**Objective** To write a program with a MVC approach that performs a Loan analysis from class objects created in lab #2.

NAME :PRADEEP RAJA MOHAN

DATE :4/06/2016

LAB :4

**LoanController.java**

/\*\*

NAME :PRADEEP RAJA MOHAN

DATE :4/06/2016

FILE NAME :LoanController

SOURCE FILE NAME :LoanController.java

LAB :4

Program to parse the bank csv file to an array and insert into the database

and retrive the data and display it in a JTabel

\*/

**package** controller;

**import** java.text.SimpleDateFormat;

**import** java.util.Calendar;

//import all files from other package like model, controller and views

**import** banking.BankRecords;

**import** models.daoModel;

**import** views.LoanView;

//create a LoanController class which extends the bank record file

**public** **class** LoanController **extends** BankRecords

{

/\*\*

\* main function begins

\*/

**public** **static** **void** main(String args[])

{

//create object for BankRecord File

BankRecords obj = **new** BankRecords();

obj.readData();

obj.processData();

//create object for daoModel

daoModel do1 = **new** daoModel();

System.***out***.println("Connecting to database succesfull");

**try**

{

//create table function is called to create a table in the database

do1.createTable();

//pass the bankRecord array to the insert function to insert the rows into the database

do1.insertrows(*user*);

//instantiate the LoanView class

**new** LoanView();

}

**catch**(Exception e){

System.***out***.println("error occured accessing the database: please contact Administrator ");

}

String timeStamp = **new** SimpleDateFormat("yyyy/MM/dd HH:mm:ss").format(Calendar.*getInstance*().getTime());

System.***out***.println("Cur dt=" + timeStamp + "\nProgrammed By PRADEEP RAJA MOHAN\n");

}

}

**LoanView.java**

/\*\*

NAME :PRADEEP RAJA MOHAN

DATE :4/06/2016

FILE NAME :LoanView

SOURCE FILE NAME :LoanView.java

LAB :4

Program to parse the bank csv file to an array and insert into the database

and retrive the data and display it in a JTabel

\*/

**package** views;

// import packages required for creating JFrame and event handling

**import** java.awt.BorderLayout;

**import** java.awt.FlowLayout;

**import** java.awt.event.ActionEvent;

**import** java.awt.event.ActionListener;

**import** java.sql.ResultSet;

**import** java.sql.ResultSetMetaData;

**import** java.util.Vector;

**import** javax.swing.JButton;

**import** javax.swing.JFrame;

**import** javax.swing.JLabel;

**import** javax.swing.JScrollPane;

**import** javax.swing.JTable;

//import the daoModel

**import** models.daoModel;

// class loan view

/\*\*

\*

\* **@author** pradeep

\*Loan view retrives and displays the data in the Jtable

\*/

**public** **class** LoanView {

//declare all variable that are required for JFrame and its components

**private** **static** JFrame *frontFrame*;

**private** **static** JLabel *headerLabel*;

**private** **static** JButton *Records*;

**private** **static** JButton *exit*;

//vector of vector of object which is used to store the data rows extracted from database

**static** Vector<Vector<Object>> *data* = **new** Vector<Vector<Object>>();

//column vector is created to store the column header details

**static** Vector<String> *column* = **new** Vector<String>();

/\*\*

\* It creates the Jframe and creates the Jtable

\*/

**public** LoanView()

{

//create java frame

*frontFrame* = **new** JFrame("Bank Menu");

//set size for the frame

*frontFrame*.setSize(500,400);

//create a Jlable to store a label

*headerLabel* = **new** JLabel("WELCOME TO BANK OF IIT",JLabel.***CENTER*** );

//create show record button

*Records* = **new** JButton("Show Records");

//create jbutton to close he window

*exit* = **new** JButton("close");

//set layout for the JFrame

*frontFrame*.setLayout(**new** FlowLayout());

//add all the components to the JFrame

*frontFrame*.add(*headerLabel*, BorderLayout.***CENTER***);

*frontFrame*.add(*Records*);

*frontFrame*.add(*exit*);

*frontFrame*.setVisible(**true**);

ButtonHandler handler = **new** ButtonHandler();

//add the Action Handler

*Records*.addActionListener(handler);

}

/\*\*

\* create a method JTable to retrieve Result set

\* Metadata is taken from the resultset

\* **@return** table data

\*/

**static** JTable records()

{

**try** {

ResultSet res;

res = daoModel.*getrows*();

ResultSetMetaData metaData = res.getMetaData();

**int** columns = metaData.getColumnCount();

//get column names from table!

String cols = "";

**for** (**int** i = 1; i <= columns ; i++) {

cols = metaData.getColumnName(i);

//add the extracted column details into the column variable

*column*.add(cols);

}

//get row data from table!

**while** (res.next()) {

Vector<Object> row = **new** Vector<Object>(columns);

**for** (**int** i = 1; i <= columns; i++) {

row.addElement(res.getObject(i));

}

//add the row details to the data variable

*data*.addElement(row);

}

JTable table = **new** JTable(*data*,*column*);

**return** table;

}

**catch** (Exception e) {

e.printStackTrace();

}

**return** **null**;

}

//class handler handles the action for the button

**class** ButtonHandler **implements** ActionListener{

**public** **void** actionPerformed(ActionEvent e) {

**if**(e.getSource() == *Records*)

{

//create a jtable and add it to the Jframe

JTable table= **new** JTable();

table= LoanView.*records*();

*frontFrame*.setSize(500, 400);

*frontFrame*.add(table);

*frontFrame*.add(**new** JScrollPane(table));

*frontFrame*.pack();

*frontFrame*.remove(*Records*);

*frontFrame*.setVisible(**true**);

}

**else** **if**(e.getSource() == *exit*)

{

*frontFrame*.dispose();

System.*exit*(0);

}

}

}

}

/\*\*

NAME :PRADEEP RAJA MOHAN

DATE :4/06/2016

FILE NAME :Connector

SOURCE FILE NAME :Connector.java

LAB :4

Program to parse the bank csv file to an array and insert into the database

and retrive the data and display it in a JTabel

\*/

**package** models;

//import the required SQl class required.

**import** java.sql.Connection;

**import** java.sql.DriverManager;

**import** java.sql.SQLException;

**public** **class** connector {

**static** Connection *connect*= **null**;

// JDBC driver name and database URL

**static** **final** String ***JDBC\_DRIVER*** = "com.mysql.jdbc.Driver";

//string contains the URL for the DB

**static** **final** String ***DB\_URL*** = "jdbc:mysql://www.papademas.net:3306/510labs";

//Database credentials

**static** **final** String ***USER*** = "db510";

**static** **final** String ***PASS*** = "510";

/\*\*

\* It creates the connection to the database

\* **@return** connection

\*/

**public** **static** Connection getConnection(){

**try**{

// sets the Driver for the Program

Class.*forName*("com.mysql.jdbc.Driver");

//establish connection for the database based on the Username and password

*connect* = DriverManager.*getConnection*(***DB\_URL***, ***USER***,***PASS***);

*connect*.createStatement();

}

**catch**(SQLException e){

System.***out***.println("Problem while connecting: contact Administrator ");

System.***out***.println(e.getMessage());

}

**catch** (ClassNotFoundException e){

System.***out***.println("Problem while connecting: contact Administrator");

e.printStackTrace();

}

**return** *connect*;

}

}

**daoModel.java**

/\*\*

NAME :PRADEEP RAJA MOHAN

DATE :4/06/2016

FILE NAME :daoModel

SOURCE FILE NAME :daoModel.java

LAB :4

Program to parse the bank csv file to an array and insert into the database

and retrive the data and display it in a JTabel

\*/

**package** models;

**import** java.sql.ResultSet;

**import** java.sql.SQLException;

**import** java.sql.Statement;

**import** banking.BankRecords;

// create a class daoModel which create table and insert data into table and retrive data

**public** **class** daoModel {

**private** **static** Statement *statement*= **null**;

/\*\*

\* Used to create a table in DB

\* **@throws** Exception throws exception

\*/

**public** **void** createTable() **throws** Exception{

**try** {

*statement*= connector.*getConnection*().createStatement();

String sql =" CREATE TABLE IF NOT EXISTS `p\_moha\_tab` (" +

" `id` char(10) NOT NULL ,"+

"`income` NUMERIC(8,2) DEFAULT NULL,"+

"`pep` varchar(3) DEFAULT NULL, "+

"PRIMARY KEY(id) )";

*statement*.execute(sql);

//System.out.println("Connecting to database... creating table");

System.***out***.println("table created into the DB");

*statement*.close();

}

**catch**( SQLException e){

System.***out***.println("error in creating table");

System.***out***.println(e.getMessage());

System.*exit*(0);

}

}

/\*\*

\* Inserts data in the Table

\* **@param** user user data

\* **@throws** Exception throws Exception

\*/

**public** **void** insertrows(BankRecords[] user) **throws** Exception{

**try** {

*statement* = connector.*getConnection*().createStatement();

String sqlinsert=**null**;

**for** (**int** i=0; i< user.length ; i++)

{

sqlinsert ="INSERT INTO p\_moha\_tab(id,income,pep)"+

"VALUES ('"+user[i].getID()+"','"+user[i].getIncome()+"','"+user[i].getPep()+"')";

*statement*.executeUpdate(sqlinsert);

}

System.***out***.println("record inserted into the table P\_moha\_tab");

*statement*.close();

}

**catch**( SQLException e){

System.***out***.println("insert error");

System.***out***.println(e.getMessage());

System.*exit*(0);

}

}

/\*\*

\* retrive data from the dB using the select Query

\*

\* **@return** result set

\*/

**public** **static** ResultSet getrows(){

**try** {

*statement* = connector.*getConnection*().createStatement();

ResultSet res = *statement*.executeQuery("SELECT \* FROM p\_moha\_tab order by pep desc");

**return** res;

}

**catch** (SQLException e) {

e.printStackTrace();

System.*exit*(0);

}

**return** **null**;

}

}

**BankRecords.java**

package banking;

/\*\*

NAME :PRADEEP RAJA MOHAN

DATE :4/06/2016

FILE NAME :BankRecords

SOURCE FILE NAME :BankRecords.java

LAB :4

Program to parse the bank csv file to an array and insert into the database

\*/

//import the necessary util class

import java.io.BufferedReader;

import java.io.FileNotFoundException;

import java.io.FileReader;

import java.io.IOException;

import java.util.ArrayList;

import java.util.Arrays;

import java.util.List;

/\*\*

\* implement the client interface

\* @param ...

\*/

public class BankRecords implements Client {

//declare the variable required

private String id;

private Integer age;

private String sex;

private double income;

private String region;

private String married;

private Integer children;

private String car;

private String save\_act;

private String current\_act;

private String mortgage;

private String pep;

//create an List of List array to store the csv values

static List<List<String>> array = new ArrayList<>();

public static BankRecords user[] = new BankRecords[600];

/\*\*

\* implement the client interface read the data from the csv and stores it to the array list

\* readData() is used to parse csv file into a List of List of String array

\*

\*/

public void readData()

{

//path of the CSV file to be imported

String csvFile = "bank-Detail.csv";

String splitBy = ",";

//String []client;

BufferedReader reader = null;

String record;

try

{ //read the content from the csv file

reader = new BufferedReader(new FileReader(csvFile));

while ((record = reader.readLine()) != null) {

// use comma as separator

//client = record.split(splitBy);

array.add(Arrays.asList(record.split(splitBy)));

//reader.close();

}

//System.out.println(array);

}

//catch the exception thrown

catch (FileNotFoundException e){

System.out.println("Given file not found: "+csvFile);

System.exit(0);

}

catch (IOException e) {

e.printStackTrace();

}

}

/\*\*

\* implement the client interface Processdata and stores it to the list of list array

\* processData() is used to process the array into a list of BankRecord object

\*

\*/

public void processData()

{

for(int recordLine=0;recordLine<600;recordLine++)

{

//creating object definition for each of the 600 objects.

try {

user[recordLine] = new BankRecords();

user[recordLine].setID(array.get(recordLine).get(0));

user[recordLine].setAge(Integer.parseInt(array.get(recordLine).get(1)));

user[recordLine].setSex(array.get(recordLine).get(2));

user[recordLine].setIncome(Float.parseFloat(array.get(recordLine).get(4)));

user[recordLine].setRegion(array.get(recordLine).get(3));

user[recordLine].setMarried(array.get(recordLine).get(5));

user[recordLine].setChildren(Integer.parseInt(array.get(recordLine).get(6)));

user[recordLine].setCar(array.get(recordLine).get(7));

user[recordLine].setSave\_act(array.get(recordLine).get(8));

user[recordLine].setCurrent\_act(array.get(recordLine).get(9));

user[recordLine].setMortgage(array.get(recordLine).get(10));

user[recordLine].setPep(array.get(recordLine).get(11));

}

//catch the exception thrown

catch (IndexOutOfBoundsException e) {

// File was not opened.

System.out.println("Contact Administrator: Unexpected Error ");

System.exit(0);

}

//

}

// writeData();

}

//Getter and setter for the variables used in the program

public void setID(String id){

this.id= id;

}

/\*\*

\* the region of Client

\*/

public void setAge(int age)

{

this.age= age;

}

/\*\*

\* sex Sets the sex for Client

\*/

public void setSex(String sex){

this.sex= sex;

}

/\*\*

\* @param income Sets the income for Client

\*/

public void setIncome(double income){

this.income= income;

}

/\*\*

\* @param region Sets the region for ClientDetails.

\*/

public void setRegion(String region){

this.region= region;

//System.out.print(region+"\t");

}

/\*\*

\* @param married Sets the married for ClientDetails.

\*/

public void setMarried(String married){

this.married= married;

}

/\*\*

\* @param children Sets the children for ClientDetails.

\*/

public void setChildren(int children){

this.children= children;

}

/\*\*

\* @param car Sets the car for ClientDetails.

\*/

public void setCar(String car){

this.car= car;

}

/\*\*

\* @param save\_act Sets the save\_act for ClientDetails.

\*/

public void setSave\_act(String save\_act){

this.save\_act= save\_act;

}

/\*\*

\* @param current\_act Sets the current\_act for ClientDetails.

\*/

public void setCurrent\_act(String current\_act){

this.current\_act= current\_act;

}

/\*\*

\* @param mortgage Sets the mortgage for ClientDetails.

\*/

public void setMortgage(String mortgage){

this.mortgage= mortgage;

}

/\*\*

\* @param pep Sets the pep for ClientDetails.

\*/

public void setPep(String pep){

this.pep= pep;

}

/\*\*

\* return the ID of Client

\*/

public String getID()

{

return id;

}

/\*\*

\* print the age of Client

\*/

public int getAge()

{

return age;

//System.out.printf(" %-4d ",age);

}

/\*\*

\* return the sex of Client

\*/

public String getSex()

{

return sex;

//System.out.printf("%-10s",sex);

}

/\*\*

\* return the income of Client

\*/

public double getIncome()

{

return income;

//System.out.printf("%-15s", income);

}

/\*\*

\* return the region of Client

\*/

public String getRegion()

{ return region;

//System.out.printf("%-15s",region);

}

/\*\*

\* return the married status of Client

\*/

public String getMarried()

{ return married;

//System.out.print(married+"\t");

}

/\*\*

\* return the number of children of Client

\*/

public int getChildren()

{

return children;

//System.out.print(children+"\t");

}

/\*\*

\* return the car of Client

\*/

public String getCar()

{

return car;

//System.out.print(car+"\t");

}

/\*\*

\* return the save\_act of Client

\*/

public String getSave\_act( )

{

return save\_act;

// System.out.print(save\_act+"\t");

}

/\*\*

\* return the region of Client

\*/

public String getCurrent\_act()

{

return current\_act;

//System.out.print(current\_act+"\t");

}

/\*\*

\* print the mortgage of Client

\*/

public String getMortgage()

{

return mortgage;

//System.out.printf("%s",mortgage+"\t");

}

/\*\*

\* return the pep of Client

\*/

public String getPep()

{

return pep;

///System.out.print(pep+"\t");

}

/\*\*

\*print the first 25 records of the user details

\*/

public void writeData()

{

try{

if (array.get(0) != null ){

System.out.print(" ID \t AGE \t SEX \t REGION \t INCOME \t MORTAGE\n");

for(int recordLine=0;recordLine<25;recordLine++)

{

user[recordLine].getID();

user[recordLine].getAge();

user[recordLine].getSex();

user[recordLine].getRegion();

user[recordLine].getIncome();

user[recordLine].getMortgage();

System.out.print("\n");

}

}

}

//catch the exception thrown

catch (Exception e){

//values not set to the instance variable

System.out.println("wite :Contact Administrator: Unexpected Error ");

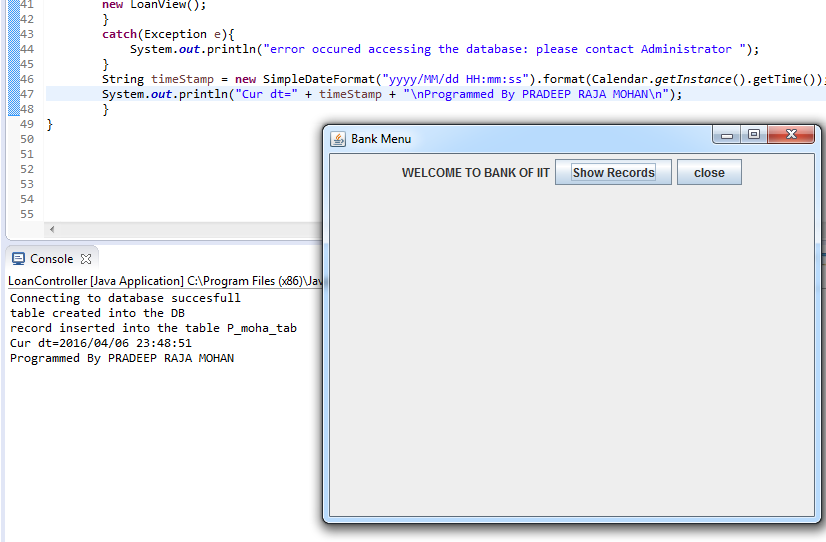
System.exit(0);

}

}

}

OUTPUT:



2.

