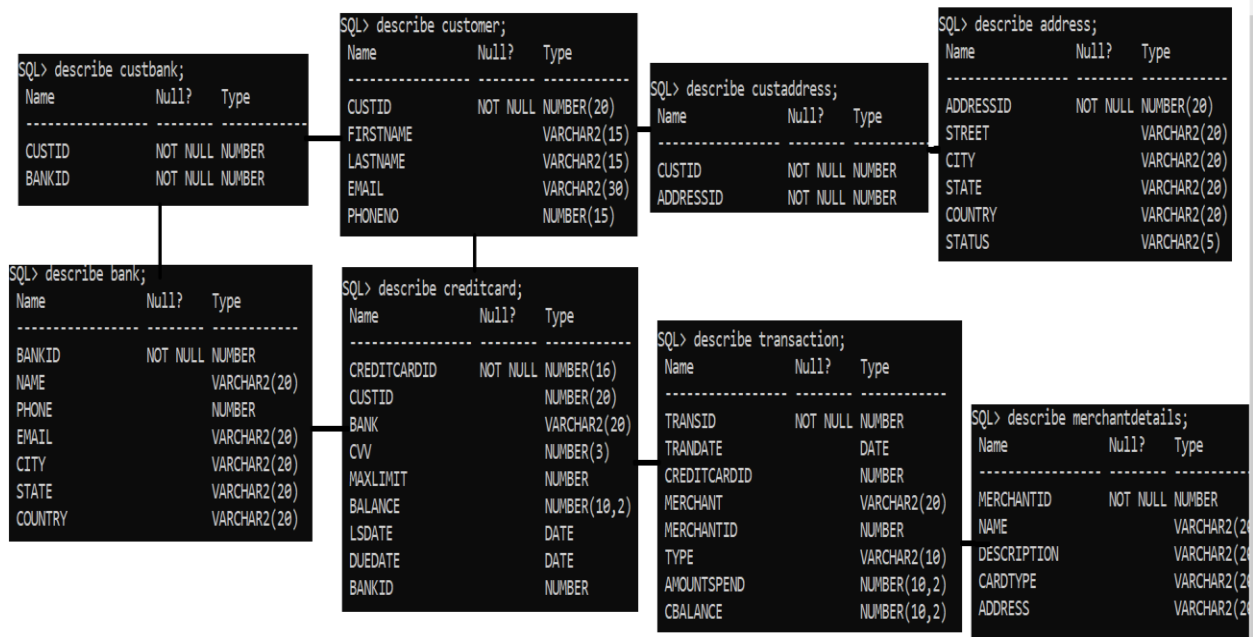


## Creditcard Card Management System

**Problem statement:** Creating pluggable database on creditcard card transaction system and handle all responsibilities using pl/sql collections, cursors, heap tables, views, functions, triggers, procedures.

- Creditcard transaction system has following tables:
- Customers
- Bank
- Creditcard
- Transactions
- Merchant details
- Address
- CustomerAddress
- CustomerBank



## Summary

- Bankpdb is created in ORCL cdb
- User manager is created in Bankpdb who local user in cdb is and common user in ORCL cdb is C##bank
- DBA role is assigned to common user and local user(manager)
- Primary key, Foreign key constraints are added into the tables
- Different types of views are created such as
  - o Relational view
  - o Inline view
  - o Object view
  - o Materialized view
- Trigger is created for notifying credit limit update
- Function is created to calculate the expenses
- Procedure is created to display whole records of customer, merchant, transaction
- Implemented explicit and implicit cursor
- Implemented plsql tables and records
- Created heap-based tables
- Normalize the tables to reduce redundancy

-----Creating common user in ORCL cdb-----

SQL> create user C##bank identified by abc123

-----Grant dba to common user-----

-

SQL> grant dba to C##bank;

-----Create bankpdb in ORCL cdb-----

-

SQL>CREATE PLUGGABLE DATABASE bankpdb ADMIN USER manager IDENTIFIED BY abc123  
FILE\_NAME\_CONVERT=('D:\ORACLE\_BASE\ORADATA\ORCL\PDBSEED\','D:\ORACLE\_BASE\ORADATA\ORCL\PDBSEED\bankpdb\');

-----Grant dba to manager-----

Step 1: login through common user as sysdba

Enter user-name: c##bank@bankpdb as sysdba

Enter password:

Connected

Step 2: Give grant to manager user

SQL> grant dba to manager;

-----Now login as manager in bankpdb and create tables-----

-

Enter user-name: manager@bankpdb

Enter password:

Connected.

-----Creating tables-----

SQL> create table customer(custID number(20),firstName varchar2(15) ,lastName varchar2(15),email  
varchar2(30),phoneNo number(15));

SQL> alter table customer add constraint pk PRIMARY KEY(custID);

SQL> create table address(addressId number(20),street varchar2(20),city varchar(20),state  
varchar2(20),country varchar(20), status varchar2(5),PRIMARY KEY(addressID));

```
SQL> create table custaddress (custID number REFERENCES customer(custID), addressID number  
REFERENCES address(addressID));
```

```
SQL> alter table custaddress add CONSTRAINT PK1 PRIMARY KEY(custId,addressId);
```

```
SQL> create table creditcard(creditcardID number(16) ,custID number(20) references  
customer(custID),PRIMARY KEY(creditcardID),bank varchar2(20),cvv number(3),maxlimit  
number,balance number(10,2),lsdate DATE,duedate DATE);
```

```
SQL> create table transaction(transID number,tranDate Date,creditcardID number references  
creditcard(creditcardID),merchant varchar2(20),merchantID number references  
merchantedetails(merchantID),type varchar2(10),amountspend number(10,2),cbalance  
number(10,2),PRIMARY KEY(transID));
```

```
SQL> create table merchantedetails(merchantId number,name varchar2(20),description  
varchar2(20),cardtype varchar2(20),address varchar2(20),PRIMARY KEY(merchantID));
```

```
SQL> create table bank(bankID number,name varchar2(20),phone number,email varchar2(20),city  
varchar2(20),state varchar2(20),country varchar2(20),PRIMARY KEY(bankID));
```

```
SQL> create table custBank(custId number references customer(custID),bankID number references  
bank(bankID),PRIMARY KEY(custID,bankID));
```

---

#### -----Insert records-----

```
SQL> insert into customer(custID,firstName,lastName,email,phoneno) values  
(1,'Pankaj','Salunkhe','pank@gmail.com',5667654345);
```

```
SQL> insert into customer(custID,firstName,lastName,email,phoneno) values  
(2,'Bhagyashree','Patil','b.patil@gmail.com',5512345667);
```

```
SQL> insert into customer(custID,firstName,lastName,email,phoneno) values  
(3,'Ashish','Shinde','shinde.a@gmail.com',5612134456);
```

```
SQL> insert into customer(custID,firstName,lastName,email,phoneno) values  
(4,'Rahul','Jagtap','jaggua@yahoo.com',9612134456);
```

```
SQL> insert into customer(custID,firstName,lastName,email,phoneno) values  
(5,'Nikhil','Salunkhe','salu@yahoo.com',9821344567);
```

```
SQL> select * from customer;
```

CUSTID	FIRSTNAME	LASTNAME	EMAIL	PHONENO
1	Pankaj	Salunkhe	pank@gmail.com	5667654345
2	Bhagyashree	Patil	b.patil@gmail.com	5512345667
3	Ashish	Shinde	shinde.a@gmail.com	5612134456
4	Rahul	Jagtap	jaggua@yahoo.com	9612134456
5	Nikhil	Salunkhe	salu@yahoo.com	9821344567

```
SQL> insert into address(addressID,street,city,state,country,status) values(111,'Massachusetts avenue','Cambridge','MA','USA','new');
```

```
SQL> insert into address(addressID,street,city,state,country,status) values(222,'Allston avenue','Boston','MA','USA','new');
```

```
SQL> insert into address(addressID,street,city,state,country,status) values(213,'Perters parkavenue','Newyork','NY','USA','new');
```

```
SQL> insert into address(addressID,street,city,state,country,status) values(444,'Alexzander','Newjersey','NJ','USA','new');
```

```
SQL> insert into address(addressID,street,city,state,country,status) values(555,'Alizbedh street','Chicago','Ill','USA','new');
```

```
SQL> select * from address;
```

ADDRESSID	STREET	CITY	STATE	COUNTRY	STATU
111	Massachusetts avenue	Cambridge	MA	USA	new
222	Allston avenue	Boston	MA	USA	new
213	Perters parkavenue	Newyork	NY	USA	new
444	Alexzander	Newjersey	NJ	USA	new
555	Alizbedh street	Chicago	Ill	USA	new
666	copley square avenue	Boston	MA	USA	old
777	JohnHabocon	Boston	MA	USA	old

```
SQL> insert into custaddress(custId,addressId) values (1,111);
```

```
SQL> insert into custaddress(custId,addressId) values (2,222);
```

```
SQL> insert into custaddress(custId,addressId) values (3,213);
```

```
SQL> insert into custaddress(custId,addressId) values (4,444);
```

```
SQL> insert into custaddress(custId,addressId) values (5,555);
```

```
SQL> insert into custaddress(custId,addressId) values (1,666);
```

SQL> insert into custaddress(custId,addressId) values (2,777);

```
SQL> select * from custaddress;
```

CUSTID	ADDRESSID
1	111
1	666
2	222
2	777
3	213
4	444
5	555

SQL> insert into creditcard(creditcardID,custID,bank,cv,limit,balance,lstartdate,duedate)  
values(8134567891123457,3,'BankOfAmerica',333,10000,2000,'03-Dec-2019','23-Dec-2019');

SQL> insert into creditcard(creditcardID,custID,bank,cv,limit,balance,lstartdate,duedate)  
values(1134567891123457,1,'BankOfAmerica',893,10000,2000,'03-Dec-2019','23-Dec-2019');

SQL> insert into creditcard(creditcardID,custID,bank,cv,limit,balance,lstartdate,duedate)  
values(2134567891123457,1,'Chase',993,9000,5000,'01-Dec-2019','21-Dec-2019');

SQL> insert into creditcard(creditcardID,custID,bank,cv,limit,balance,lstartdate,duedate)  
values(4134567891123457,1,'Discover',793,7000,4000,'30-Nov-2019','21-Dec-2019');

SQL> insert into creditcard(creditcardID,custID,bank,cv,limit,balance,lstartdate,duedate)  
values(5134567891123457,2,'Chase',854,1000,400,'01-Nov-2019','21-Nov-2019');

```
SQL> select * from creditcard;
```

CREDITCARDID	CUSTID	BANK	CV	MAXLIMIT	BALANCE	LSDATE	DUE DATE
8134567891123457	3	BankOfAmerica	333	10000	2000	03-DEC-19	23-DEC-19
1134567891123457	1	BankOfAmerica	893	10000	2000	03-DEC-19	23-DEC-19
2134567891123457	1	Chase	993	9000	5000	01-DEC-19	21-DEC-19
4134567891123457	1	Discover	793	7000	4000	30-NOV-19	21-DEC-19
5134567891123457	2	Chase	854	1000	400	01-NOV-19	21-NOV-19

SQL> alter table creditcard add constraint fk\_1 foreign key(bankID) references bank(bankID)

```
SQL> select * from creditcard;
```

CREDITCARDID	CUSTID	BANK	CV	MAXLIMIT	BALANCE	LSDATE	DUE DATE	BANKID
8134567891123457	3	BankOfAmerica	333	10000	2000	03-DEC-19	23-DEC-19	11
1134567891123457	1	BankOfAmerica	893	10000	2000	03-DEC-19	23-DEC-19	11
2134567891123457	1	Chase	993	9000	5000	01-DEC-19	21-DEC-19	22
4134567891123457	1	Discover	793	7000	4000	30-NOV-19	21-DEC-19	33
5134567891123457	2	Chase	854	1000	400	01-NOV-19	21-NOV-19	22

SQL> insert into transaction(transID ,tranDate,creditcardID ,merchant ,merchantID,type,amountspend ,cbalance) values (9567,'01-Aug-2019', 4134567891123457 ,'Ikea',11111,'Online',2000,4000);

SQL> insert into transaction(transID ,tranDate,creditcardID ,merchant ,merchantID,type,amountspend ,cbalance) values (6567,'01-Aug-2019', 2134567891123457 ,'Wayfair',22222,'Online',2000,5000);

SQL> insert into transaction(transID ,tranDate,creditcardID ,merchant ,merchantID,type,amountspend ,cbalance) values (2111,'20-Nov-2019', 1134567891123457 ,'Swaroski',33333,'Instore',4000,2000);

SQL> insert into transaction(transID ,tranDate,creditcardID ,merchant ,merchantID,type,amountspend ,cbalance) values (7543,'28-Nov-2019', 5134567891123457 ,'Pandora',44444,'Instore',300,400);

SQL> insert into transaction(transID ,tranDate,creditcardID ,merchant ,merchantID,type,amountspend ,cbalance) values (4323,'11-DEC-2019', 8134567891123457 ,'StarMarket',55555,'Online',40,2000);

SQL> select \* from transaction;

TRANSID	TRANDATE	CREDITCARDID	MERCHANT	MERCHANTID	TYPE	AMOUNTSPEND	CBALANCE
9567	01-AUG-19	4134567891123457	Ikea	11111	Online	2000	4000
6567	01-AUG-19	2134567891123457	Wayfair	22222	Online	2000	5000
2111	20-NOV-19	1134567891123457	Swaroski	33333	Instore	4000	2000
7543	28-NOV-19	5134567891123457	Pandora	44444	Instore	300	400
4323	11-DEC-19	8134567891123457	StarMarket	55555	Online	40	2000

SQL> insert into merchantdetails(merchantId,name,description ,cardtype ,address ) values (11111,'Ikea', 'homedecor','visa','Cambridge');

SQL> insert into merchantdetails(merchantId,name,description ,cardtype ,address ) values (22222,'Wayfair', 'homedecor','mastercard','Coplysquare');

SQL> insert into merchantdetails(merchantId,name,description ,cardtype ,address ) values (33333,'Swaroski', 'JwelleryShop','mastercard','Coplysquare');

SQL> insert into merchantdetails(merchantId,name,description ,cardtype ,address ) values (44444,'Pandora', 'JwelleryShop','vistro','Manhattensquare');

SQL> insert into merchantdetails(merchantId,name,description ,cardtype ,address ) values (55555,'StarMarket', 'GroceryStore','vistro','Hungtin avenue');

```
SQL> select * from merchantdetails;
```

MERCHANTID	NAME	DESCRIPTION	CARDTYPE	ADDRESS
11111	Ikea	homedecor	visa	Cambridge
22222	Wayfair	homedecor	mastercard	Coplysquare
33333	Swaroski	JwelleryShop	mastercard	Coplysquare
44444	Pandora	JwelleryShop	vistro	Manhattensquare
55555	StarMarket	GroceryStore	vistro	Hungtin avenue

```
SQL> insert into bank(bankID,name,phone,email,city,state,country) values  
(11,'BankofAmerica',8888777767,'b.amerika@bank.com','Cambridge','MA','USA');
```

```
SQL> insert into bank(bankID,name,phone,email,city,state,country) values  
(22,'Chase',8989898989,'chase@bank.com','Cambridge','MA','USA');
```

```
SQL> insert into bank(bankID,name,phone,email,city,state,country) values  
(33,'Discover',8888888888,'discover@bank.com','Allston','MA','USA');
```

```
SQL> select * from bank;
```

BANKID	NAME	PHONE	EMAIL	CITY	STATE	COUNTRY
11	BankofAmerica	8888777767	b.amerika@bank.com	Cambridge	MA	USA
22	Chase	8989898989	chase@bank.com	Cambridge	MA	USA
33	Discover	8888888888	discover@bank.com	Allston	MA	USA

```
SQL> insert into custBank(custID,bankID) values (1,11);
```

```
SQL> insert into custBank(custID,bankID) values (1,22);
```

```
SQL> insert into custBank(custID,bankID) values (1,33);
```

```
SQL> insert into custBank(custID,bankID) values (2,22);
```

```
SQL> insert into custBank(custID,bankID) values (3,11);
```

```
SQL> select * from custbank;
```

CUSTID	BANKID
1	11
1	22
1	33
2	22
3	11



-----view for details-----

create view allCustTranMerchant

as

select

c.custID,c.firstname,cr.creditcardid,cr.bank,m.cardtype,t.merchant,m.description,t.type,t.amountspend

from customer c inner join creditcard cr

on c.custID=cr.custID

inner join transaction t

on cr.creditcardID=t.creditcardID

inner join merchantdetails m

on t.merchantID=m.merchantID

```
1 create view cust_details as
2 select customer.custID,
3    firstname,
4    lastname,
5    email,
6    phoneno,
7    street,
8    city,
9    state,
10   country,
11   status
12 from customer inner join custaddress
13 on customer.custId=custaddress.custId
14 inner join address
15* on custaddress.addressId=address.addressId
SQL> /
```

View created.

-----Creating index on customer name-----

```
SQL> Create INDEX cust_idx
      2 On customer(firstname,lastname);
```

Index created.

-----Record for customer contact details-----

```
SQL> @?\data\precord.sql
-----
1 , Pankaj , Salunkhe , pank@gmail.com , 5667654345 , Massachusetts avenue , Cambridge , MA , USA
2 , Bhagyashree , Patil , b.patil@gmail.com , 5512345667 , Allston avenue , Boston , MA , USA
3 , Ashish , Shinde , shinde.a@gmail.com , 5612134456 , Perters parkavenue , Newyork , NY , USA
4 , Rahul , Jagtap , jaggua@yahoo.com , 9612134456 , Alexzander , Newjersey , NJ , USA
5 , Nikhil , Salunkhe , salu@yahoo.com , 9821344567 , Alizbedh street , Chicago , Ill , USA
-----
PL/SQL procedure successfully completed.
```

-----PL/SQL table to display customer names-----

```
1 DECLARE
2 type cust_table_type is table of varchar2(200)
3 index by binary_integer;
4 cust_table cust_table_type;
5 tindex number;
6 BEGIN
7 for i in (select * from customer) loop
8 cust_table(i.custID):=i.firstname || ' ' || i.lastname;
9 end loop;
10 tindex := cust_table.first;
11 loop
12 exit when tindex is null;
13 dbms_output.put_line(cust_table(tindex));
14 tindex := cust_table.next(tindex);
15 end loop;
16* END;
SQL> /
Pankaj Salunkhe
Bhagyashree Patil
Ashish Shinde
Rahul Jagtap
Nikhil Salunkhe

PL/SQL procedure successfully completed.
```

-----Relational view to count how many credit card a user has-----

```
SQL> create view CreditCardCount as select customer.custID,firstname,count(*) CreditCardCount from
customer inner join creditcard on customer.custId=creditcard.custId group by
customer.custID,firstname order by CreditCardCount desc;
```

```

1 create view CreditCardCount as
2 select customer.custID,firstname,count(*) CreditCardCount
3 from customer inner join creditcard on customer.custId=creditcard.custId
4 group by customer.custID,firstname
5* order by CreditCardCount desc
SQL> /

View created.

```

```

SQL> select * from CreditCardCount;

```

CUSTID	FIRSTNAME	CREDITCARDCOUNT
1	Pankaj	3
2	Bhagyashree	2
3	Ashish	1

-----Inline view to find maxcredit limit of customer-----

```

SQL> create view MaxCreditlimit as select firstname || ' ' || lastname as name,MaxCreditlimit from
customer a , (select custID,sum(maxlimit) as MaxCreditlimit from creditcard group by custID) b where
a.custID=b.custID;

```

```

1 create view MaxCreditlimit as select firstname || ' ' || lastname as name,MaxCreditlimit
2 from customer a , (select custID,sum(maxlimit) as MaxCreditlimit
3 from creditcard group by custID) b
4* where a.custID=b.custID
SQL> /

View created.

```

```

SQL> select * from MaxCreditlimit;

```

NAME	MAXCREDITLIMIT
Pankaj Salunkhe	26000
Bhagyashree Patil	8000
Ashish Shinde	10000

-----Materialized view to precompute creditcard utilization-----

```

SQL> create Materialized view CreditCardUtilization build immediate enable query rewrite as select
firstname || ' ' || lastname as name,MaxCreditlimit,tbalance,to_number((MaxCreditlimit-
tbalance)/MaxCreditlimit*100) as Utilization from customer a , (select custID,sum(maxlimit) as
MaxCreditlimit,sum(balance) as tbalance from creditcard group by custID) b where a.custID=b.custID;

```

```

1 create Materialized view CreditCardUtilization
2 build immediate
3 enable query rewrite as
4 select firstname || ' ' || lastname as name,MaxCreditlimit,tbalance,
5 to_number((MaxCreditlimit-tbalance)/MaxCreditlimit*100) as Utilization
6 from customer a , (select custID,sum(maxlimit) as MaxCreditlimit,sum(balance)
7 as tbalance from creditcard group by custID) b
8* where a.custID=b.custID
SQL> /

Materialized view created.

```

```

SQL> select * from CreditCardUtilization
2 ;

```

NAME	MAXCREDITLIMIT	TBALANCE	UTILIZATION
Pankaj Salunkhe	26000	11000	57.6923077
Bhagyashree Patil	8000	4400	45
Ashish Shinde	10000	2000	80

#### -----Object view for transaction details-----

```

SQL> CREATE TYPE transaction_type is object
2 (
3 creditcardId NUMBER(18),
4 trandate DATE,
5 name VARCHAR2(20),
6 bank VARCHAR2(20),
7 merchant VARCHAR2(20),
8 amountspend NUMBER(20,2)
9 );
10
11 /

Type created.

```

SQL> create view TransactionDetails of transaction\_type

with OBJECT oid(creditcardId) as select c.creditcardId,trandate,firstname || ' ' || lastname as customer,  
bank,merchant,amountspend  
from creditcard c inner join transaction t on c.creditcardId=t.creditcardId  
inner join customer

on

c.custID=customer.custID

```
SQL> select * from TransactionDetails;
```

CREDITCARDID	TRANDATE	NAME	BANK	MERCHANT	AMOUNTSPEND
8134567891123457	11-DEC-19	Ashish Shinde	BankOfAmerica	StarMarket	40
1134567891123457	20-NOV-19	Pankaj Salunkhe	BankOfAmerica	Swaroski	4000
2134567891123457	01-AUG-19	Pankaj Salunkhe	Chase	Wayfair	2000
4134567891123457	01-AUG-19	Pankaj Salunkhe	Discover	Ikea	2000
5134567891123457	28-NOV-19	Bhagyashree Patil	Chase	Pandora	300

-----Trigger for updating credit card limit-----

```
CREATE OR REPLACE TRIGGER update_credit_limit1
```

```
BEFORE DELETE OR INSERT OR UPDATE ON creditcard
```

```
FOR EACH ROW
```

```
DECLARE
```

```
    balance number;
```

```
BEGIN
```

```
    balance := :NEW.maxlimit - :OLD.maxlimit + :OLD.balance;
```

```
    :NEW.balance:=:NEW.maxlimit - :OLD.maxlimit + :OLD.balance;
```

```
    dbms_output.put_line('Old creditcard limit: ' || :OLD.maxlimit);
```

```
    dbms_output.put_line('New creditcard limit: ' || :NEW.maxlimit);
```

```
    dbms_output.put_line('Updated balance is : ' || balance);
```

```
END;
```

```
/
```

```
SQL> select * from creditcard;
```

CREDITCARDID	CUSTID	BANK	CVV	MAXLIMIT	BALANCE	LSDATE	DUEDATE	BANKID
8134567891123457	3	BankOfAmerica	333	10000	2000	03-DEC-19	23-DEC-19	11
1134567891123457	1	BankOfAmerica	893	10000	2000	03-DEC-19	23-DEC-19	11
2134567891123457	1	Chase	993	9000	5000	01-DEC-19	21-DEC-19	22
4134567891123457	1	Discover	793	7000	4000	30-NOV-19	21-DEC-19	33
5134567891123457	2	Chase	854	1000	400	01-NOV-19	21-NOV-19	22
9134567891123457	2	Discover	793	7000	4000	30-NOV-19	21-DEC-19	33

6 rows selected.

```
SQL> update creditcard set maxlimit=10001 where cvv=333;
```

Old creditcard limit: 10000

New creditcard limit: 10001

Updated balance is : 2001

1 row updated.

```
SQL> select * from creditcard;
```

CREDITCARDID	CUSTID	BANK	CVV	MAXLIMIT	BALANCE	LSDATE	DUEDATE	BANKID
8134567891123457	3	BankOfAmerica	333	10001	2001	03-DEC-19	23-DEC-19	11
1134567891123457	1	BankOfAmerica	893	10000	2000	03-DEC-19	23-DEC-19	11
2134567891123457	1	Chase	993	9000	5000	01-DEC-19	21-DEC-19	22
4134567891123457	1	Discover	793	7000	4000	30-NOV-19	21-DEC-19	33
5134567891123457	2	Chase	854	1000	400	01-NOV-19	21-NOV-19	22
9134567891123457	2	Discover	793	7000	4000	30-NOV-19	21-DEC-19	33

### -----Function to calculate expense of customer-----

```
CREATE FUNCTION calculate_expense (cld in NUMBER)
```

```
RETURN NUMBER IS expense NUMBER;
```

```
BEGIN
```

```
expense:= 0;
```

```
SELECT sum(maxlimit-balance)
```

```
INTO expense
```

```
FROM creditcard
```

```
WHERE custId = cld
```

```
group by custId;
```

```
RETURN expense;
```

```
END;
```

```

1 CREATE FUNCTION calculate_expense11 (cId in NUMBER)
2   RETURN NUMBER IS  expense NUMBER;
3   BEGIN
4     expense:= 0;
5     SELECT sum(maxlimit-balance)
6     INTO expense
7     FROM creditcard
8     WHERE custId = cId
9     group by custId;
10    RETURN expense;
11* END;
SQL> /

```

Function created.

DECLARE

n3 number;

BEGIN

n3 := calculate\_expense11(1);

dbms\_output.put\_line('Expense of customer is: ' || n3);

END;

/

```

SQL> DECLARE
2   n3 number;
3   BEGIN
4     n3 := calculate_expense11(1);
5     dbms_output.put_line('Expense of customer is: ' || n3);
6   END;
7   /

```

Expense of customer is: 15000

PL/SQL procedure successfully completed.

-----Procedure to all details of customer merchant creditcard-----

Wrote file afiedt.buf

```
1 CREATE OR REPLACE PROCEDURE allCustCreditMerchant
2 AS
3 BEGIN
4 FOR i IN (SELECT * FROM allCustTranMerchant) loop
5 dbms_output.put_line(i.custID || ' ' || i.firstname || ' ' || i.creditcardid || ' ' || i.bank || ' ' ||
6 i.cardtype || ' ' || i.merchant || ' ' || i.amountspend || ' ' || i.description);
7 end loop;
8* END;
SQL> /
```

Procedure created.

SQL> execute allCustCreditMerchant();

```
1 Pankaj 1134567891123457 BankOfAmerica mastercard Swaroski 4000 JwelleryShop
1 Pankaj 2134567891123457 Chase mastercard Wayfair 2000 homedecor
1 Pankaj 4134567891123457 Discover visa Ikea 2000 homedecor
2 Bhagyashree 5134567891123457 Chase vistro Pandora 300 JwelleryShop
3 Ashish 8134567891123457 BankOfAmerica vistro StarMarket 40 GroceryStore
```

PL/SQL procedure successfully completed.

set serveroutput on

CREATE OR REPLACE PROCEDURE allCustCreditMerchant

AS

BEGIN

FOR i IN (SELECT \* FROM allCustTranMerchant) loop

dbms\_output.put\_line(i.custID || ' ' || i.firstname || ' ' || i.creditcardid || ' ' || i.bank || ' ' ||

i.cardtype || ' ' || i.merchant || ' ' || i.amountspend || ' ' || i.description);

end loop;

END;