CSE 202 (DBMS) PROJECT

BANKING APPLICATION WITH DATABASE CONNECTION

ANUPAM NARAYAN (2020030)
DEVRAJ SHARMA (2020054)
PRATEEK MISHRA (2020102)
SIDDHANT SINGH (2020338)

UPDATED PROJECT SCOPE

This project aims to replicate an online banking system. We have two primary stakeholders: Customers and Bank Employees. The application provides database creation, access, updation and deletion operations for both the stakeholders according to their needs. The system also has a user interface for ease of use.

RELATIONAL SCHEMA

Customer(A/C No.,Name, Phone No., Nominee_name, Nominee_Phone, Nominee_Email, Email, AADHAR, House no., Area, City, State, Pincode, PAN)

Bank_Employee(Bank_Employee_ID,Bank_Employee_Password,Bank_employee_name, Salary)

Opens(Opening date)

Account(A/C No., A/C Password, Balance, Opening Date)

Transaction(Transaction ID, Payee A/C no., Payer A/C No., Payee Bank, Payee IFSC, Type, Amount, Date_of_transaction)
Foreign Key:- Payee A/C NO.,Payer A/C No.

Makes(Date of transaction)

Card(A/C No., Name)
Foreign key:- A/C No.

Credit Card(A/C_no., Expiry Date, Date of Issue, Card No., CVV)
Foreign key:- A/C No.

Debit Card(A/C_no., Expiry Date, Date of Issue, Card No., CVV)

Foreign key:- A/C No.

Branch (Name, IFSC Code, Area, City, State, Pincode)

Loan (LoanID, AccNo, Amount, InterestRate, TimePeriod, LoanType, DateofIssue)
Foreign key:- A/C No.

Loan Availed by(date of issue)

Fixed Deposit (FixedDepositID, AccNo, Amount, InterestRate, TimePeriod, DateofIssue)
Foreign key:- A/C No.

FD availed by(date of issue)

VIEWS AND GRANTS

VIEWS

1. Create view customer_details as select `A/C No.`,`A/C Password` from account;
2. create view employee_details as select Bank_Employee_ID,Bank_Employee_Password from bank_employee;

SQL QUERIES

1) SELECT `Payer A/C no.`,customer.Name, avg(Amount) as average_amount
   FROM Transaction, customer
   where transaction.`Payer A/C no.`=customer.`A/C No.`
   GROUP BY `Payer A/C no.`
   HAVING avg(Amount)>100000;

2) SELECT FixedDeposit.FixedDepositID, Loan.LoanID
   FROM FixedDeposit, Loan
   WHERE FixedDeposit.AccNo = Loan.AccNo AND Loan.Amount > 100000;

3) Select Bank_employee_ID, Bank_employee_Name
   from bank_employee
   where salary > some (select salary
   from bank_employee
   where Salary>40000);

4) CREATE VIEW LowBalance AS
   SELECT `A/C No.`, Balance
   FROM Account
   WHERE Balance < 10000 ;

5) ALTER TABLE CREDITCARD
   MODIFY COLUMN `CVV (C)` BIGINT;

6) UPDATE Customer
   SET Name = 'Alfred Schmidt', Email = "xxyyzz@gmail.com"
   WHERE `A/C NO.`= 95747643264;

7) select count(*),LoanType
   from loan
   where Amount<10000000
   and exists (select * from loan
                where TimePeriod>6)
   GROUP BY LoanType;

8) Select transaction.`Transaction ID`, customer.name
   from transaction NATURAL JOIN customer
   where transaction.`Payer A/C No.`=customer.`A/C No.` and
   transaction.Amount>9000000;

9) SELECT SUM(FixedDeposit.Amount) AND SUM(Loan.Amount)
   FROM FixedDeposit, Loan
   WHERE FixedDeposit.DateOfIssue BETWEEN '2011-01-01' AND '2020-12-31';

10) SELECT AccNo, Amount
    FROM Loan
    UNION ALL
    SELECT AccNo, Amount FROM FixedDeposit;

ADVANCE AGGREGATE FUNCTIONS

1. Select LoanID,AccNo, Amount,LoanType,
   rank () over (partition by LoanType order by Amount desc)
   as d_rank
   from Loan
   order by LoanType, d_rank;

2. Select Customer.`A/C No.`,Customer.Name , Account.Balance,
   rank() over (order by Account.Balance asc) as s_rank
   from customer,account order by s_rank;

3. Select `Payee A/C No.`, Date_of_Transaction,
   sum(Amount) over (partition by `Payee A/C No.`
   order by Date_of_transaction

```
rows unbounded preceding)
as Amount_of_transaction
from transaction
order by `Payee A/C No.`, Date_of_transaction;
```

4.
```
Select fixeddepositID,AccNo, Amount,
dense_rank () over (order by Amount desc)
as d_rank
from fixeddeposit
order by  d_rank;
```

INDEXING

1.
```
CREATE INDEX LOAN_INDEX
on loan(AccNo);
```
2.
```
create index transaction_index
on transaction(`Payer A/C no.`,`Payee A/C No.`);
```
3.
```
create index fixed_deposite_index
on fixeddeposit(AccNo);
```
4.
```
create index card_index
on card(ACNO);
```
5.
```
create index customer_index
on customer(`Name`);
```

TRIGGERS

1.
```
Create trigger Payee_transaction_trigger
after insert
on transaction
for each row
update account set balance = balance + transaction.Amount
where (account.`A/C No.` = transaction.`Payee A/C No.`);
```

2.
```
Create trigger Payer_transaction_trigger
after insert
on transaction
for each row
```

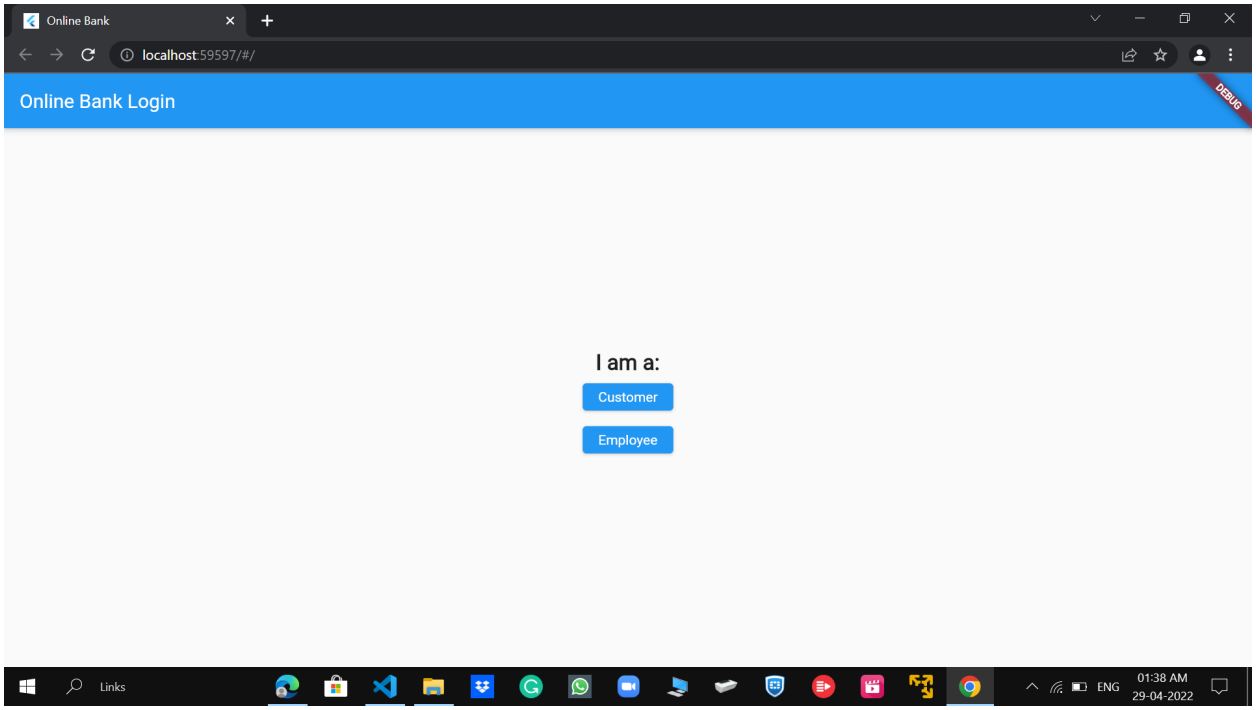
```
update account set balance = balance - transaction.Amount
where (account.`A/C No.` = transaction.`Payer A/C No.`);
```

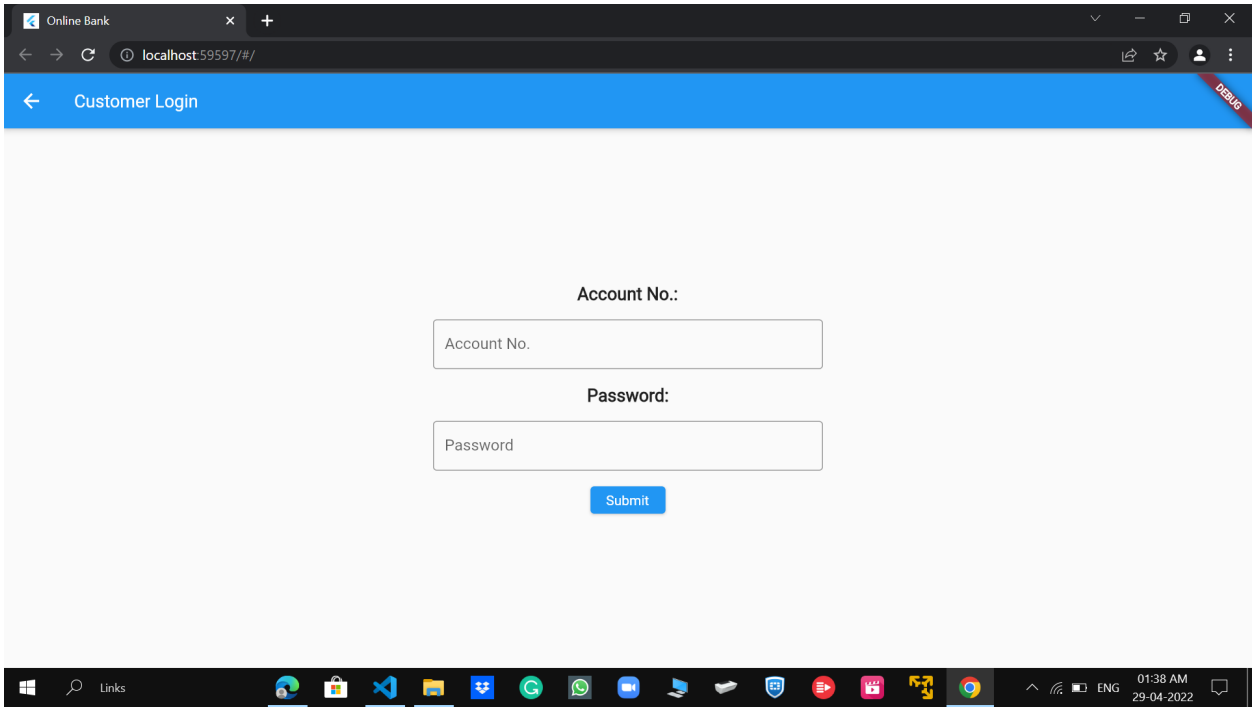
3.
```
Create trigger fixeddeposite_trigger
before insert
on fixeddeposit
for each row
update fixeddeposit set fixeddeposit.TimePeriod = 15
where fixeddeposit.TimePeriod>15;
```

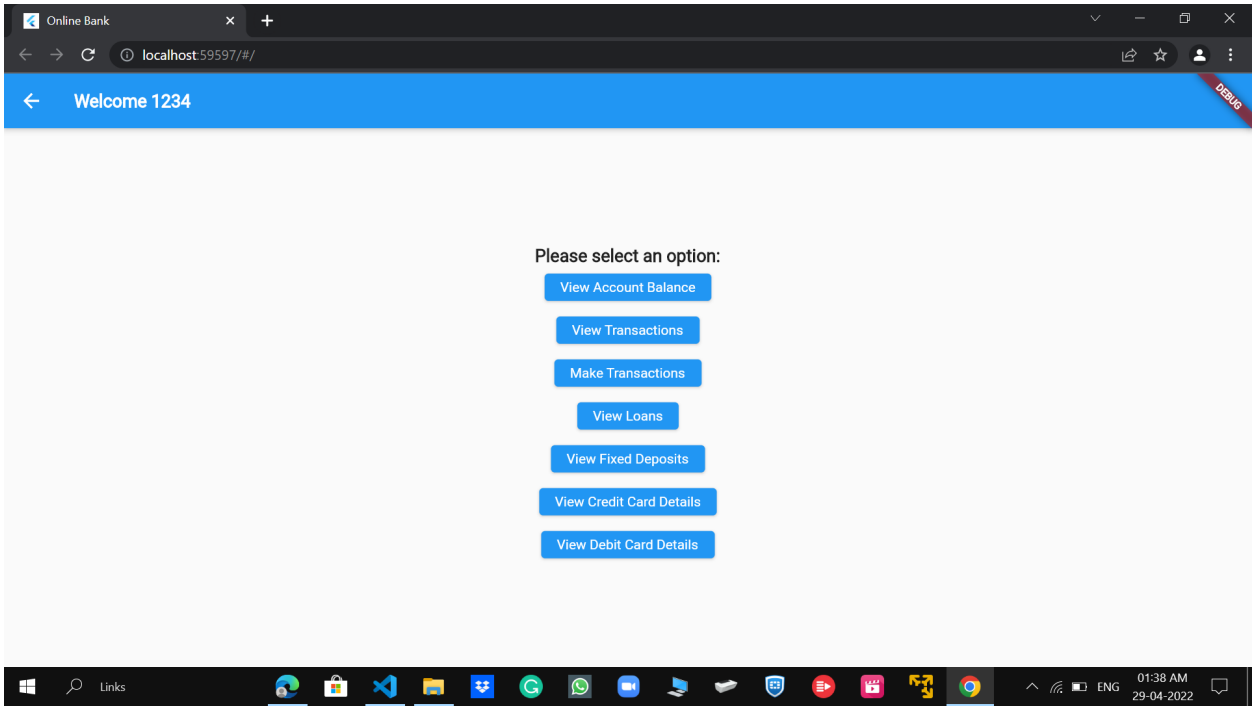
4.
```
delimiter //
Create trigger update_customer
before update
on account
for each row
begin
insert into previous_customer_detail values(old.`A/C No.`, old.balance);
end; //
```

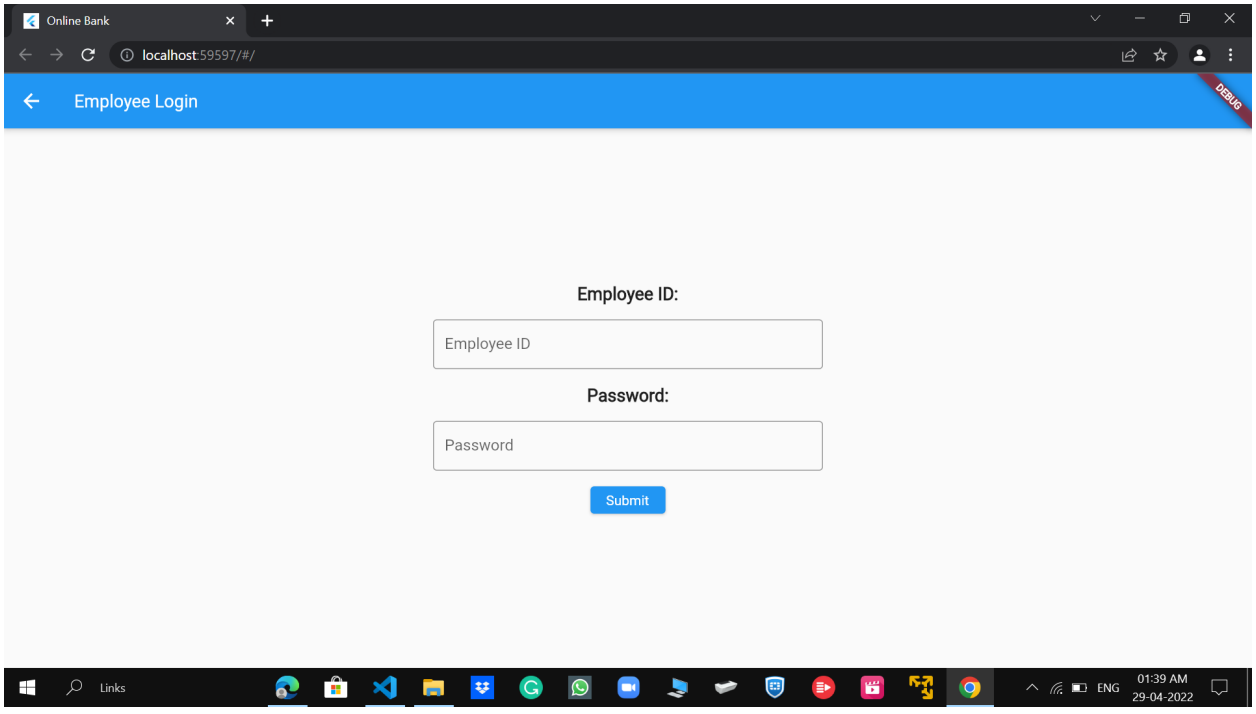
5.
```
delimiter //
Create trigger new_update_customer
after update
on account
for each row
begin
insert into previous_customer_detail values(new.`A/C No.`, new.balance);
end; //
```

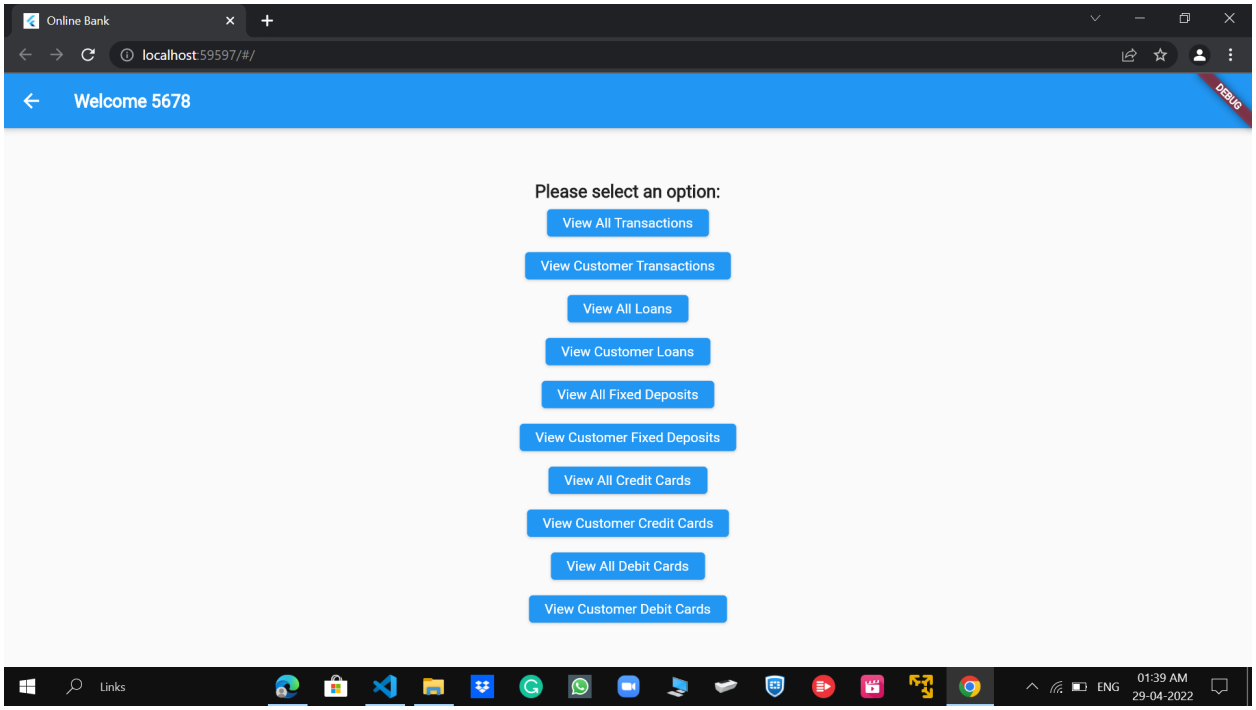
SCREENSHOTS


Online Bank
localhost:59597/#/
Online Bank Login
DEBUG
I am a:
Customer
Employee
Links
ENG
01:38 AM
29-04-2022


Online Bank
localhost:59597/#/
Customer Login
DEBUG
Account No.:
Account No.
Password:
Password
Submit
Links
ENG
01:38 AM
29-04-2022


Online Bank
localhost:59597/#/
Welcome 1234
DEBUG
Please select an option:
View Account Balance
View Transactions
Make Transactions
View Loans
View Fixed Deposits
View Credit Card Details
View Debit Card Details
Links
ENG
01:38 AM
29-04-2022


Online Bank
localhost:59597/#/
Employee Login
DEBUG
Employee ID:
Employee ID
Password:
Password
Submit
Links
ENG
01:39 AM
29-04-2022


Online Bank
localhost:59597/#/
Welcome 5678
DEBUG
Please select an option:
View All Transactions
View Customer Transactions
View All Loans
View Customer Loans
View All Fixed Deposits
View Customer Fixed Deposits
View All Credit Cards
View Customer Credit Cards
View All Debit Cards
View Customer Debit Cards
Links
ENG
01:39 AM
29-04-2022