Course No: CSE 3110

Course Name: Database Systems Laboratory

Project Name: **Banking System**

Submitted to:

**Jarin Firose Moon Md. Milon Islam**

Lecturer Lecturer

Dept of Computer Science & Engineering Dept of Computer Science & Engineering

Khulna University of Engineering & Technology Khulna University of Engineering & Technology

Submitted by:

Salim Shadman Ankur

Dept of Computer Science & Engineering

Roll: 1507014 Section: A

Khulna University of Engineering & Technology

**VIEW OF THE PROJECT:**

* The main aim of this project is it gives information about the Functioning of Databases in Banking System.
* All the Functionalities of Banking Systems are credited in this project.
* Daily Transaction
* Employee Management
* Loan System

**Description:**

**Janata Bank** is a bank in Bangladesh. There are many branches of this bank throughout the country. There are a lot of transactions in a day . To store it , they need a database. This project will be on that . It includes day by day transaction, loan system, credit card system. There will be a few table. Like a **Cutomer table**, **Loan table**, **Employee table**, **Branch table.**

Mainly **Branch Table** defines the branch which we apply our database of this bank. The attributes are branch\_name , city, assets. Branch\_name is the primary key of this table.

Again there is another table for Customer . **Customer Table** includes all the information about customer. The attributes are account\_no, name, branch\_name, date\_of\_birth, gender, balance, phone\_no, account\_type. Account\_no is the primary key of this table. There is M:M relationship between Customer & Branch table. One customer may have more than one account in a branch. On the basis of account\_no , one can easily find a customer.

There is another table of Bank employee. **Employee Table** includes all the information about an employee of a bank . The attributes are employee\_id, name, status, branch\_name, salary, phone\_no, gender. Employee\_id is the primary key of the table. There is M:1 relationship between Employee & Branch table.

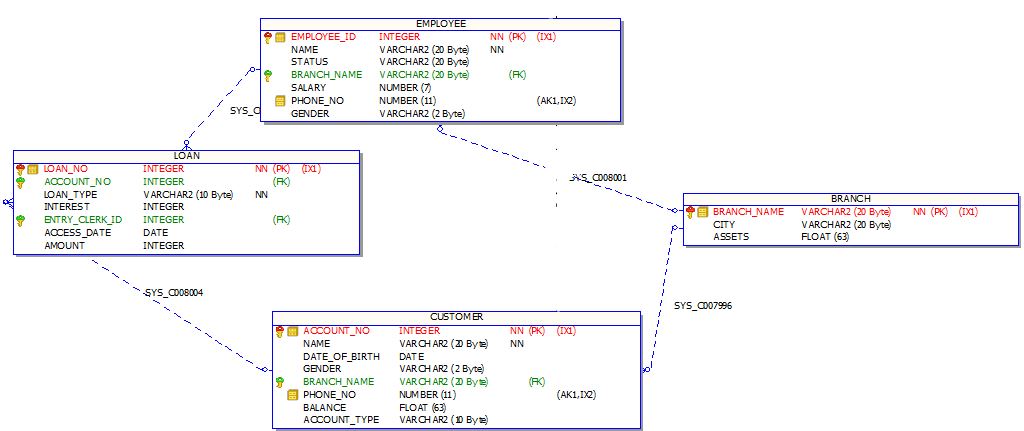
Last table is **Loan Table**. All loan transaction are included in this table. The attributes are loan\_no, account\_no, loan\_type, amount, interest, entry\_clerk\_id, access\_date. Loan\_no is the primary key of this table. There is M:1 relationship between Loan & Customer table. Also M:1 relationship happens between Loan & Employee table.

Again transaction system, loan\_repay, tax system have been included.

**RULES GOVERNING THE PROJECT:**

* All the customers of the bank have a **unique** account number
* The account numbers are not nullable i.e., they cannot take **null** values.
* The customers must have a **minimum** account balance of Rs.**500**.
* Any customer is not allowed to withdraw amount from his account, if the withdrawal results in his account balance going below the minimum balance.
* A person is eligible to get a loan from the bank if he has an account in the bank.
* The percentage of interest imposed on the loan depends on the Company’s policies.
* The employees of the bank have **unique** identification numbers.

**ER Diagram:**



**Schema Diagram:**

Branch

|  |
| --- |
| Branch\_name |
| City |
| Assets |

Customer

|  |
| --- |
| Account\_no |
| Name |
| Date\_Of\_Birth |
| Gender |
| Branch\_name |
| Phone\_no |
| Balance |
| Account\_Type |

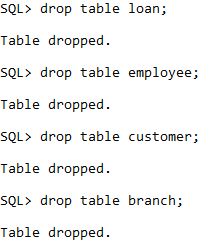
Employee Loan

|  |
| --- |
| Employee\_ID |
| Name |
| Status |
| Branch\_name |
| Salary |
| Phone\_no |
| Gender |

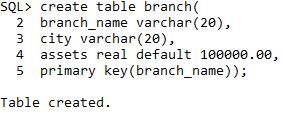
|  |
| --- |
| Loan\_no |
| Account\_no |
| Loan\_Type |
| Interest |
| Entry\_Clerk\_ID |
| Access\_Date |
| Amount |

**Create Table:**

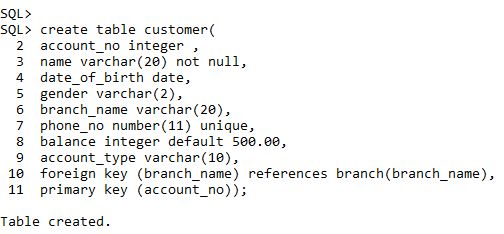
* Firstly, drop those table if they already have been.



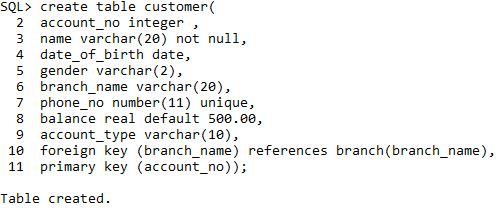
* Create Branch Table

****

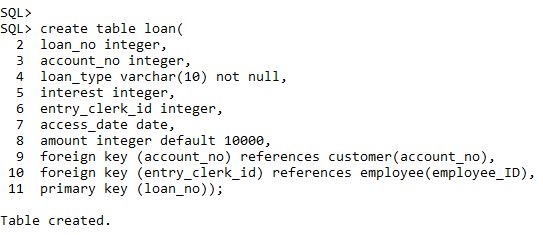
* Create Customer Table



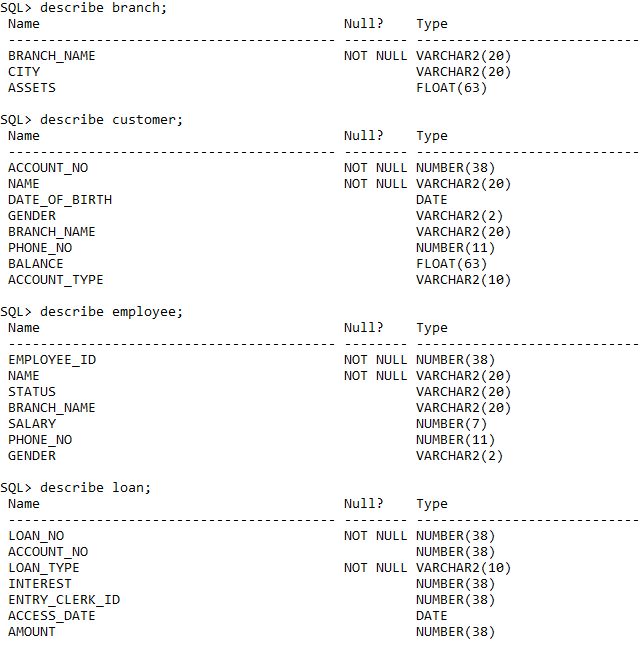
* Create Employee Table



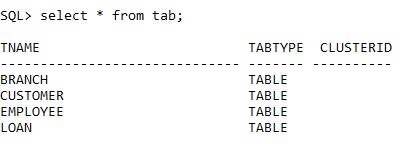
* Create Loan Table



* Describe Tables



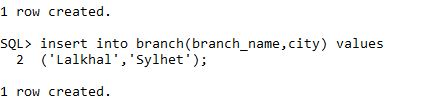
* Select \* from tab;



**Insert Data into Tables:**

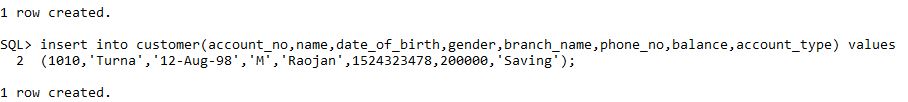
* Insert data into Branch Table





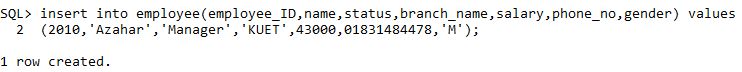
* Insert data into Customer Table



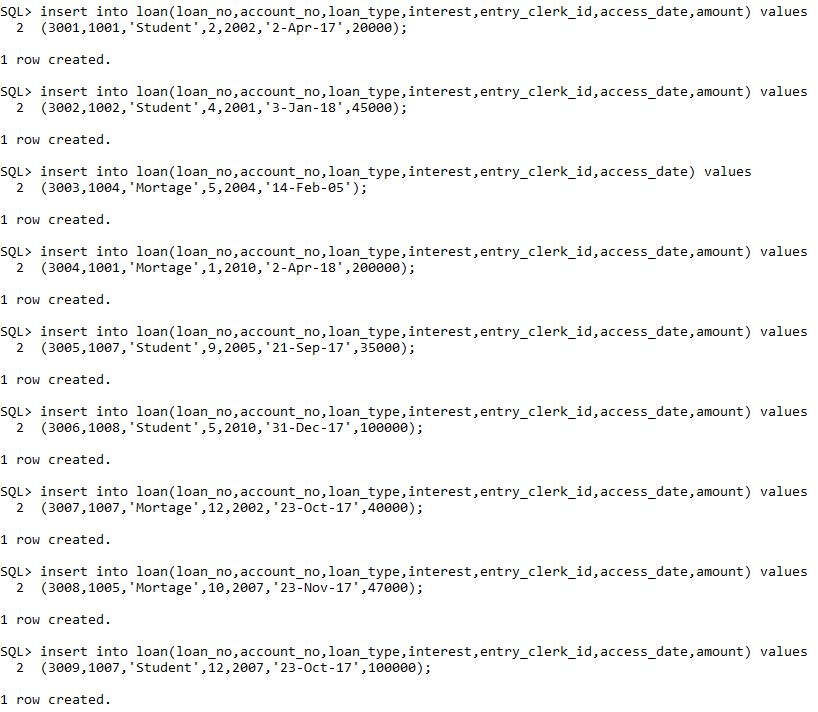


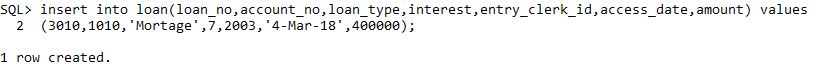
* Insert data into Employee Table





* Insert Data into Loan Table

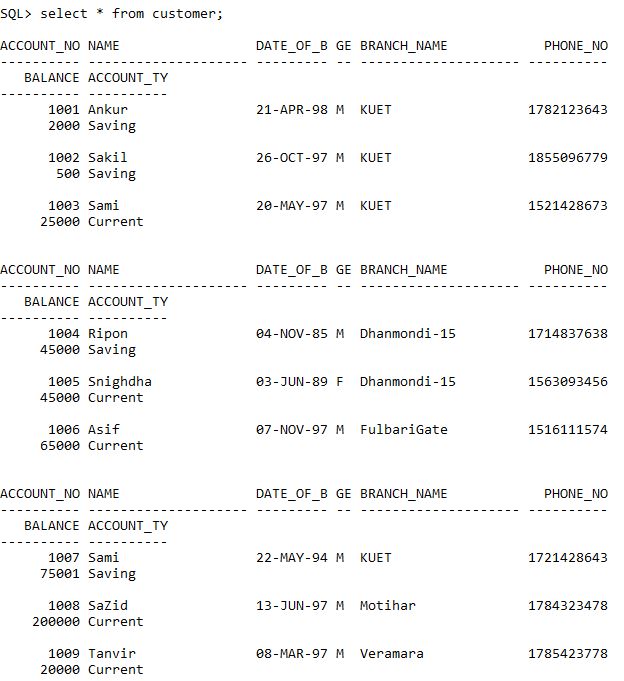


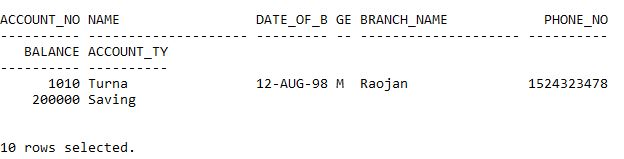


* Select \* from branch;

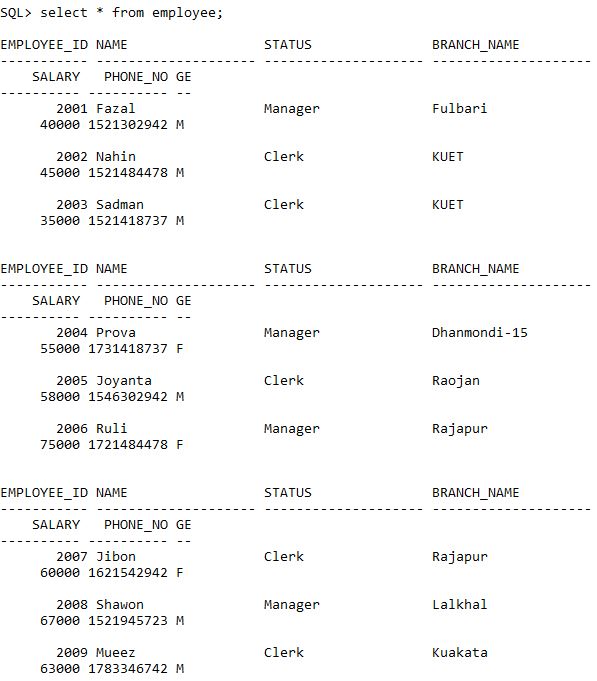


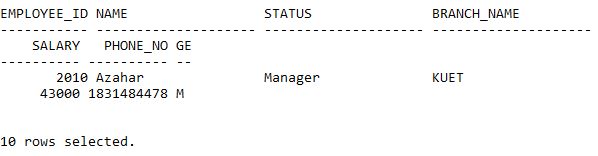
* Select \* from Customer;



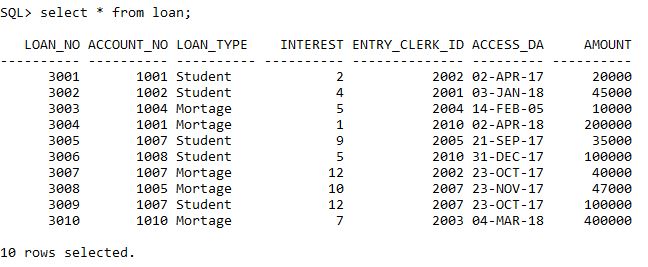


* Select \* from Employee;



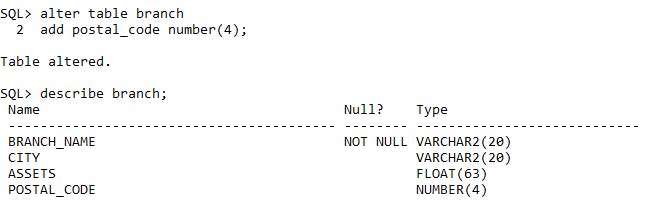


* Select \* from Loan;

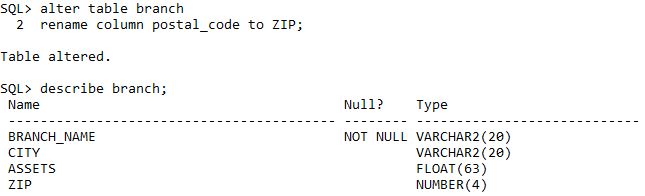


**Alter Operation:**

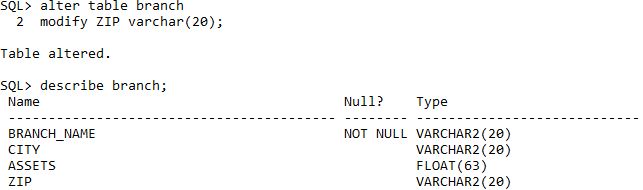
* Adding Column Postal\_Code in Branch Table



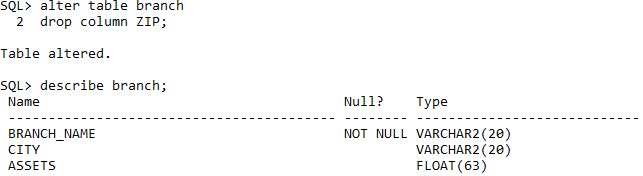
* Renaming Column Postal\_Code to ZIP



* Modifying ZIP column of Branch Table

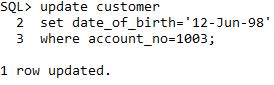


* Dropping ZIP column from Branch Table



**Update Operation:**

* Updating Customer’s Date of Birth



1. Before Update



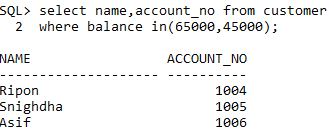
1. After Update



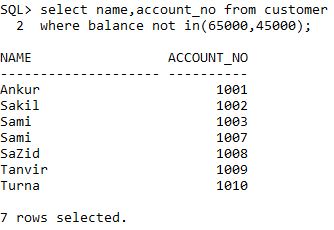
**Set Membership:**

-checks the condition which exactly matches

* Checks customers’ whose balance are 65000 & 45000



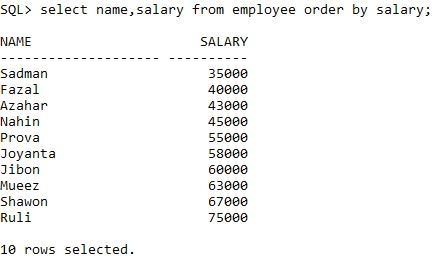
* Checks customers’ whose balance are not 65000 & 45000



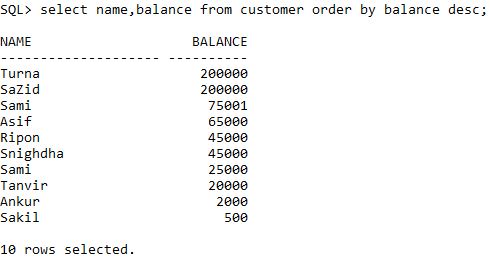
**Single Column Ordering:**

-Sorts the table based on attributes

* Sort the Employee Table based on their salary in ascending order



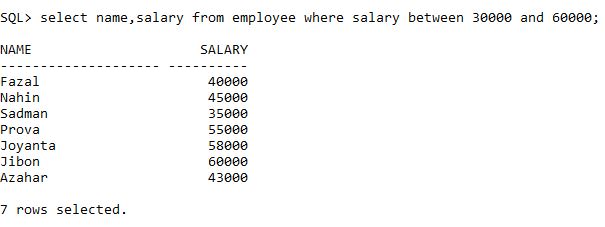
* Sort the Customer Table based on their balance in descending order



**Range Search Condition:**

-Used to concatenate two condition in sql

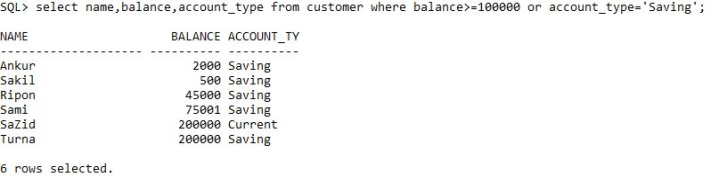
* Find out the Employee whose salary range is 30000 to 60000



**Compound Comparison Search Condition:**

-Works when one or more condition from multiple condition is true

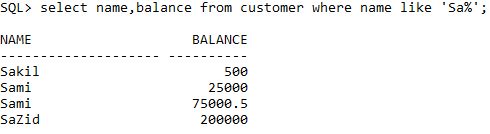
* Find out the customer whose account type is saving or have balance > 100000



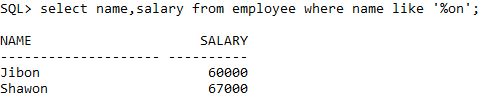
**Pattern Matching:**

-Identifies using some pattern

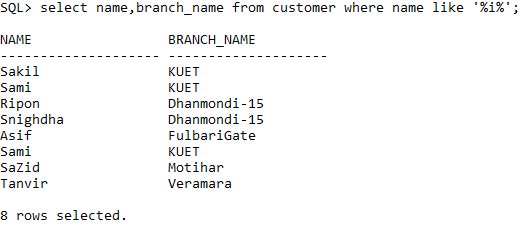
* Left Pattern



* Right Pattern

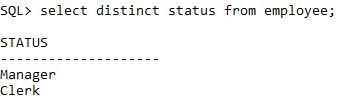


* Middle Pattern



**Use of Distinct:**

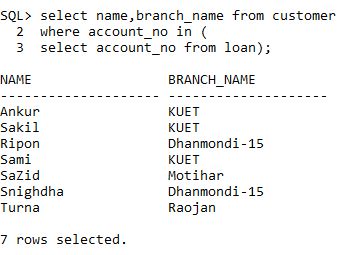
* Shows the categories of status of employee



**Subquery:**

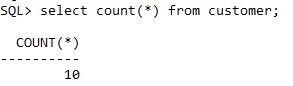
-Used for complex transaction

* Find out the customers who have loans

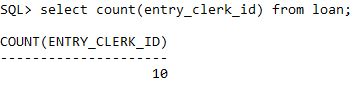


**Aggregate Function:**

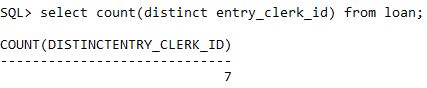
* **COUNT()**
* Counts the number of customer



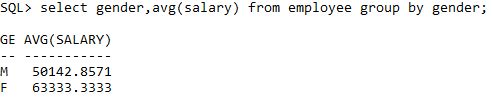
* Counts the number of clerks who entries loan . (It won’t remove duplication)



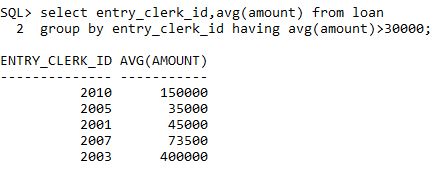
* Counts the unique number of clerks who entries loan . (Remove duplication)



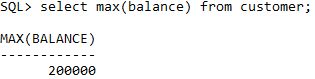
* **AVG()**
* Calculates average salary based on gender of employee

****

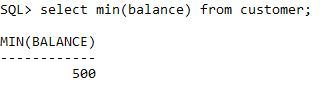
* Use of having

****

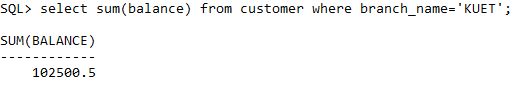
* **Max()**
* Return the maximum value



* **Min()**
* Return the minimum value

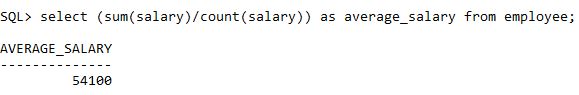


* **Sum()**
* Returns the summation



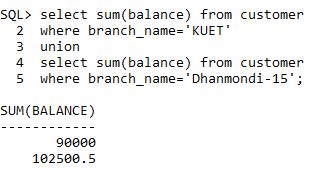
**Calculated Field giving different Column Name:**

* Calculating average salary giving the name average\_salary

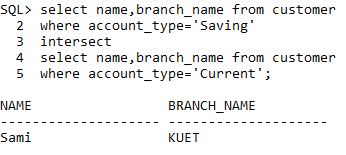


**Set Operation:**

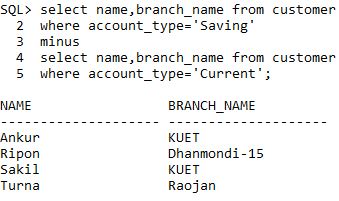
* **Union**
* Merges two branches’ sum of customer balance



* **Intersection**
* Find out the customers who have both account of current & saving

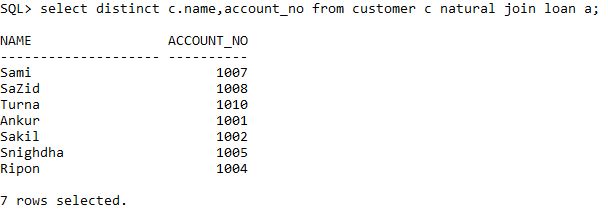


* **Minus**
* Find out the customers who have only an account

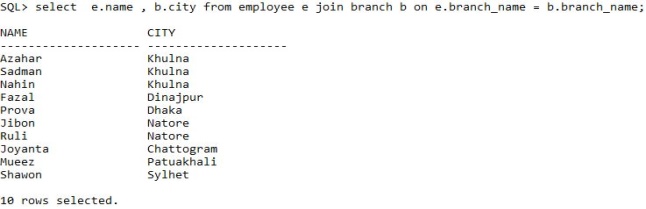
****

**Join Operation:**

* Find out the customers names who have loans



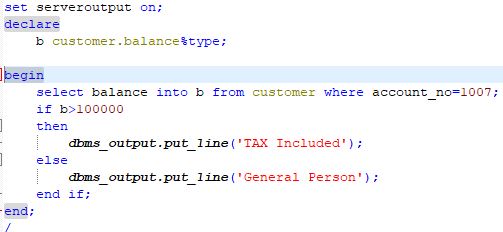
* Find out employees city



**PL/SQL**

**Condition:**

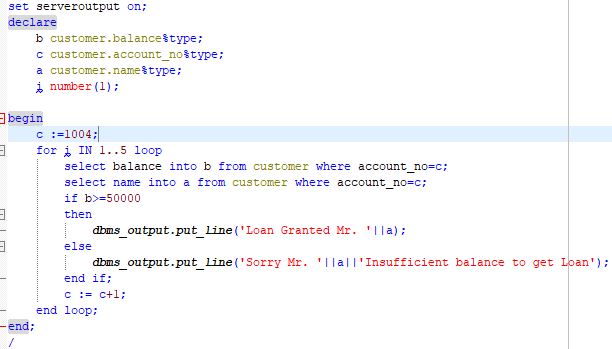
* Taxation System

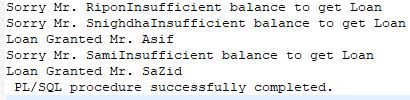




**Loop:**

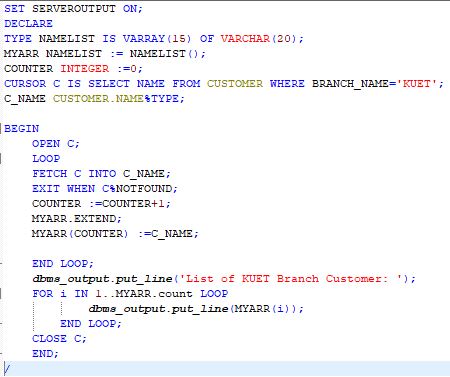
* Loan Application

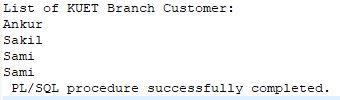




**Array:**

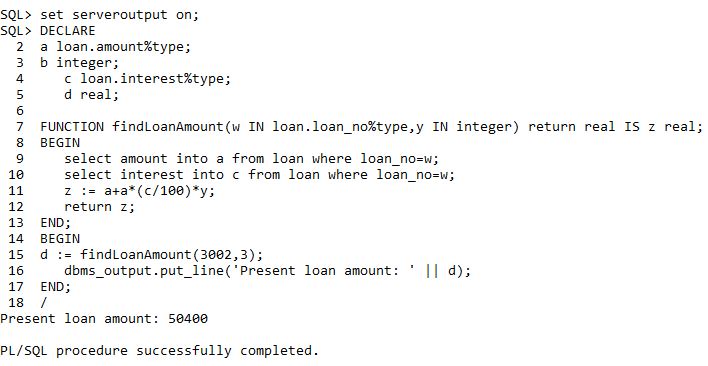
* Branch Customers List



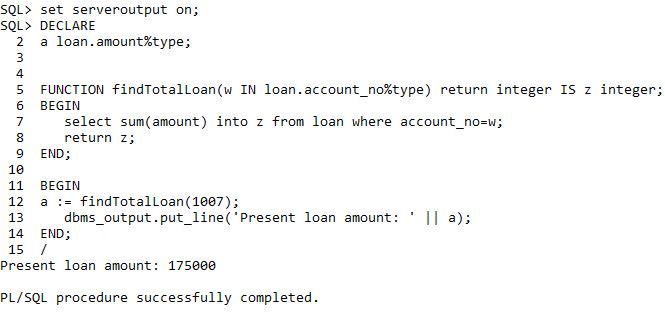


**Procedure/Function:**

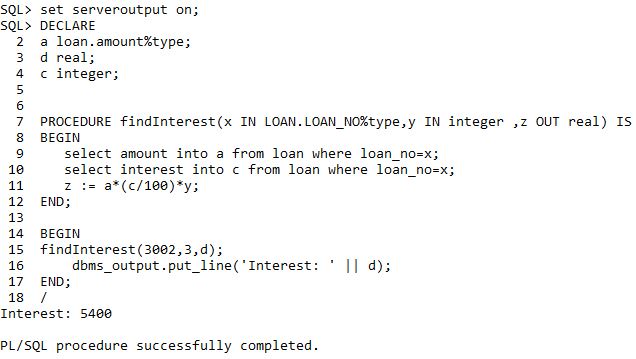
* Find out the present amount of loan after some years



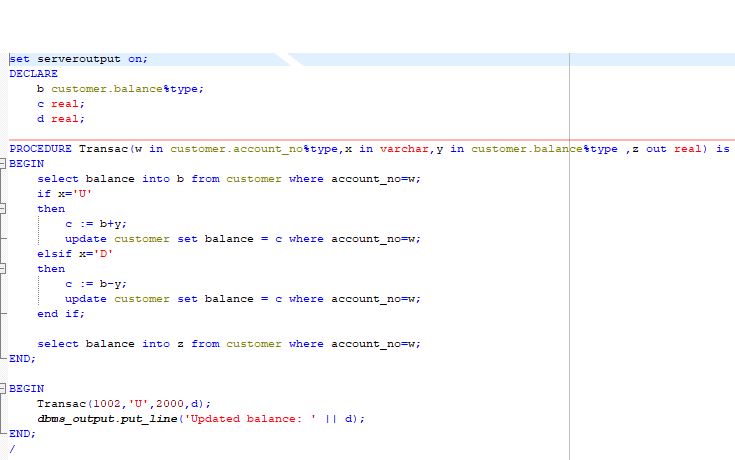
* Find out the total of a customer



* Find interest

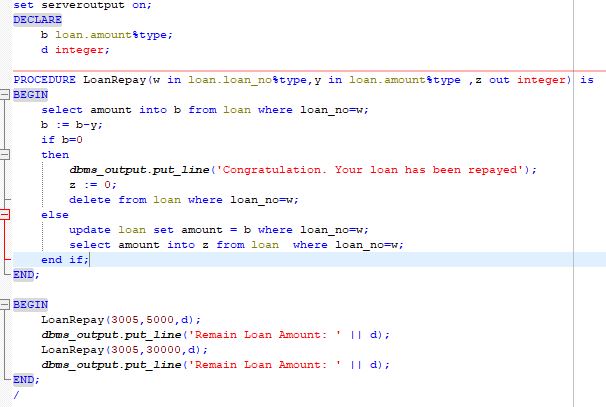


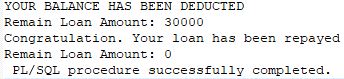
* Transaction System



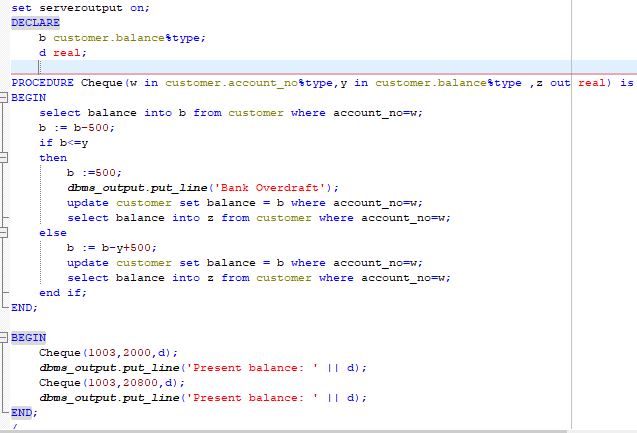


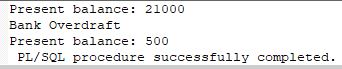
* Loan Repay System





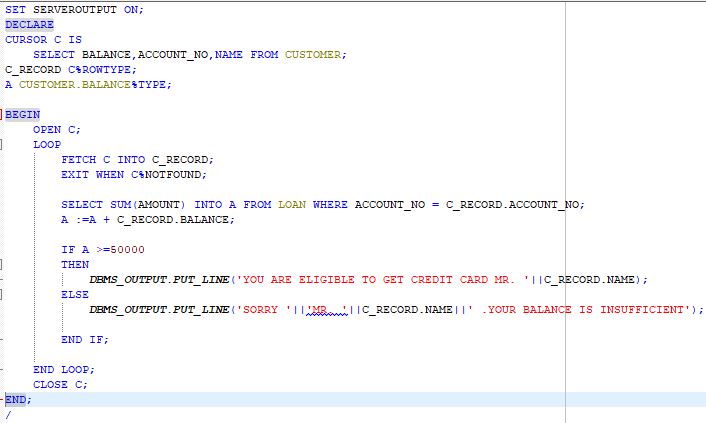
* Cheque Book

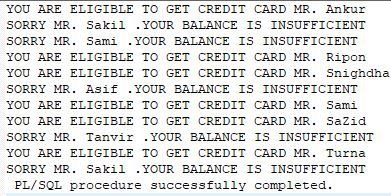




**Cursor:**

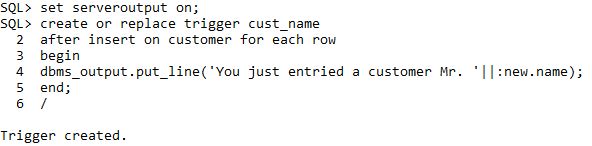
* Credit card system



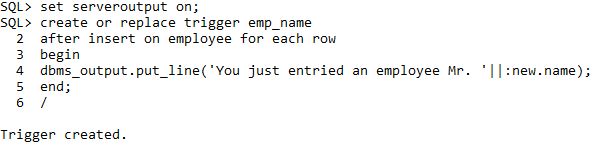


**Trigger:**

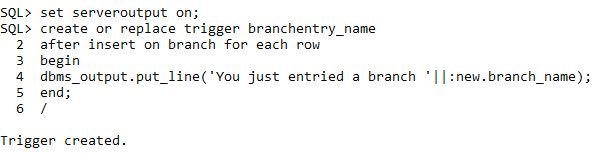
* Automatically Runs when insert or delete or update
* To entry a customer



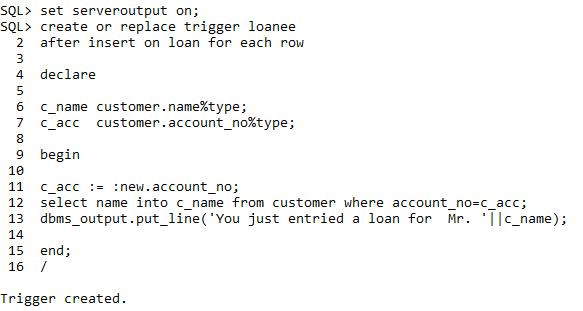
* To entry an employee



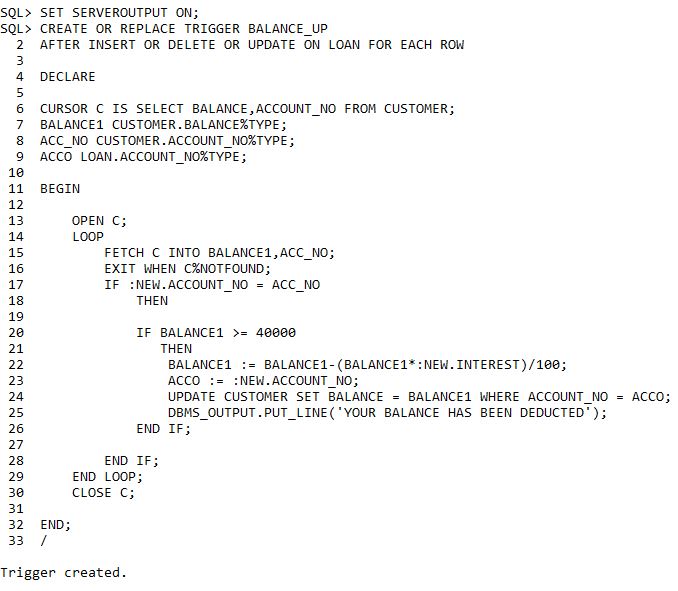
* To entry a branch



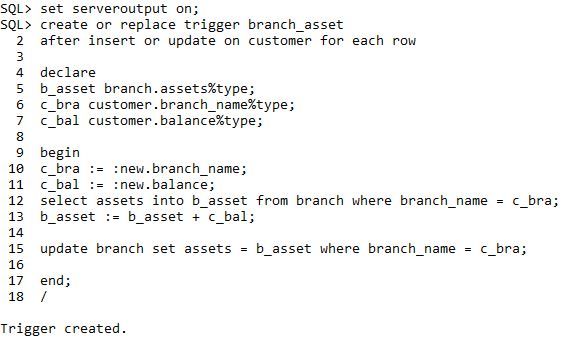
* To entry a loan



* First year interest deduction

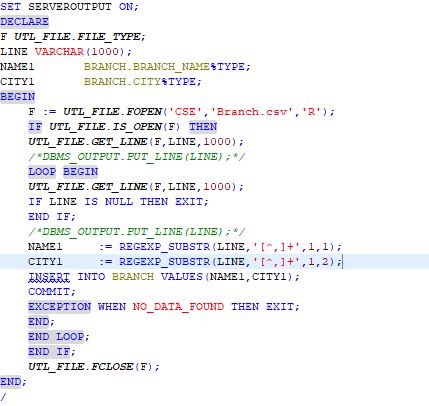


* Branch Asset Calculation



**File System(Read):**

* Read Branch Table



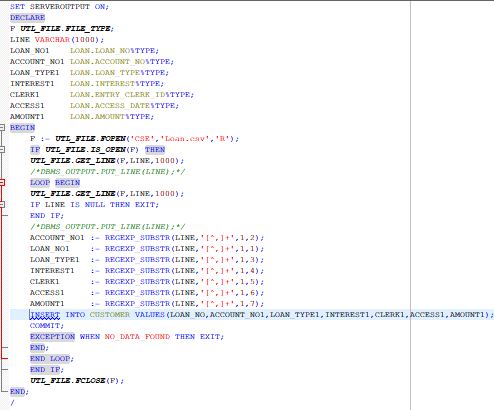
* Read Customer Table



* Read Employee table

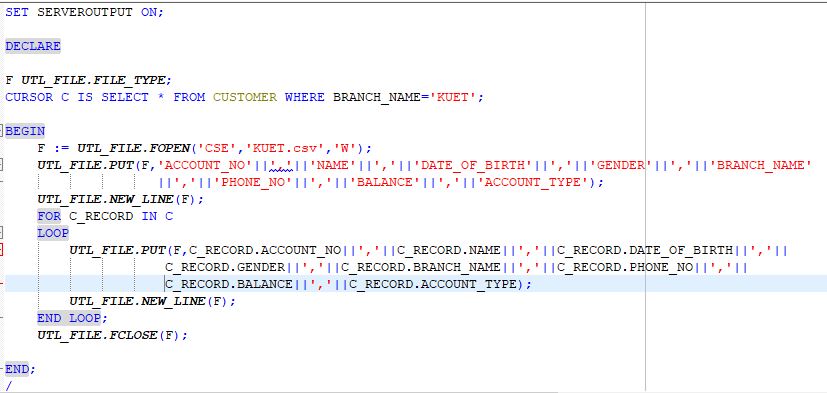


* Read Loan table



**Filesystem(Write):**

* Write individual branch information



**VIEW:**

* Customer View

