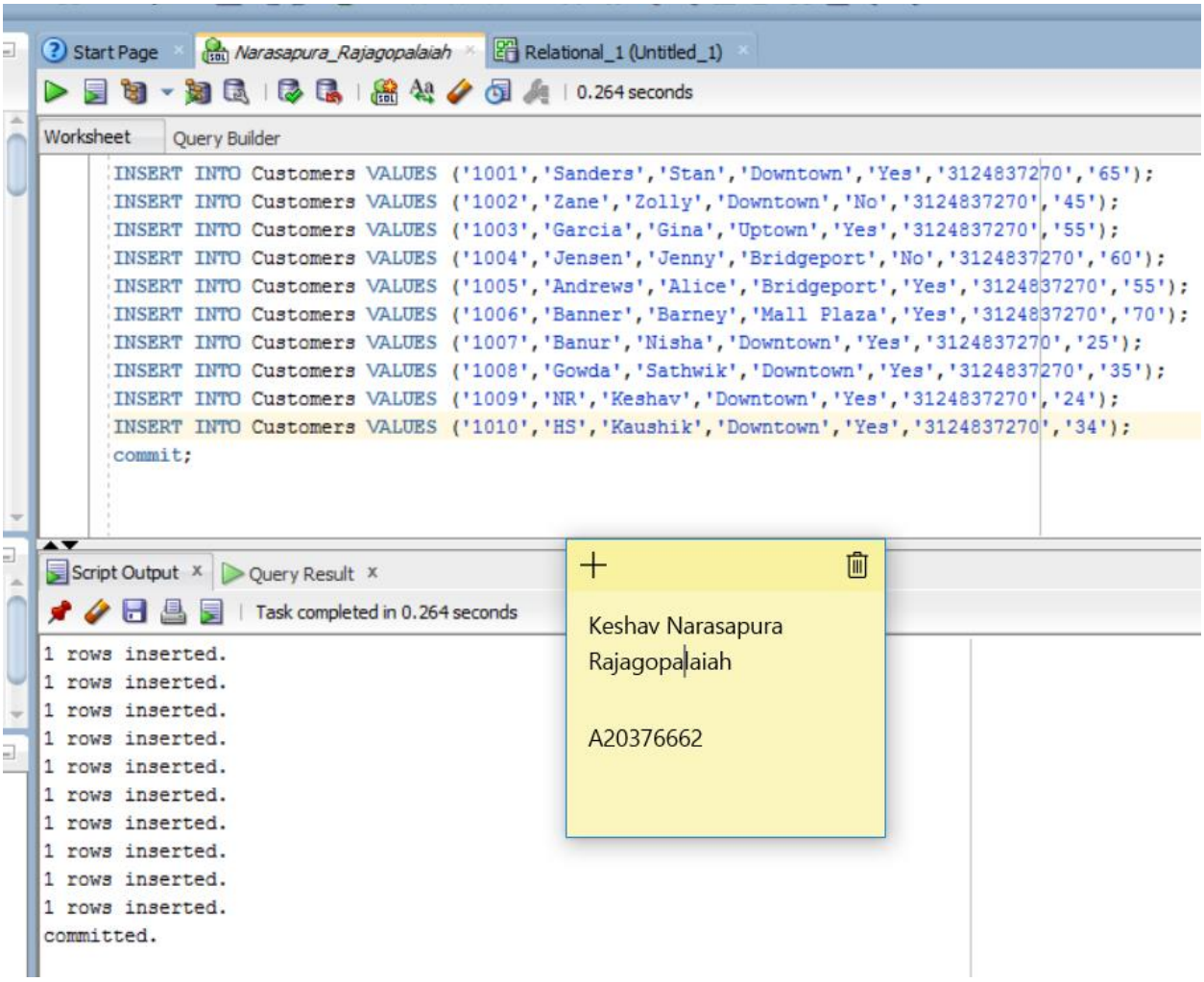
Script Output | Query Result

Task completed in 0.272 seconds

```
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
committed.
```

SQL Query to populate Customers Table Data:



SQL Query to populate Payment_type Table Data:

Start Page | Narasapura_Rajagopalaiah | Relational_1 (Untitled_1)

0.22 seconds

Worksheet | Query Builder

```
INSERT INTO Payment_type VALUES ('1','Cash');
INSERT INTO Payment_type VALUES ('2','Credit Card');
INSERT INTO Payment_type VALUES ('3','Gift Card');
INSERT INTO Payment_type VALUES ('4','Coupon');
INSERT INTO Payment_type VALUES ('5','Store Credit');
INSERT INTO Payment_type VALUES ('6','Military');
INSERT INTO Payment_type VALUES ('7','Military');
INSERT INTO Payment_type VALUES ('8','Other');
commit;
```

Script Output | Query Result

Task completed in 0.22 seconds

```
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
1 rows inserted.
committed.
```

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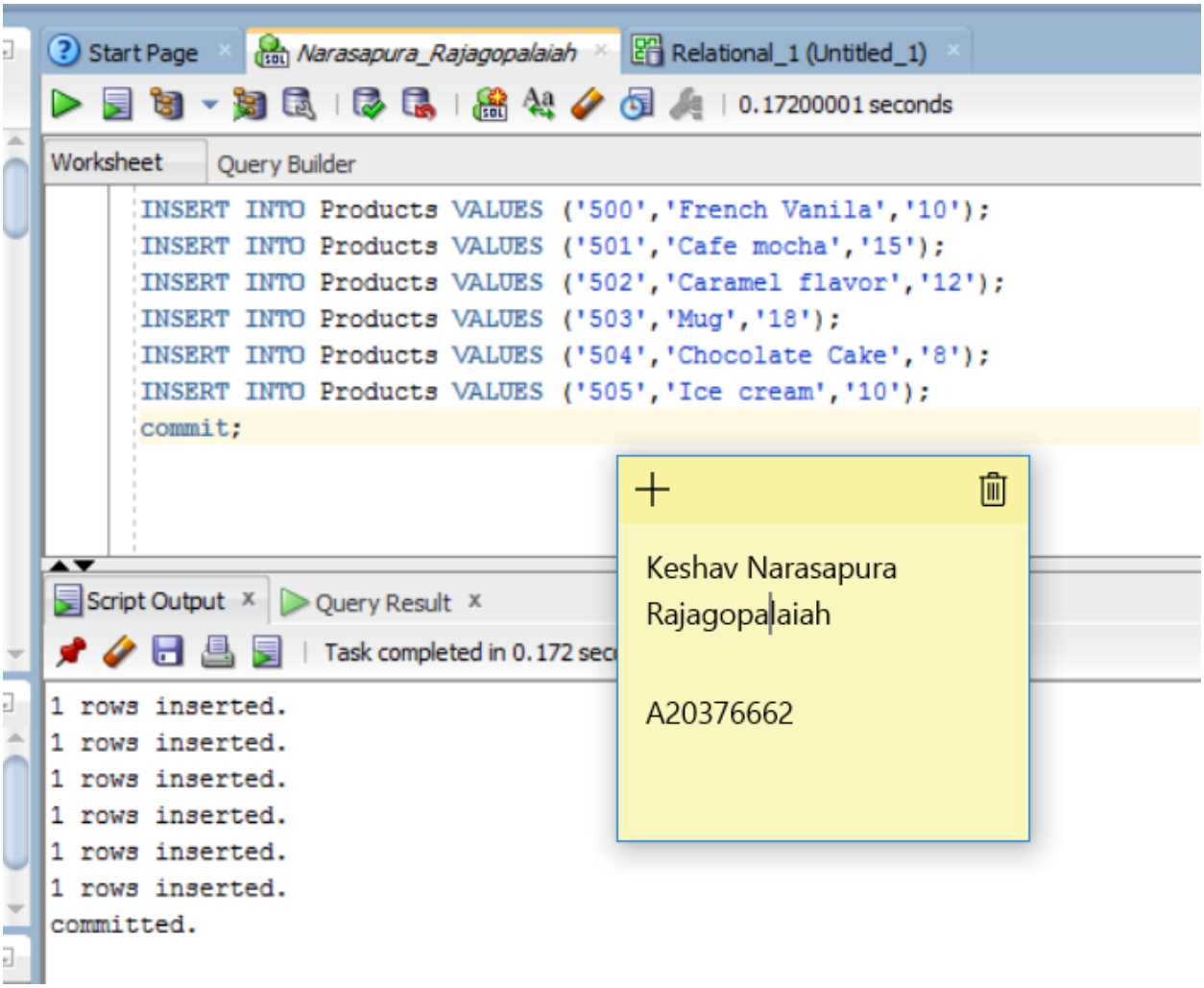
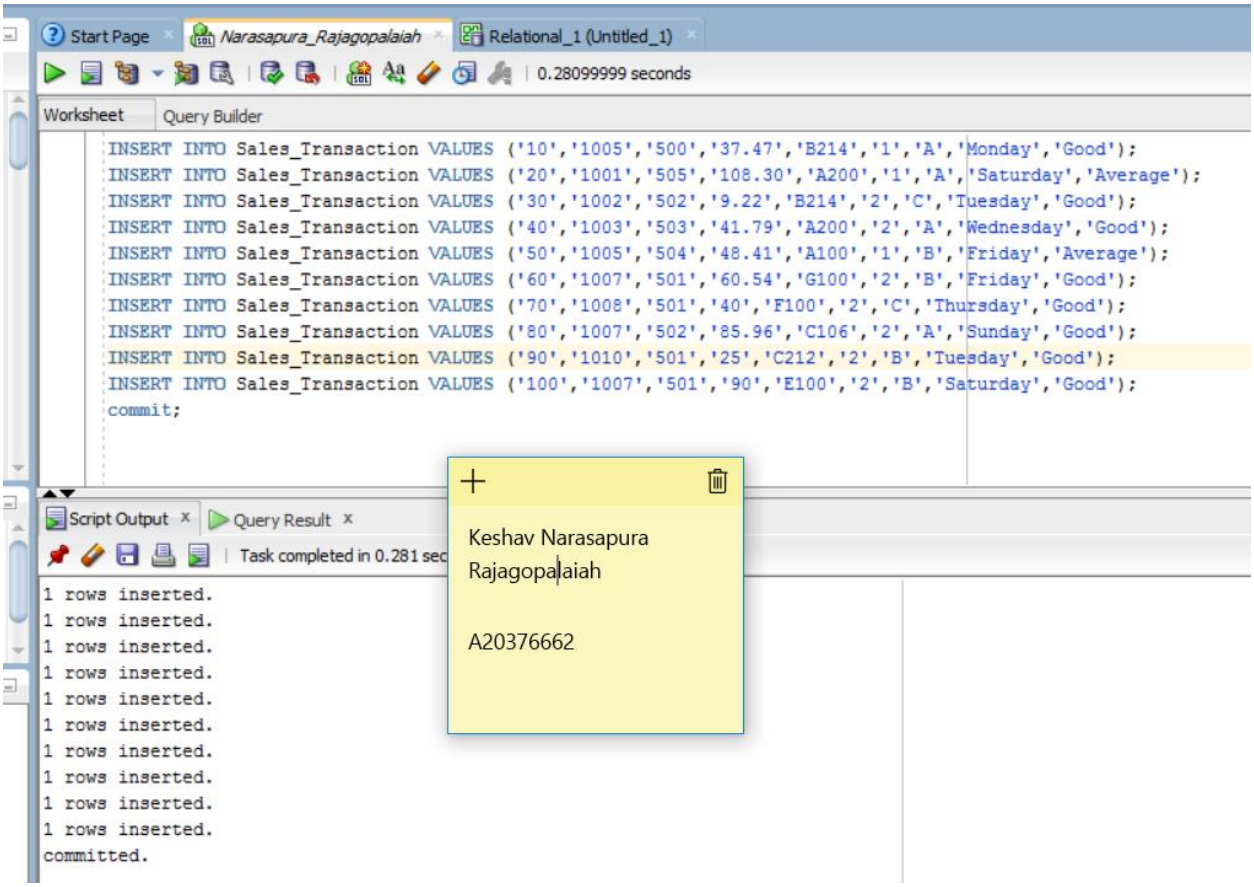
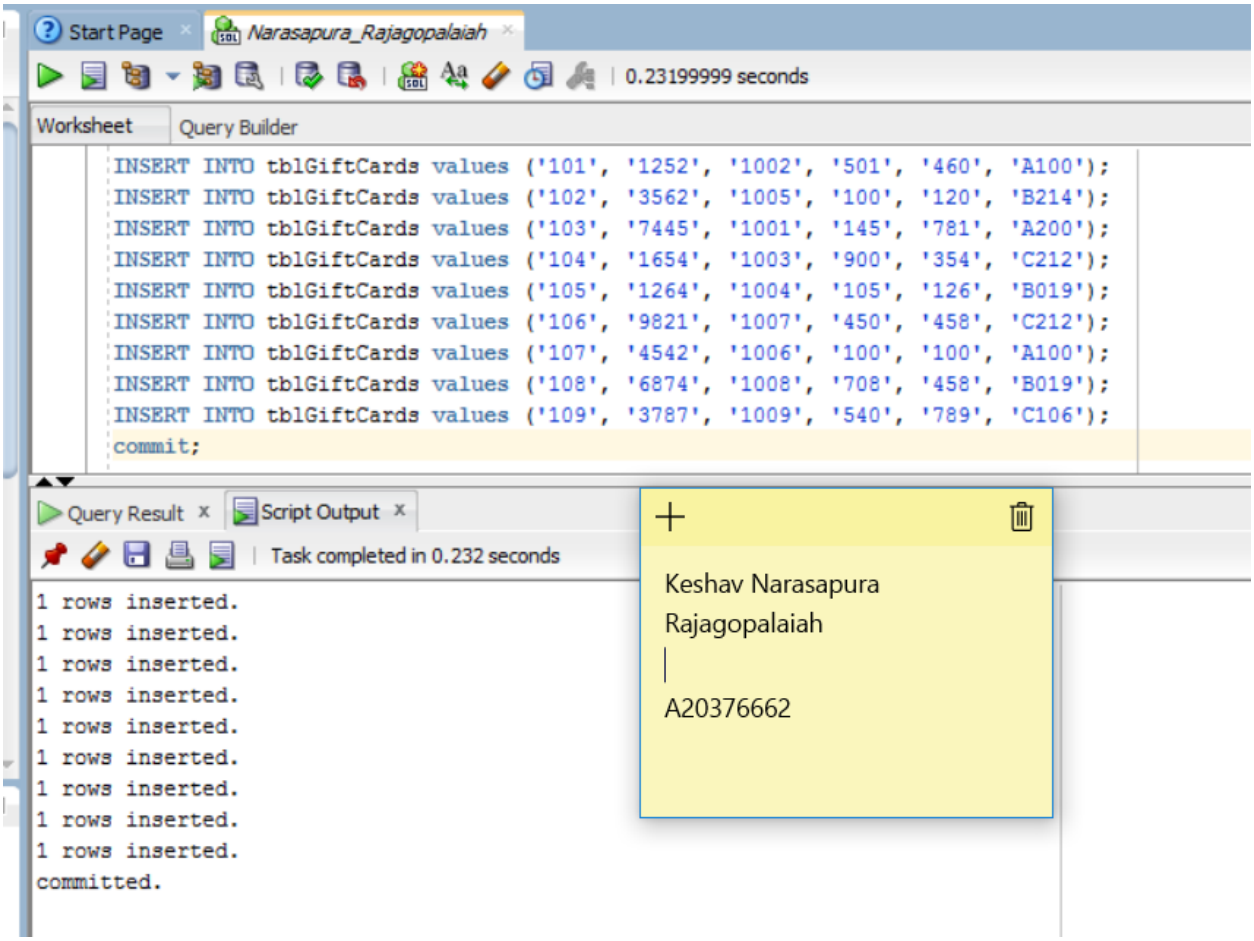
SQL Query to populate Products Table Data:



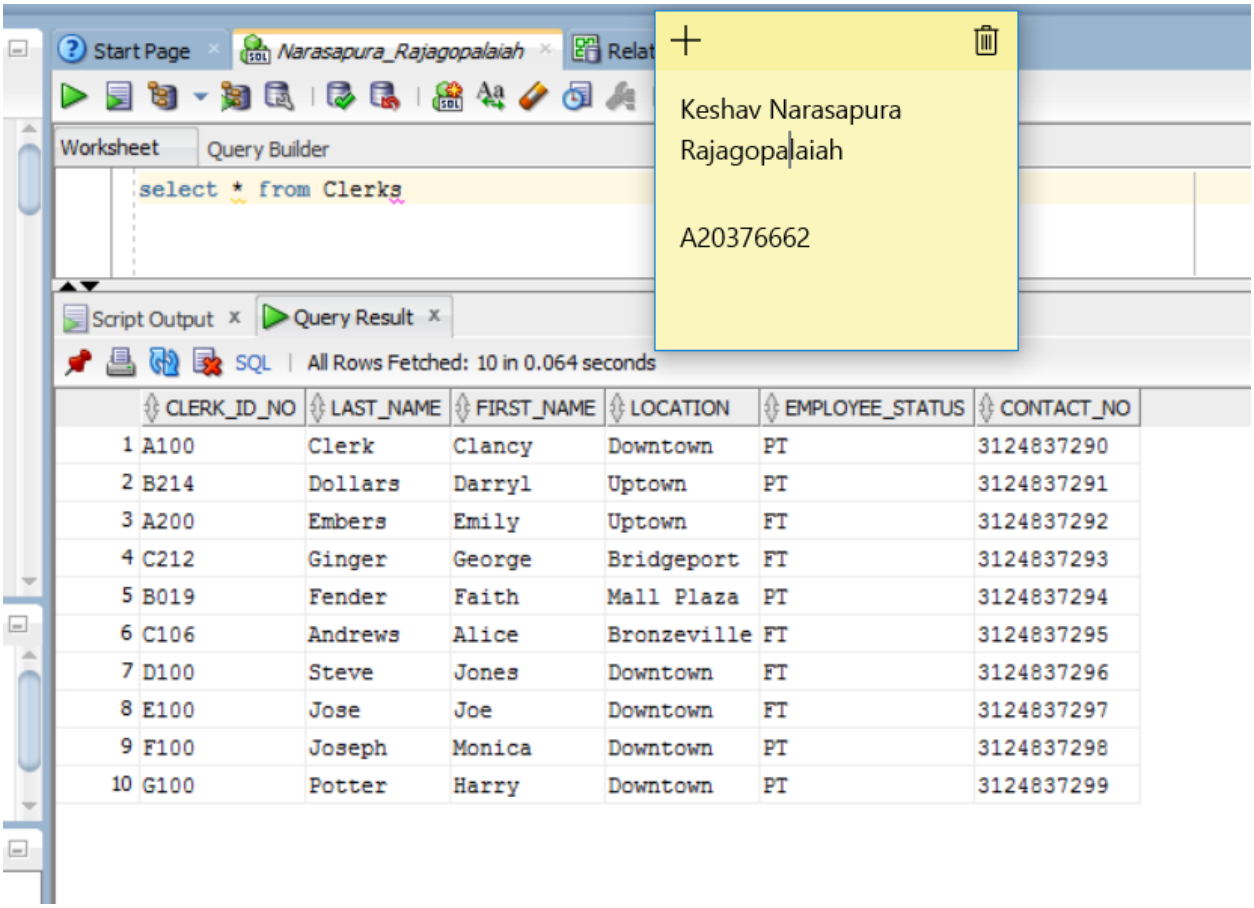
SQL Query to populate Sales_Transaction Table Data:



SQL Query to populate tblGiftCards Table:

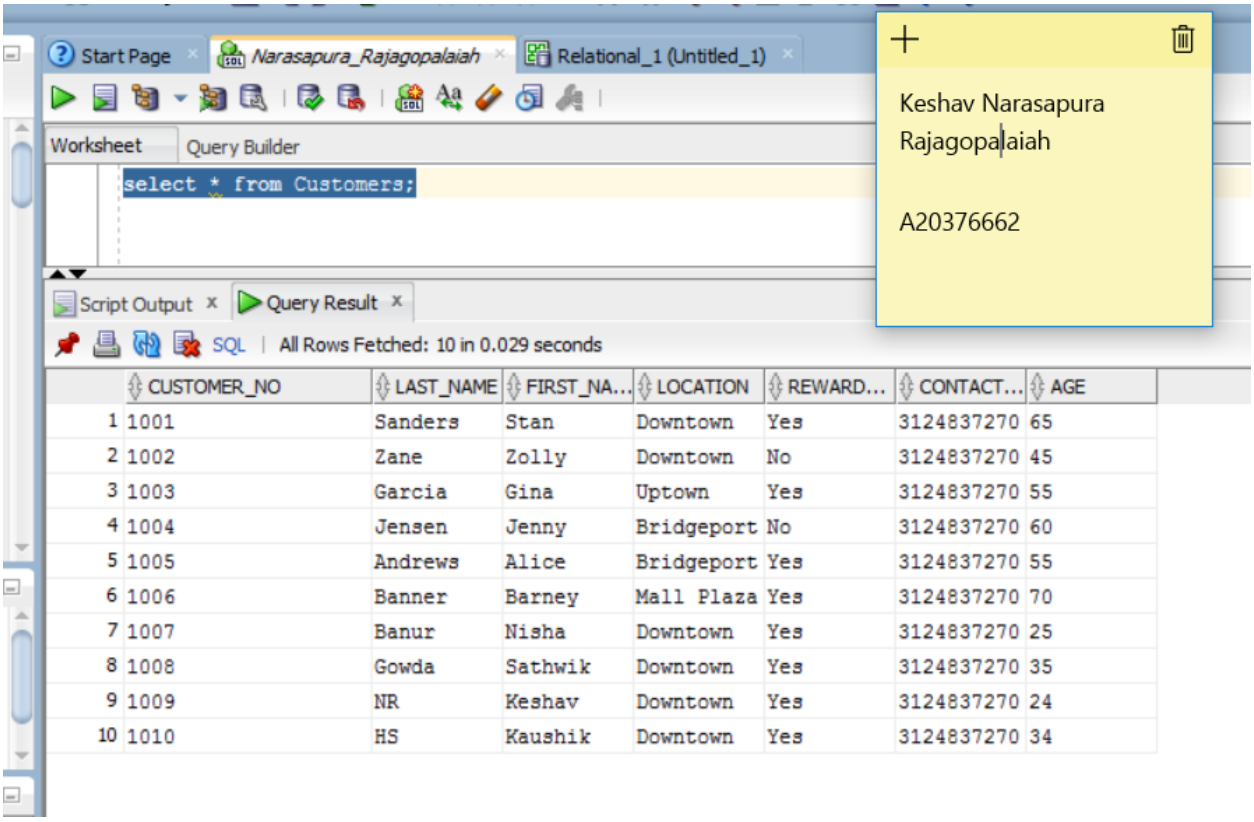


Clerks Table



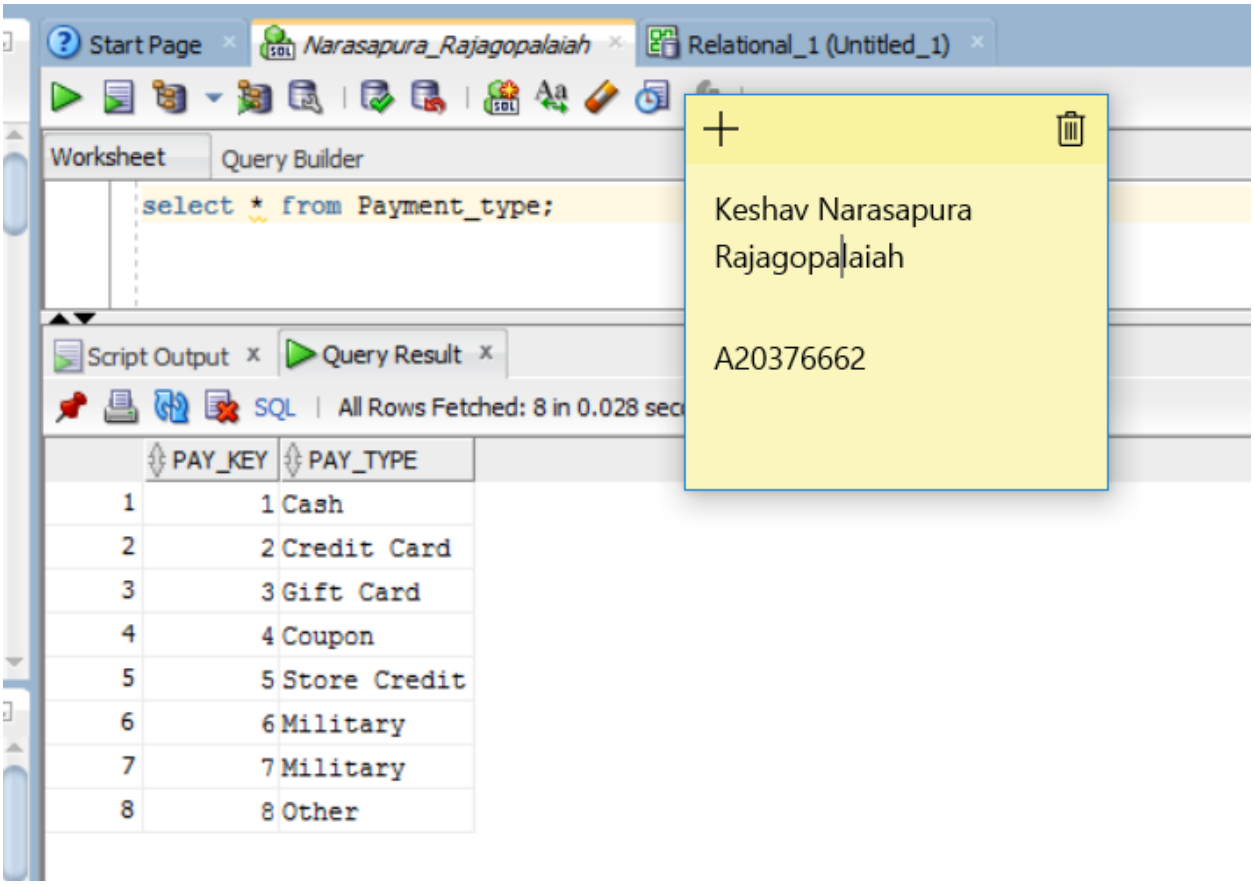
	CLERK_ID_NO	LAST_NAME	FIRST_NAME	LOCATION	EMPLOYEE_STATUS	CONTACT_NO
1	A100	Clerk	Clancy	Downtown	PT	3124837290
2	B214	Dollars	Darryl	Uptown	PT	3124837291
3	A200	Embers	Emily	Uptown	FT	3124837292
4	C212	Ginger	George	Bridgeport	FT	3124837293
5	B019	Fender	Faith	Mall Plaza	PT	3124837294
6	C106	Andrews	Alice	Bronzeville	FT	3124837295
7	D100	Steve	Jones	Downtown	FT	3124837296
8	E100	Jose	Joe	Downtown	FT	3124837297
9	F100	Joseph	Monica	Downtown	PT	3124837298
10	G100	Potter	Harry	Downtown	PT	3124837299

Customers Table:

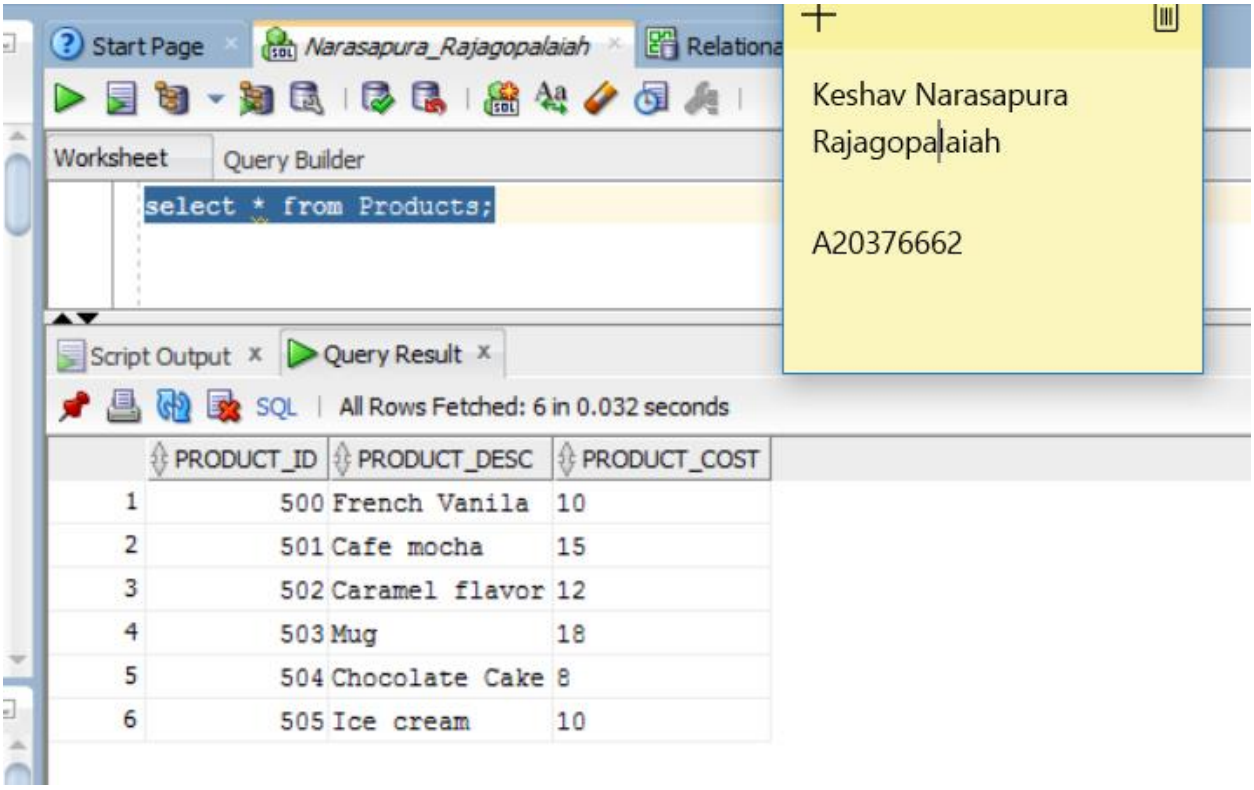


	CUSTOMER_NO	LAST_NAME	FIRST_NA...	LOCATION	REWARD...	CONTACT...	AGE
1	1001	Sanders	Stan	Downtown	Yes	3124837270	65
2	1002	Zane	Zolly	Downtown	No	3124837270	45
3	1003	Garcia	Gina	Uptown	Yes	3124837270	55
4	1004	Jensen	Jenny	Bridgeport	No	3124837270	60
5	1005	Andrews	Alice	Bridgeport	Yes	3124837270	55
6	1006	Banner	Barney	Mall Plaza	Yes	3124837270	70
7	1007	Banur	Nisha	Downtown	Yes	3124837270	25
8	1008	Gowda	Sathwik	Downtown	Yes	3124837270	35
9	1009	NR	Keshav	Downtown	Yes	3124837270	24
10	1010	HS	Kaushik	Downtown	Yes	3124837270	34

Payment_type Table:

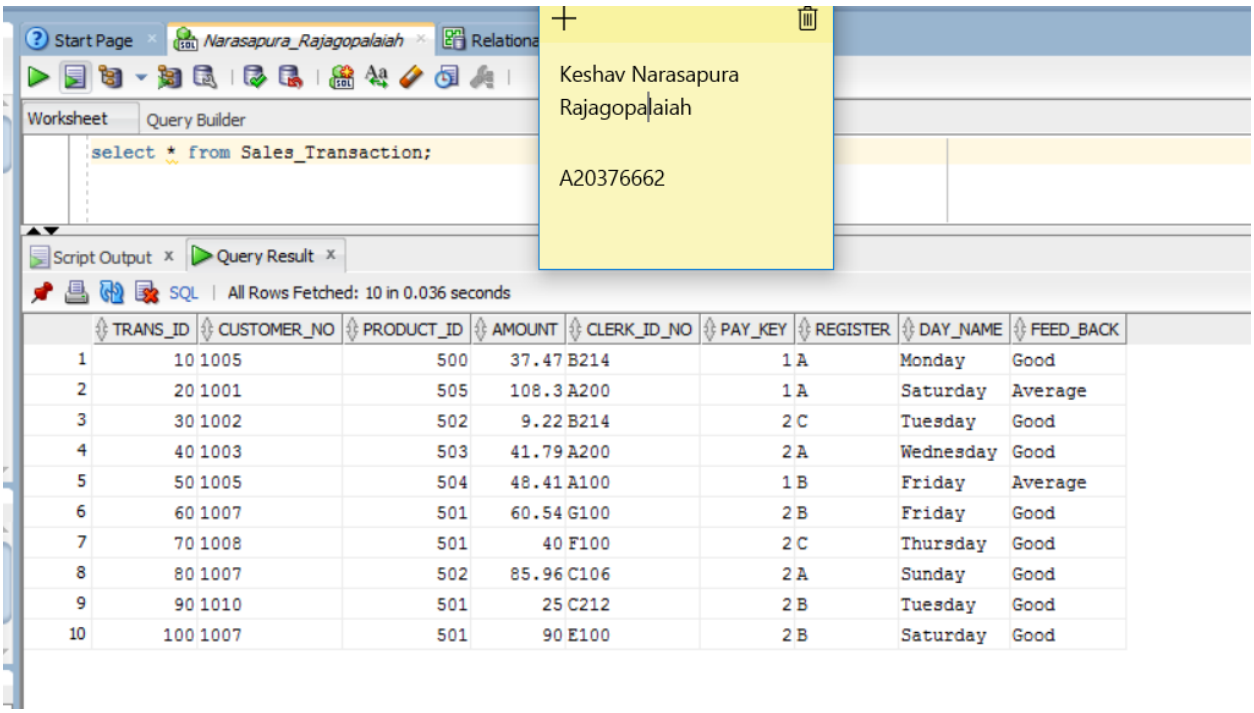


Products Table:



	PRODUCT_ID	PRODUCT_DESC	PRODUCT_COST
1	500	French Vanila	10
2	501	Cafe mocha	15
3	502	Caramel flavor	12
4	503	Mug	18
5	504	Chocolate Cake	8
6	505	Ice cream	10

Sales_Transaction Table:

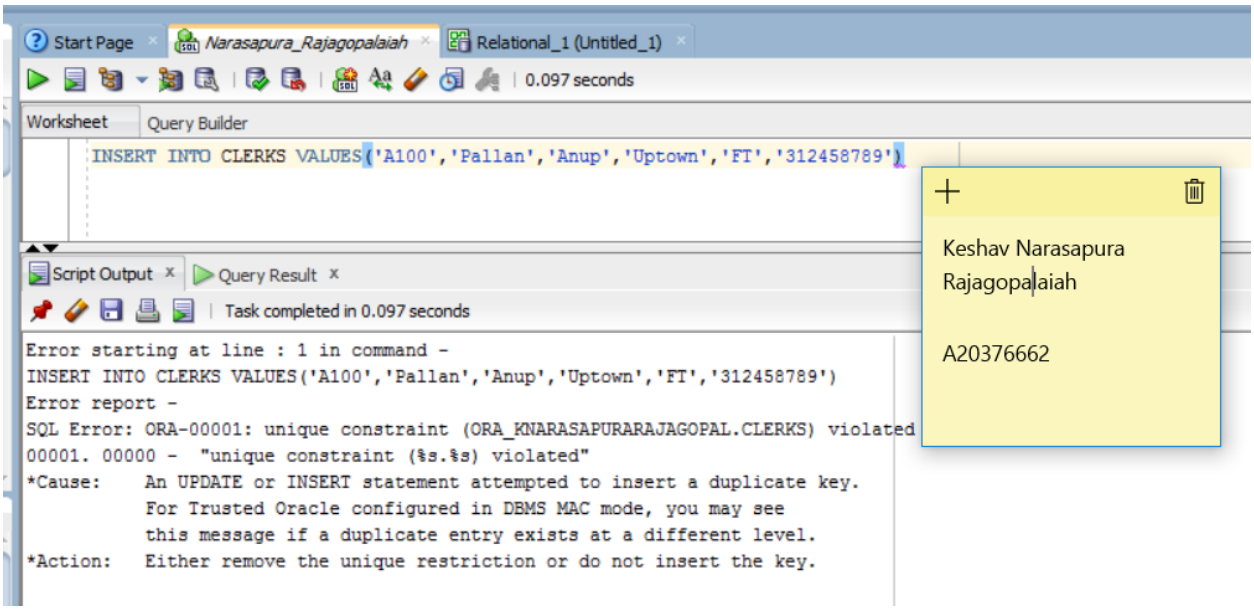


	TRANS_ID	CUSTOMER_NO	PRODUCT_ID	AMOUNT	CLERK_ID_NO	PAY_KEY	REGISTER	DAY_NAME	FEED_BACK
1	10	1005	500	37.47	B214	1	A	Monday	Good
2	20	1001	505	108.3	A200	1	A	Saturday	Average
3	30	1002	502	9.22	B214	2	C	Tuesday	Good
4	40	1003	503	41.79	A200	2	A	Wednesday	Good
5	50	1005	504	48.41	A100	1	B	Friday	Average
6	60	1007	501	60.54	G100	2	B	Friday	Good
7	70	1008	501	40	F100	2	C	Thursday	Good
8	80	1007	502	85.96	C106	2	A	Sunday	Good
9	90	1010	501	25	C212	2	B	Tuesday	Good
10	100	1007	501	90	E100	2	B	Saturday	Good

Phase VIII: Testing the Database System

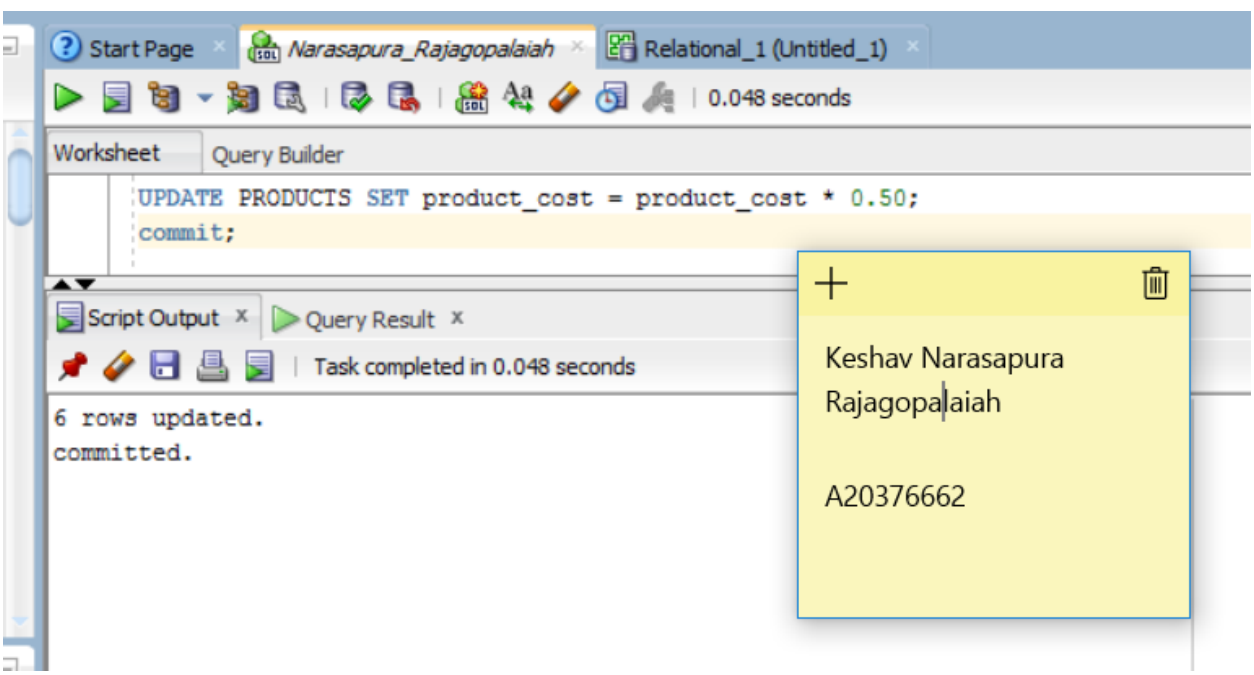
Insert

Primary Key is unique, if we try to insert same values using same primary key "unique constraint violated" error will occur.

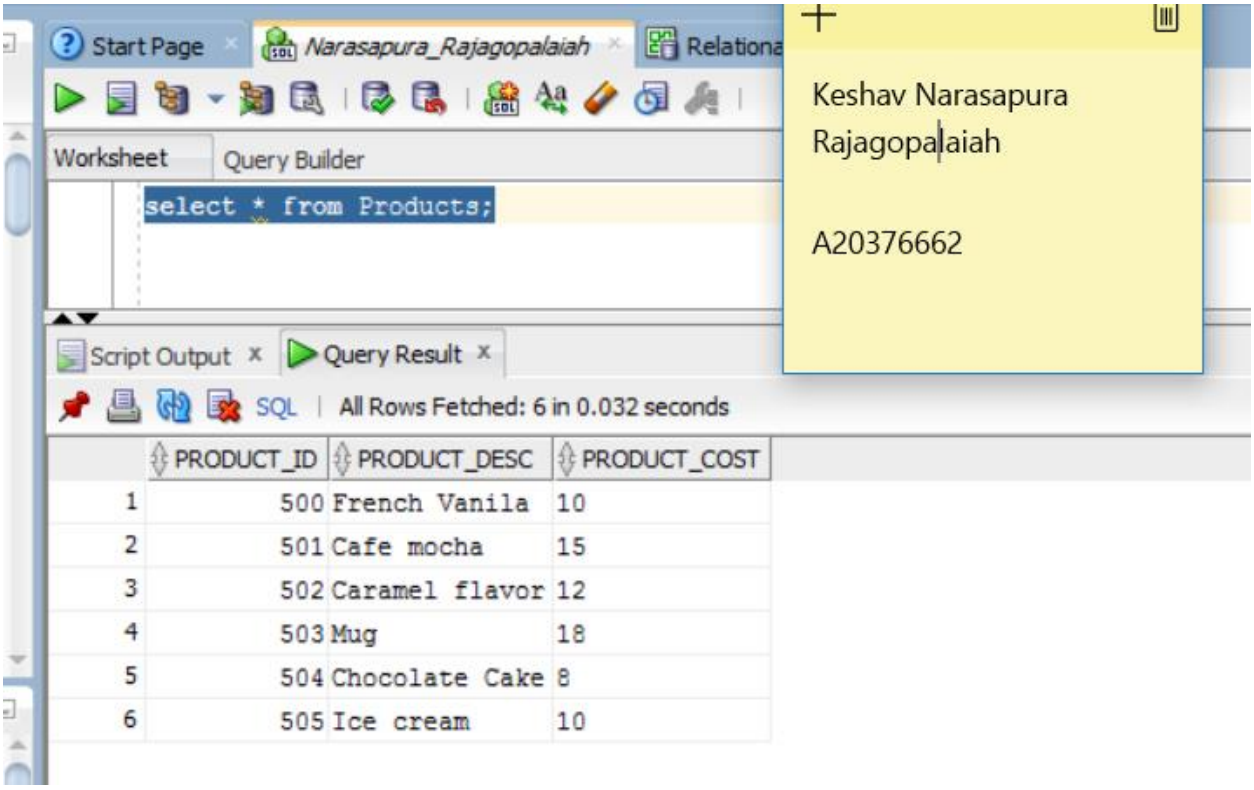


Update

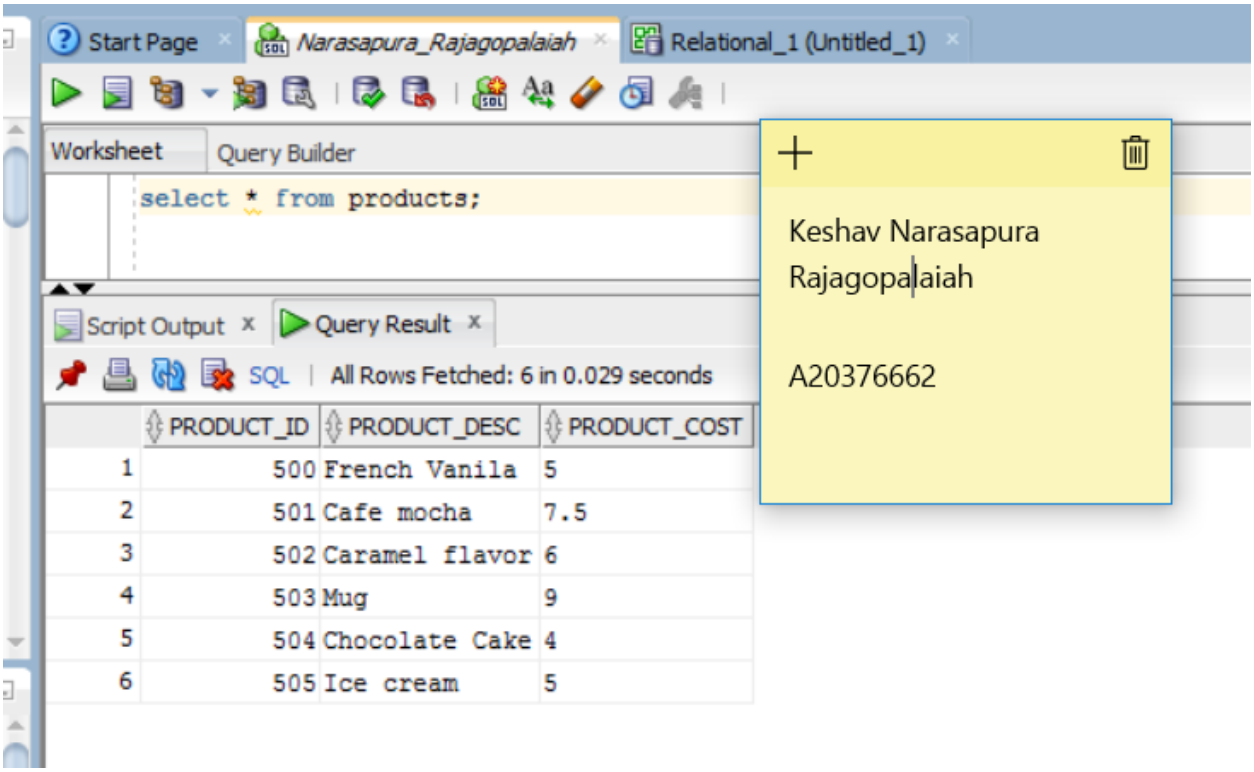
Update statement is used to update the current existing data in the Table. In the below query, amount column of products table is updated.



Before Update statement is executed:



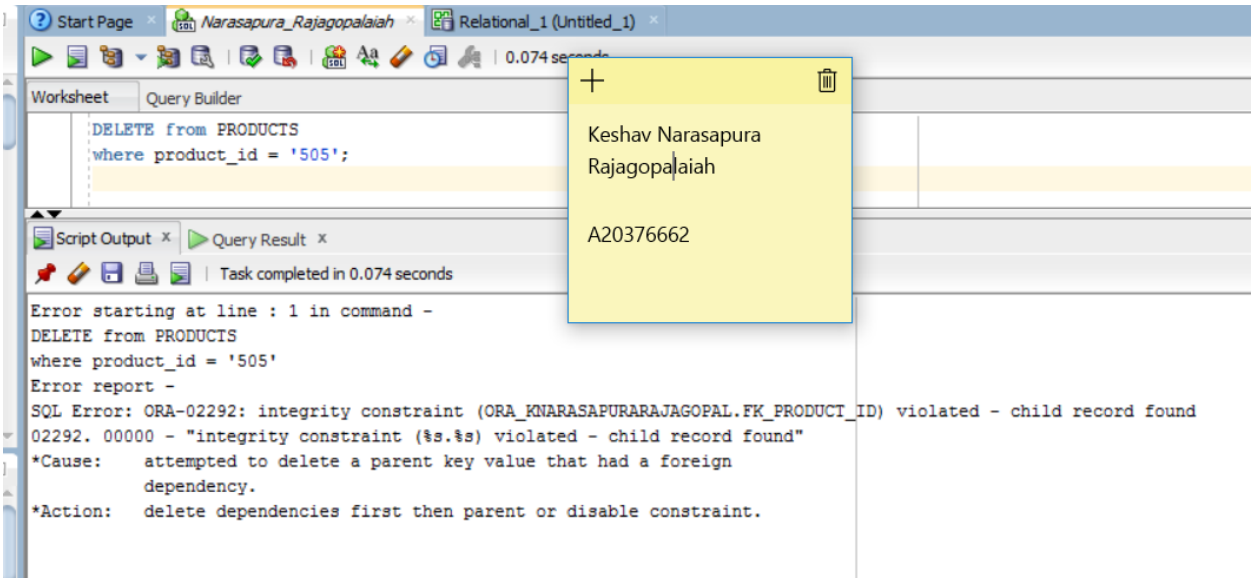
After Update statement is executed:



Delete

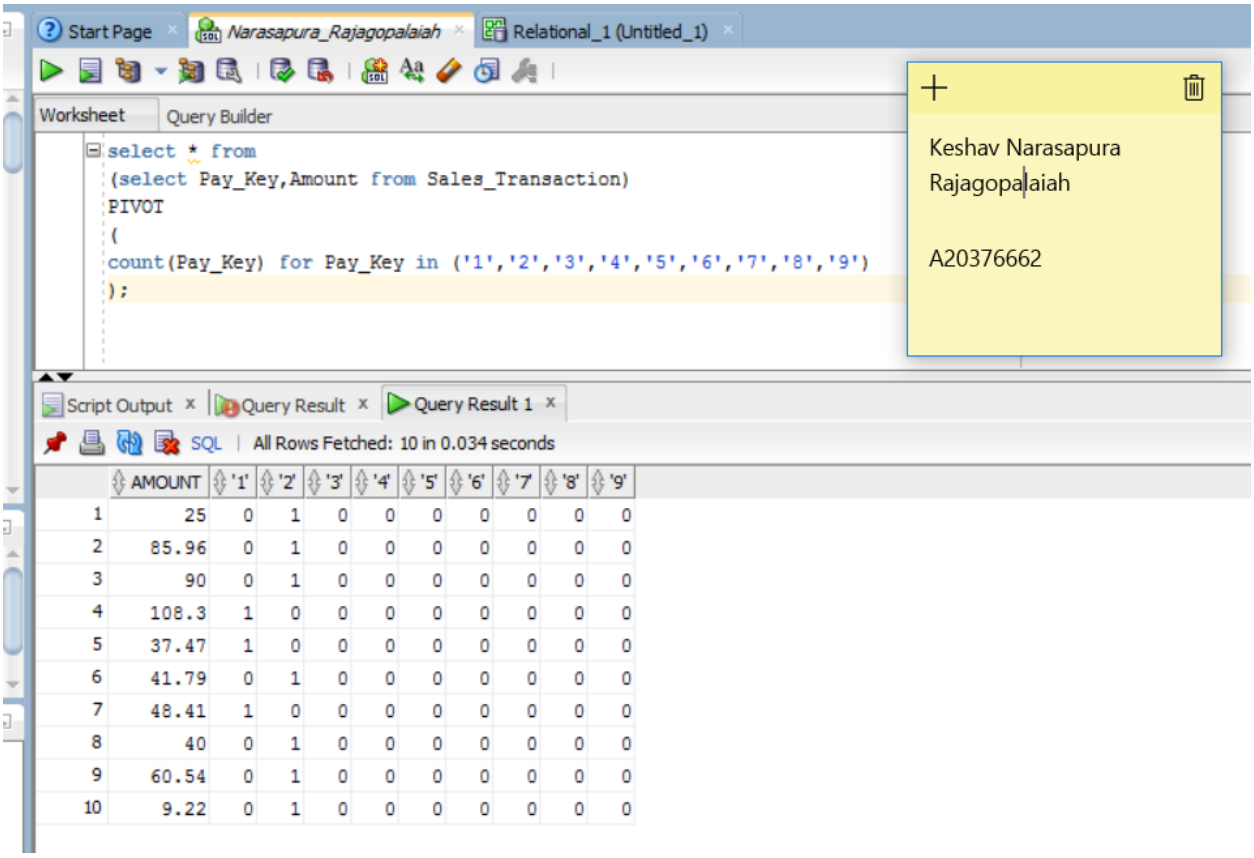
Delete statement is used to delete the record in the table. In the below query the delete is used to remove data with product_id 505. Since product _id is a a primary key and dependent foreign key integrity constraint error occurs.

This shows that the tables created are inter dependent to each other.

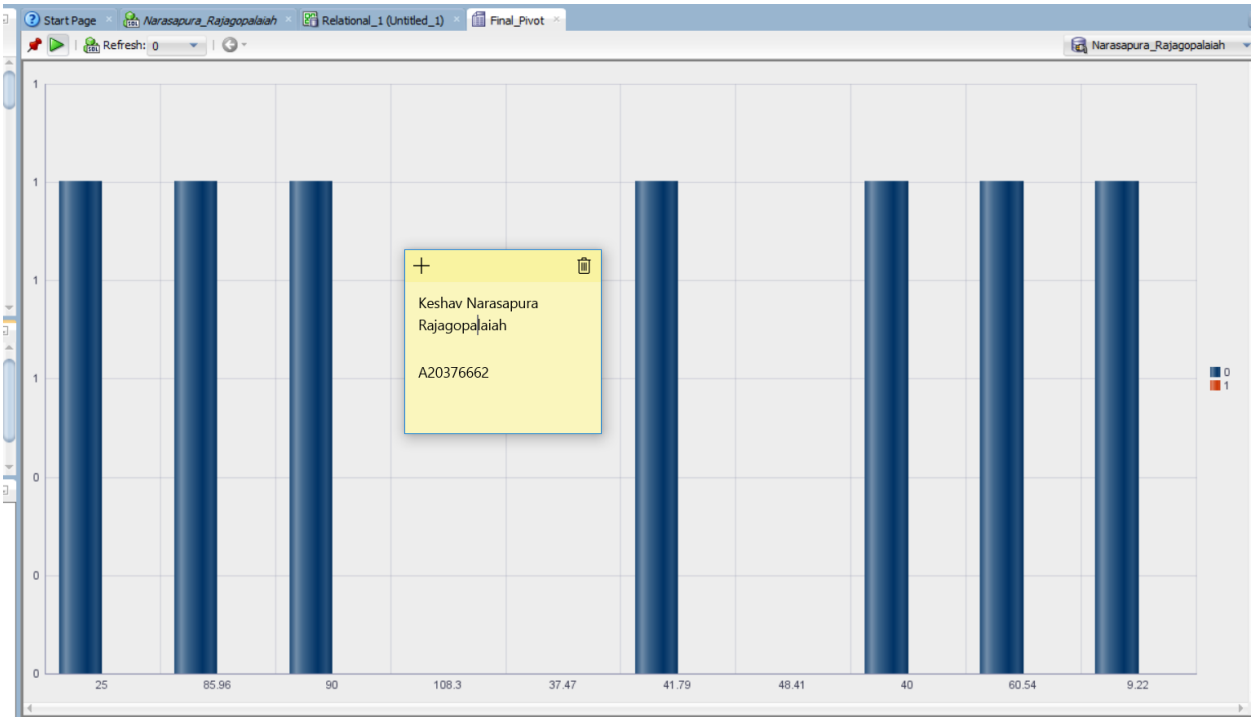


PIVOT

Below Query is used to display count of each payment type along with amount corresponding to it. The task can be achieved using Pivot.



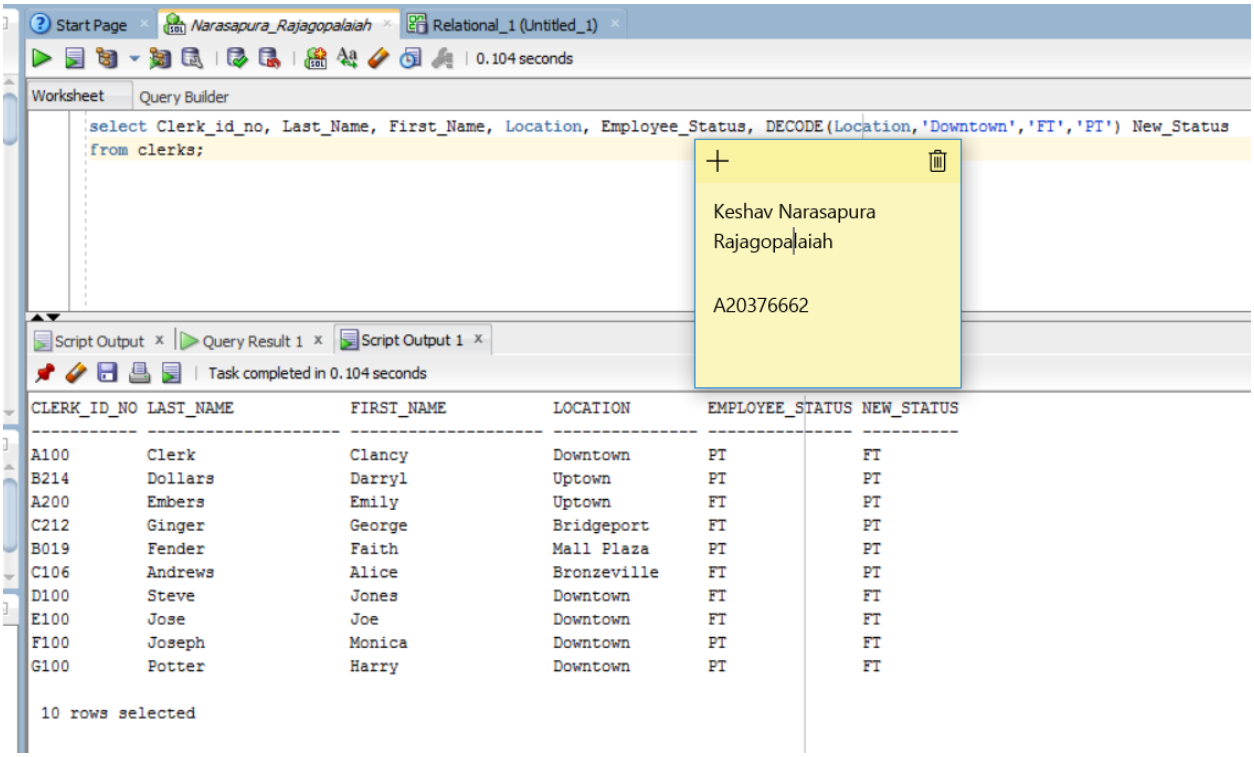
	AMOUNT	'1'	'2'	'3'	'4'	'5'	'6'	'7'	'8'	'9'
1	25	0	1	0	0	0	0	0	0	0
2	85.96	0	1	0	0	0	0	0	0	0
3	90	0	1	0	0	0	0	0	0	0
4	108.3	1	0	0	0	0	0	0	0	0
5	37.47	1	0	0	0	0	0	0	0	0
6	41.79	0	1	0	0	0	0	0	0	0
7	48.41	1	0	0	0	0	0	0	0	0
8	40	0	1	0	0	0	0	0	0	0
9	60.54	0	1	0	0	0	0	0	0	0
10	9.22	0	1	0	0	0	0	0	0	0


Start Page
Narasapura_Rajagopalaiah
Relational_1 (Untitled_1)
Final_Pivot
Refresh: 0
Narasapura_Rajagopalaiah
Keshav Narasapura Rajagopalaiah
A20376662
1
1
1
1
0
0
0
25
85.96
90
108.3
37.47
41.79
48.41
40
60.54
9.22
0
1

Decode

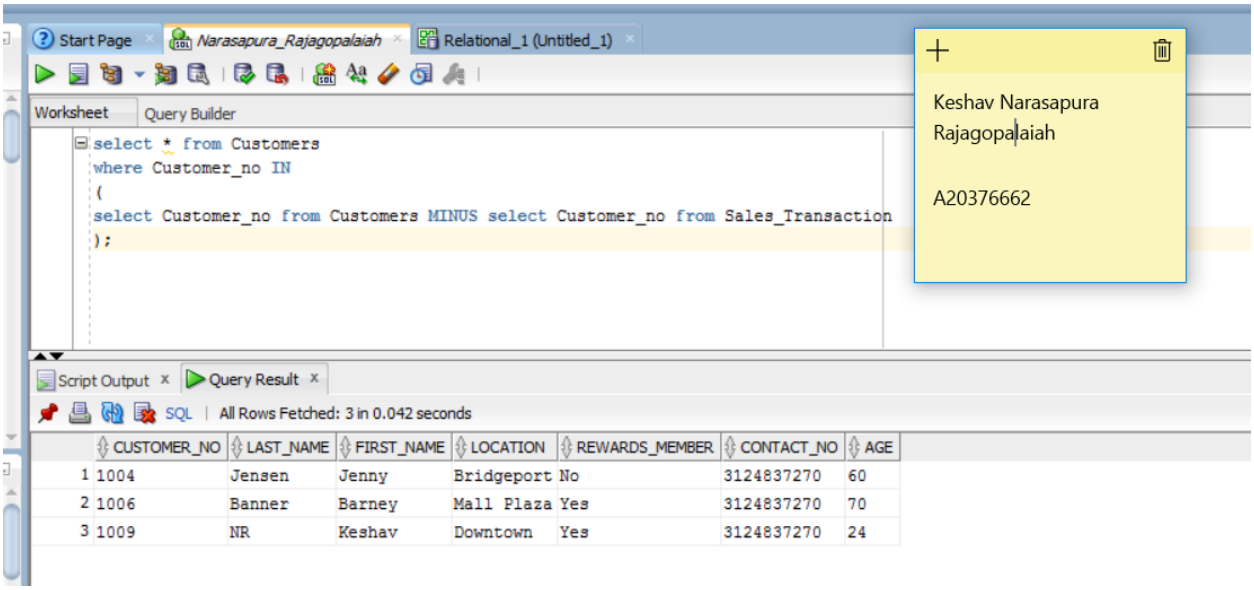
To update the employee status of clerks who are residing in Downtown to Full Time and rest of the clerks who are working in other places to Part time can be achieved by using DECODE Function.

The example is as shown below, the updated employee status is shown in a New column by name New_Status.



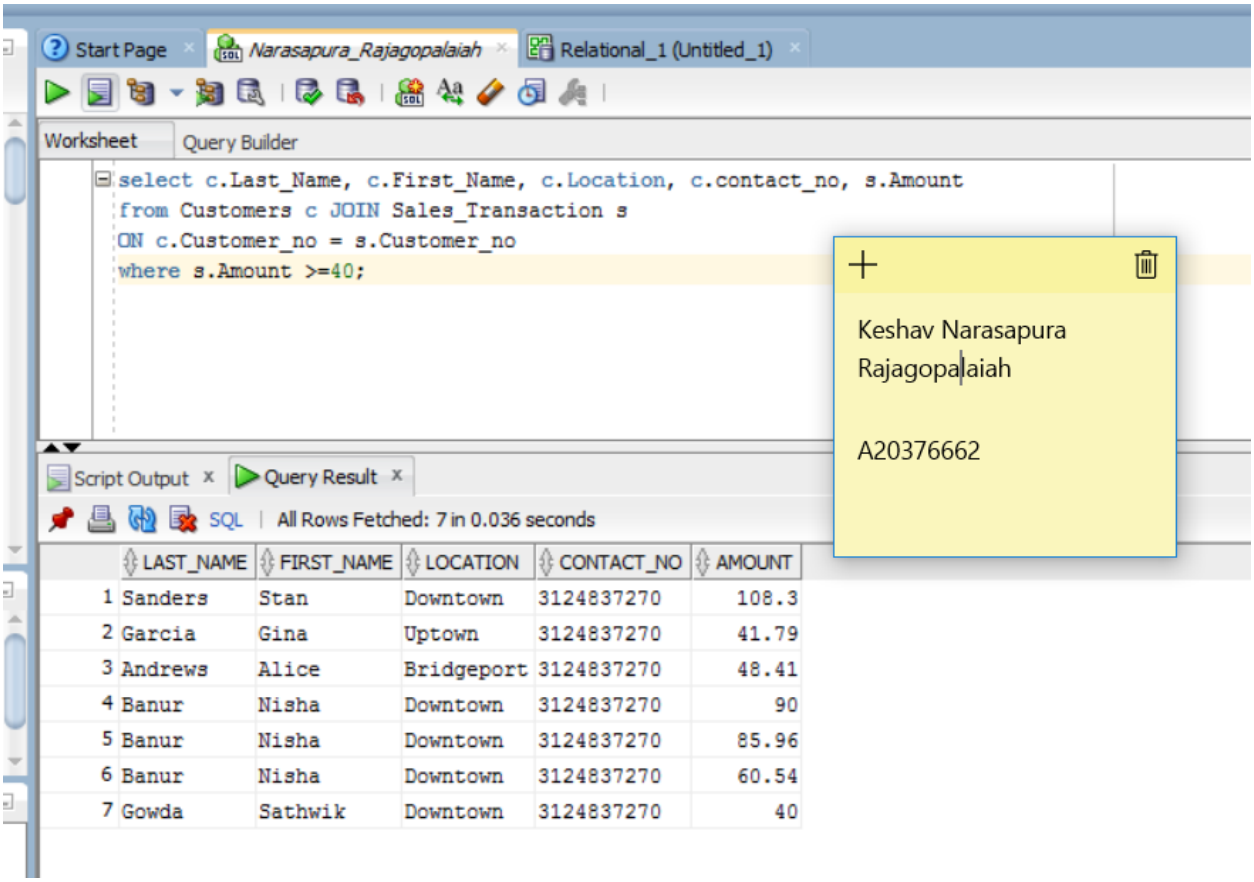
MINUS

To display customers who are not involved in any transactions can be achieved by using MINUS operation. A sample example is as shown below.



JOIN

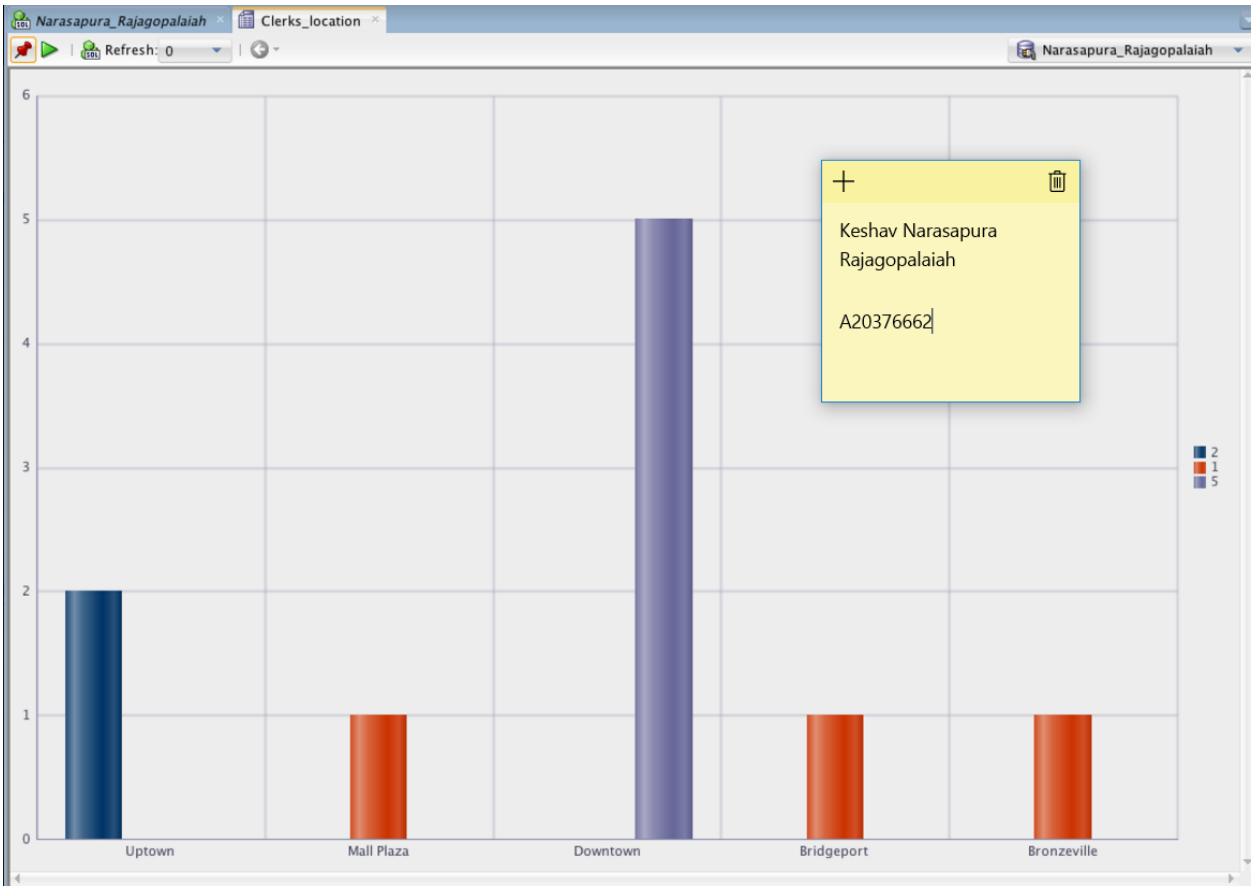
To display customers who have done transactions more than 40 dollars can be achieved by using **JOIN** operation on Customers Table and Sales Transaction Table.



PHASE IX: Data Analytics Performed.

1. To determine the count on location of clerks working in CCC following query is used and the corresponding graphical representation is also shown.

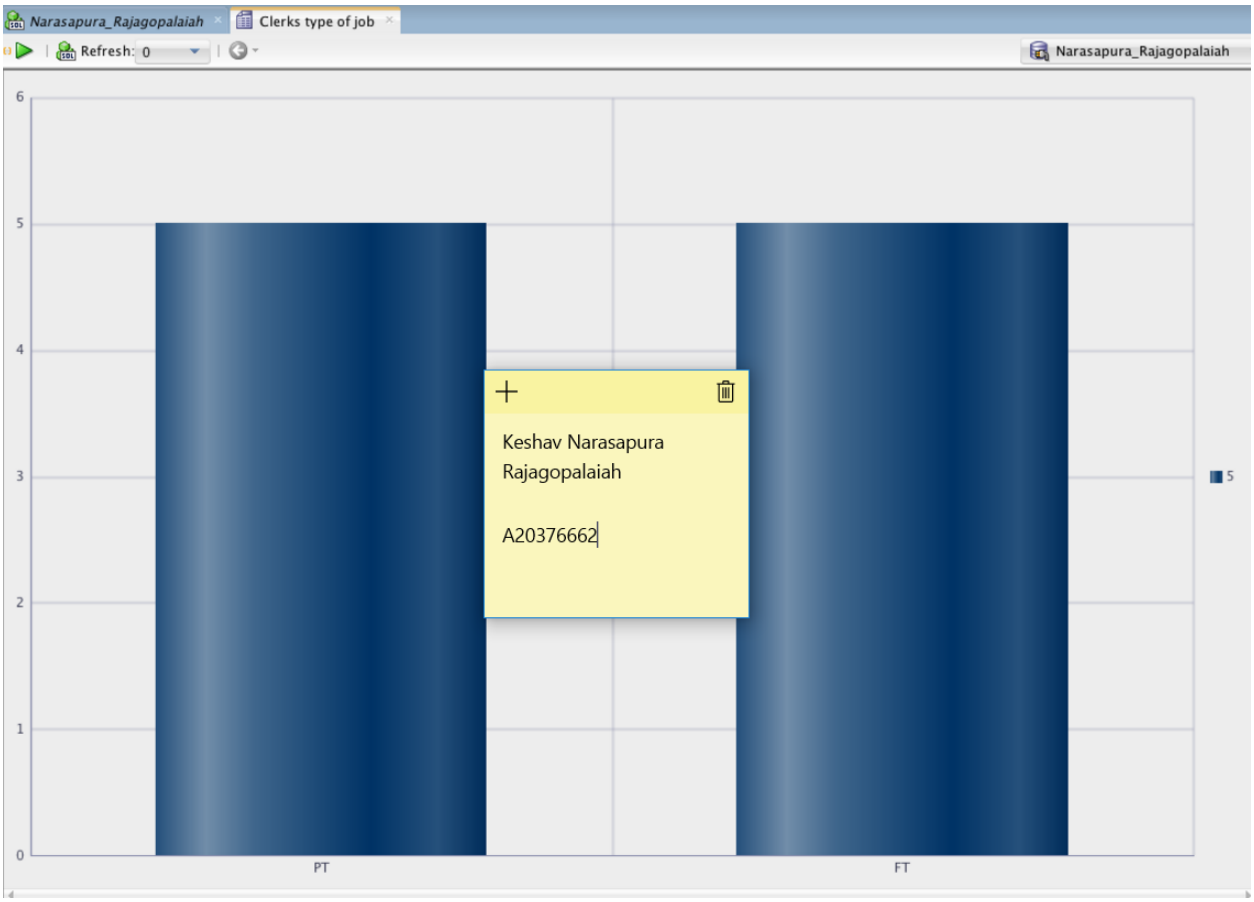
```
select location, count(location)
from clerks
group by location;
```



2.To determine the count on employee status of the clerks working in CCC, following query is used and the graphical representation is also shown.

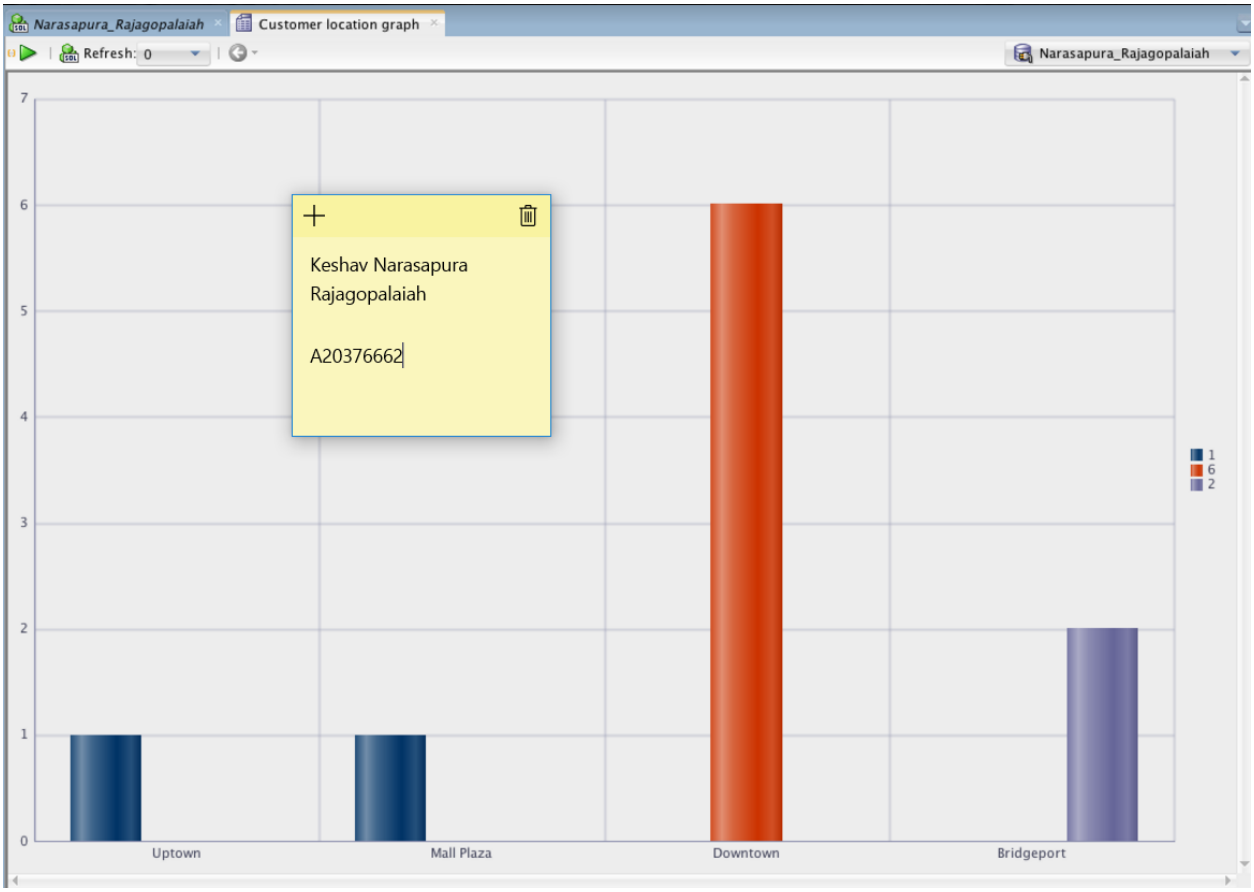
```
select employee_status, count(employee_status)
from clerks
group by employee_status;
```

The result shows there are five part time and five full time workers in CCC.



3.To determine where the maximum number of customers are located, following query is used and the result shows majority of the customers are from Downtown.

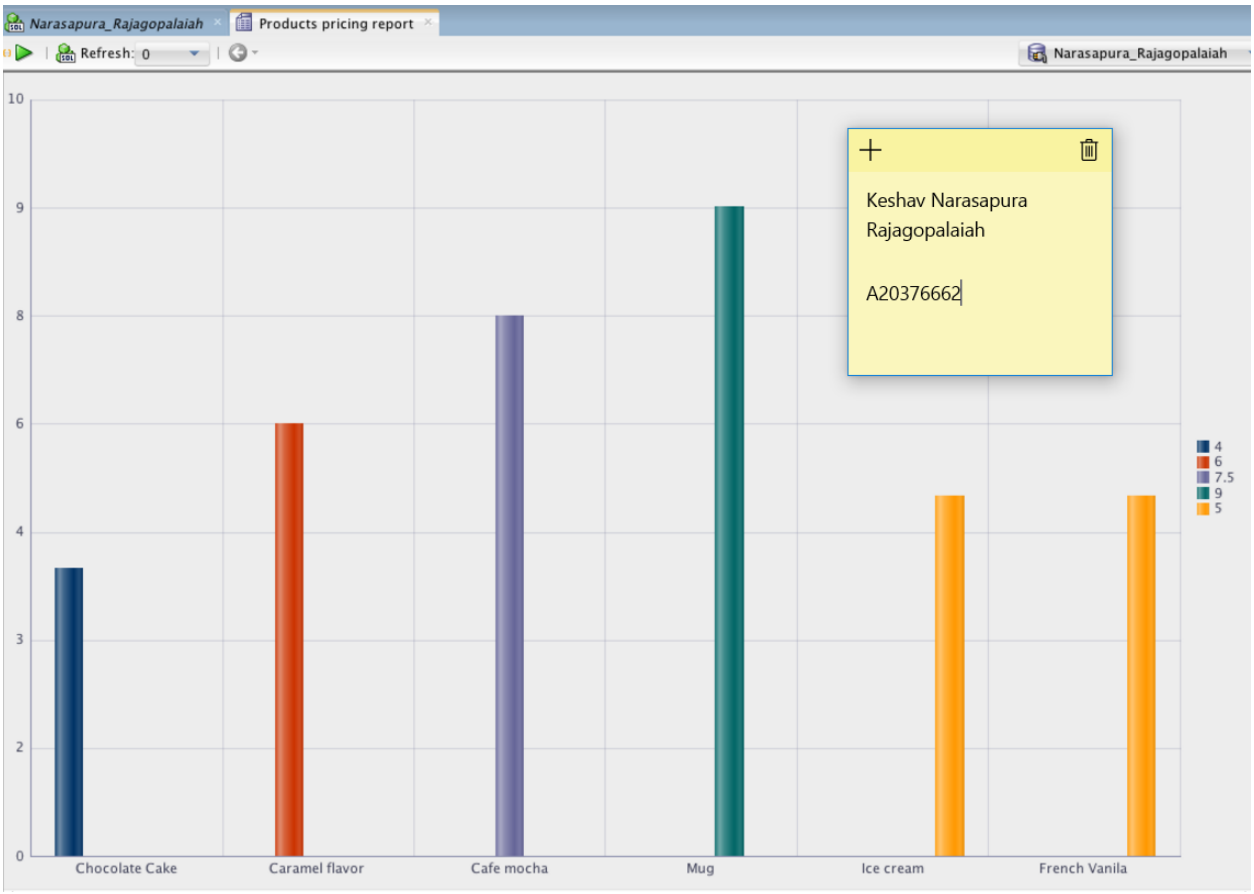
select location, count(location) from customers
group by location;



4.Cost of each product varies and to display graphically the cost of each product with respect to others the below query is used.

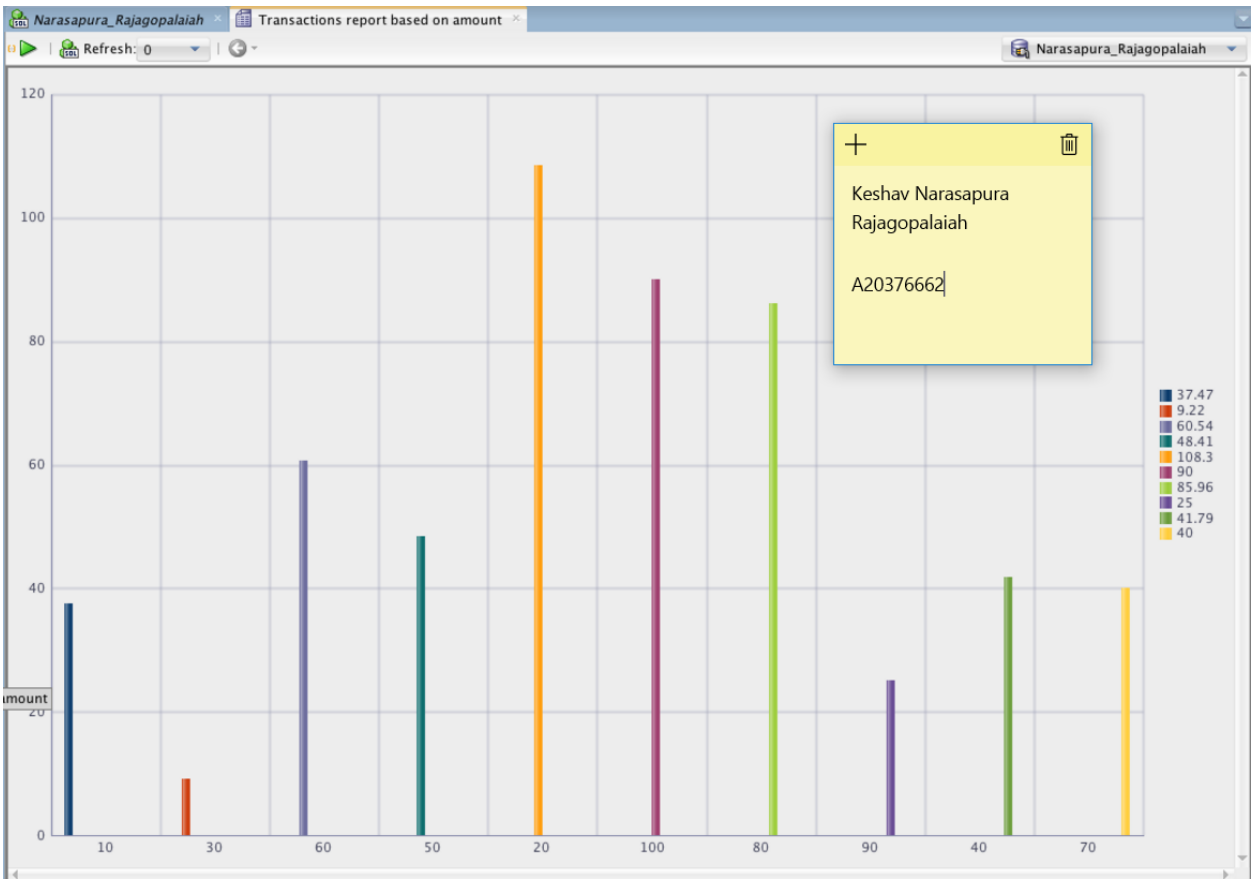
```
select product_desc, product_cost, max(product_cost)
from products
group by product_cost, product_desc;
```

Result shows the price of the Mug is high when compared to others.



5.Each transaction amount varies from High to Low. On a valid data of 10 data records, a graphical representation is shown to determine the cost per transaction. Query associated with it are:

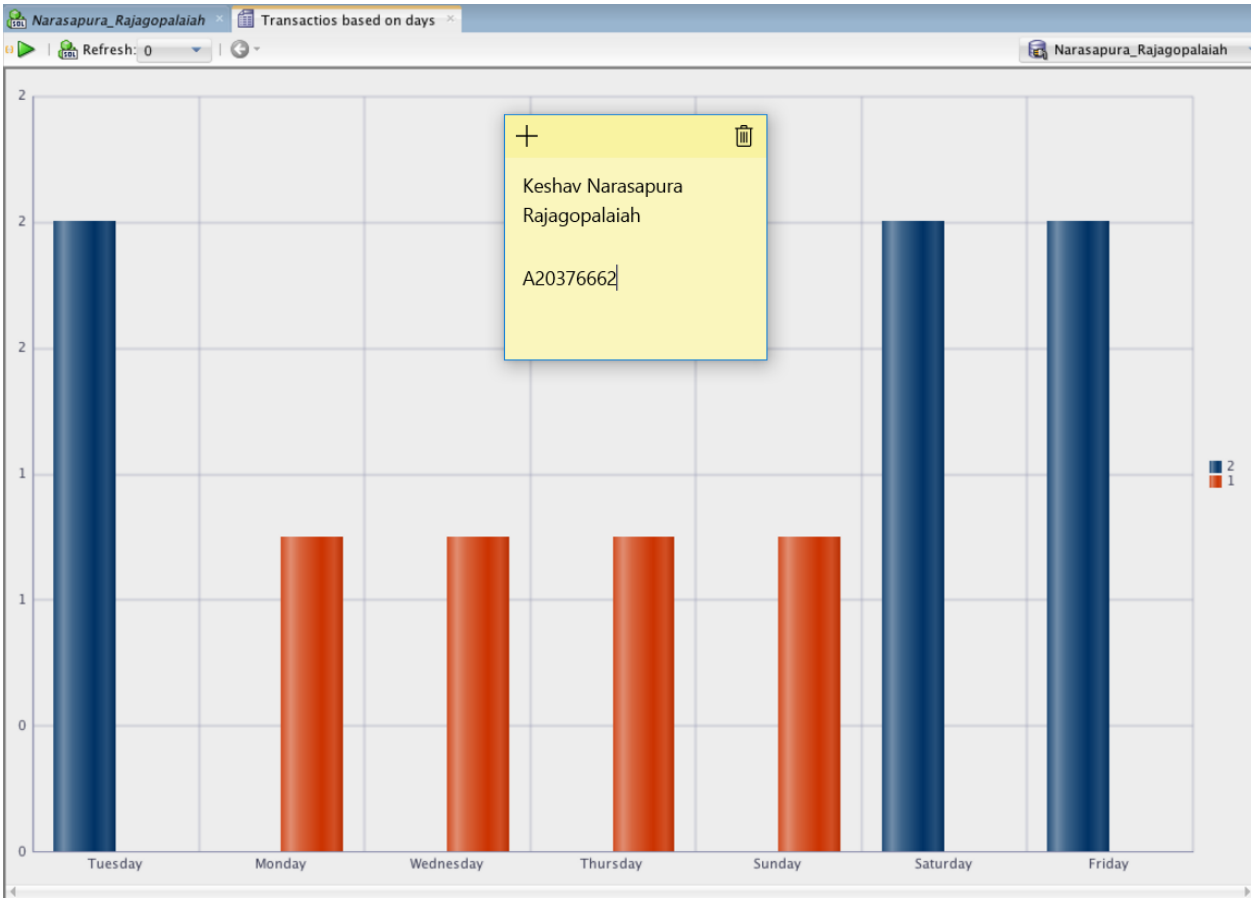
```
select trans_id, amount, max(amount)
from sales_transaction
group by amount, trans_id;
```



6.To determine on which all days, the transaction or business is high following query is used.

```
select day_name, count(day_name) from sales_transaction
group by day_name;
```

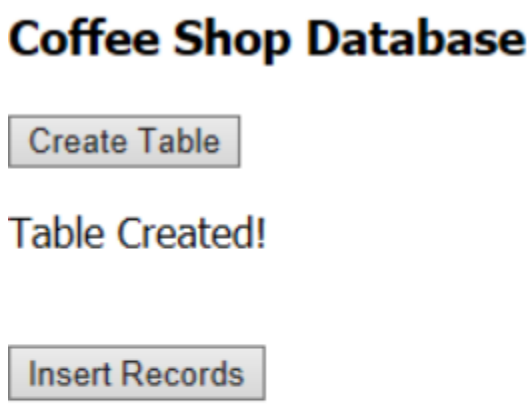
Result shows that on Tuesday, Saturday, Friday the transaction was more. i.e. CCC Business was High.



Web Presence for the Application:

STEP1:

A table is created in MS access using ASP.NET. Create table and Insert Records will be visible, if the table is created and is again tried to create an error occurs.



STEP2: Insert Records

Data Recorded!

Enter GiftCard Details

GiftCardNo:	2
Pin:	4
AmtIssued:	500
CurrentBalance:	34
EmpID:	12
CustNo:	456777323
DatePurchased:	18-01-1998

Insert

Retrieve Records

STEP3: Retrieve the Records.

Data Found!

Enter Gift Card Number

Gift Card Number: 23

Search

23 1 234 12 123 456777 28-08-1991

PHASE X: System Analysis and View Points

Data Scientist:

Data Scientist normally takes care of the unpredictable issues by mixing information induction, calculation improvement, and innovation, he is the person who exceeds expectations at breaking down substantial measure of information to help the business at more prominent level. Information Scientists has information of examination, machine learning, information mining and measurable aptitudes, and will likewise have satisfactory involvement with coding and calculations.

From Data Scientist perspective, following observation are made:

->In Clerks table, each of the representative's execution will be dissected by number of exchanges he will do every day. clerks from every one of the areas will think about, by which the area with most noteworthy deal and the assistant connected with it will be perceived and his representative status can be changed to Full Time in view of execution.

->In Products table, all the item's exchange will be checked on and the right yield of offers of every item will be considered. The item which has most noteworthy deals and its area will be considered and more offers will be acquainted with the items will slightest deal so clients will get pulled in towards the item which thusly enhances the benefit scope of bistro.

->In Payment_type table, the distinctive sort of installment accessible at shop will be examined. The most elevated method of installment will be computed.

>In Sales_Transaction table, every one of the fields will be broke down to get the correct number of items that are sold, assistant who is in charge of client, the sum issued to the item, the installment strategy either with money or card. The enlist to which the exchange has a place will be considered and information connected with Trans_ID will be broke down to get the correct count of items which are sold, scope of benefit/misfortune, to apply promoting techniques for better deals.

Factual investigation will be done on entire venture, esteem out of information will arranged. The data covered up inside will be thought about and will be examined. The appropriate measure of benefit/misfortune at area will be considered and legitimate measures will be taken for improvement of offers. Clients will be pulled in by various offers and reward card participation, which impacts them to visit shop over and over.

Report on the performance of the project can be discussed as:

1. The application has been composed and tried according to the venture prerequisite.

2. As per the Database Development cycle every one of the stages have been dealt with.

3. Database has been stacked with legitimate information.

4. Testing on invalid data is done too.

5. Some of the operations have been performed on the database to check the execution of the database.

6. As for each the prerequisite, this database model has been included with additional table Gift Card

7. Few of the systematic capacities have been performed.

8. Business coherence has been clarified with deference different parts of the business.

9. After the database execution, it can be moved into upkeep stage where the support is accommodated the upgrade and further support on specialized issues.