Database Management Systems – Practical Test

Computer Science in English, 2nd year

**I.**

|  |  |
| --- | --- |
| **Question Number** | **Answer** |
| **1** | **175** |
| **2** | **175** |
| **3** | T2's changes are erased when the transaction is rolled back. |

**II.**

**a.)**

create database Tracker

use Tracker

CREATE TABLE Banks

(

BankID INT PRIMARY KEY,

BankName VARCHAR(100),

SwiftCode INT,

WebsitrUrl varchar(100),

MajorShareCountry varchar(50)

)

CREATE TABLE Atm

(

AtmID INT PRIMARY KEY,

AtmAddress VARCHAR(50),

deposits VARCHAR(50),

BankID INT REFERENCES Banks(BankID)

)

CREATE TABLE Customers

(

CustomerID INT PRIMARY KEY,

CustomerName VARCHAR(50),

CustomerType varchar(50)

)

CREATE TABLE Cards

(

CardID INT PRIMARY KEY,

ExpirationDate DATE,

Number int,

BankID INT REFERENCES Banks(BankID),

CustomerID INT REFERENCES Customers(CustomerID)

)

CREATE TABLE Transactions

(

TransactionID INT PRIMARY KEY,

Amount INT,

WithdrawalType varchar(50),

AtmID INT REFERENCES Atm(AtmID),

CardID INT REFERENCES Cards(CardID),

DateAndTime datetime

)

insert into Banks values(1,'Bank1,',1,'www.hello','Ro'),(2,'Bank2,',2,'www.hello2','US')

insert into Atm values(1,'here','yes',1),(2,'here','yes',2)

insert into Customers values(1,'Filip','legal'),(2,'Me','legal')

INSERT INTO Cards VALUES (1, '1-1-2022', 50012,1,1), (2, '1-1-2023', 10292, 2,2)

INSERT INTO Transactions VALUES (1,100, 'Deposit', 1,1,'1-1-2021'), (2,200, 'Deposit', 2,1,'2-1-2021'),(3,300, 'Deposit', 2,2,'2-2-2021')

SELECT \* FROM Transactions

SELECT \* FROM Cards

b.)

public partial class Form1 : Form

{

SqlConnection connection;

DataSet dataSet;

SqlDataAdapter cardsAdaptor, transactionsAdaptor;

SqlCommandBuilder command;

BindingSource cardsSource, transactionsSource;

private void button1\_Click(object sender, EventArgs e)//update button

{

transactionsAdaptor.Update(dataSet, "Transactions");//update database

}

//Transactions = Transaction = child //

//Cards card = parent //

private void Form1\_Load(object sender, EventArgs e)

{

connection = new SqlConnection(@"Data Source = DESKTOP - PE6HT4H\SQLEXPRESS; Initial Catalog = Tracker; Integrated Security = True");

dataSet = new DataSet();

cardsAdaptor = new SqlDataAdapter("select \* from Cards", connection);

transactionsAdaptor = new SqlDataAdapter("select \* from Transactions", connection);

command = new SqlCommandBuilder(transactionsAdaptor);

transactionsAdaptor.Fill(dataSet, "Transactions");//fill dataSet

cardsAdaptor.Fill(dataSet, "Cards");

DataRelation relationBetweenData = new DataRelation("FK\_\_Cards\_\_Transactions", dataSet.Tables["Cards"].Columns["CardID"], dataSet.Tables["Transactions"].Columns["CardID"] );

//dataRelation helps us to not change(delete/update) the data that are in use (for integrity)

dataSet.Relations.Add(relationBetweenData);

cardsSource = new BindingSource();

cardsSource.DataSource = dataSet;

cardsSource.DataMember = "Cards";

transactionsSource = new BindingSource();

transactionsSource.DataSource = cardsSource;

transactionsSource.DataMember = "FK\_\_Cards\_\_Transactions";

dataGridView1.DataSource = cardsSource;

dataGridView2.DataSource = transactionsSource;

}

public Form1()

{

InitializeComponent();

}

private void button2\_Click(object sender, EventArgs e)// refresh button

{

dataSet.EnforceConstraints = false;

dataSet.Tables["Transactions"].Clear();

dataSet.Tables["Cards"].Clear();

transactionsAdaptor.Fill(dataSet, "Transactions");//fill dataSet

cardsAdaptor.Fill(dataSet, "Cards");

dataSet.EnforceConstraints = true;

}

}