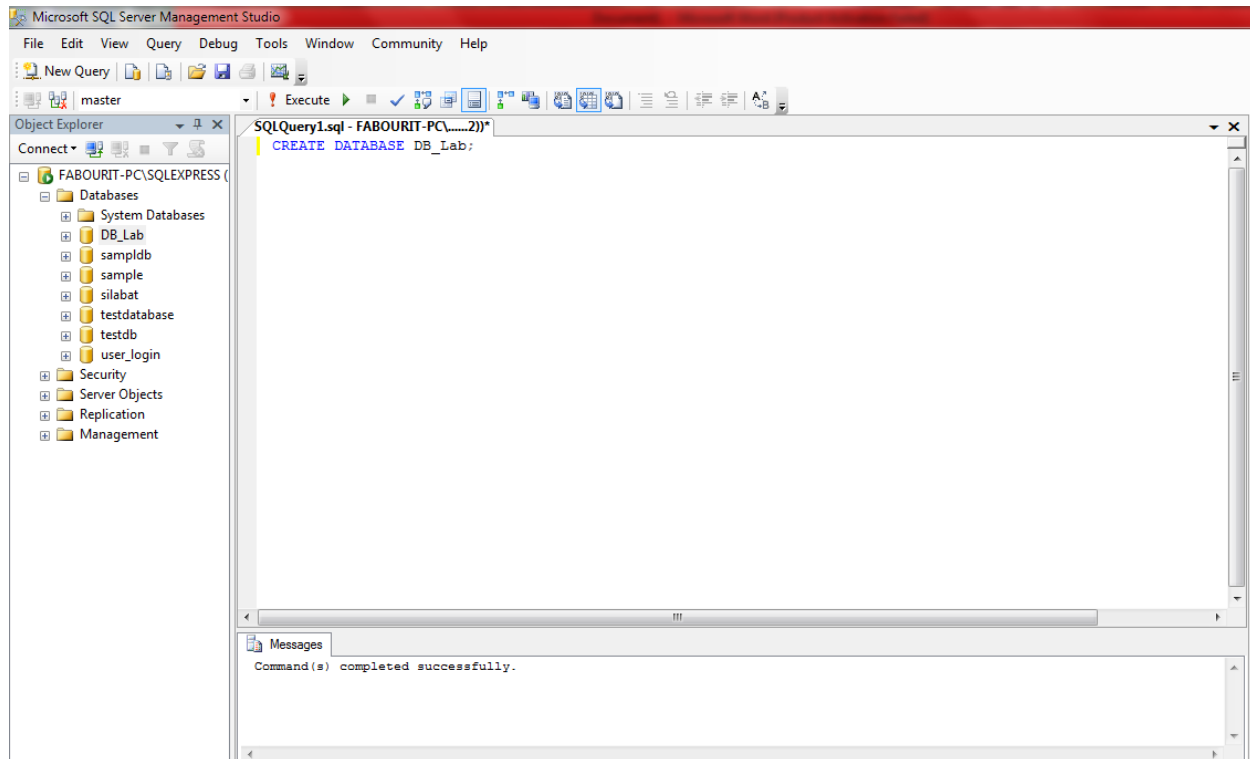


# DATABASE LAB PRACTICE



## Creating database

CREATE DATABASE DB\_Lab;



## CREATING Tables

### e.g. customer table

use DB\_Lab

```
CREATE TABLE customer(cid int,
cname varchar(23),address varchar(23),
cemail varchar(67),
primary key (cid));
```

	Column Name	Data Type	Allow Nulls
	cid	int	<input type="checkbox"/>
	cname	varchar(23)	<input checked="" type="checkbox"/>
	address	varchar(23)	<input checked="" type="checkbox"/>
	cemail	varchar(67)	<input checked="" type="checkbox"/>
			<input type="checkbox"/>

## Product table

```
use DB_Lab
CREATE TABLE product(cid int, pid int,
pname varchar(23),pprice float,
primary key (cid),
foreign key(cid) references customer(cid));
```

	Column Name	Data Type	Allow Nulls
	pid	varchar(40)	<input type="checkbox"/>
	cid	int	<input checked="" type="checkbox"/>
	pname	varchar(34)	<input checked="" type="checkbox"/>
	pprice	varchar(34)	<input checked="" type="checkbox"/>

```
use DB_Lab
ALTER TABLE product
ADD mdate date;
```

	Column Name	Data Type	Allow Nulls
	cid	int	<input type="checkbox"/>
	pid	int	<input checked="" type="checkbox"/>
	pname	varchar(23)	<input checked="" type="checkbox"/>
	pprice	float	<input checked="" type="checkbox"/>
	mdate	date	<input checked="" type="checkbox"/>
			<input type="checkbox"/>

## Insert into and select query into customer table

```
use DB_Lab
INSERT INTO customer(cid,cname,address,cemail)VALUES
(1,'Abebe','DTU','abie@gmail.com');
INSERT INTO customer(cid,cname,address,cemail)VALUES (2,'Abebe','DTU','abie@gmail.com');
INSERT INTO customer(cid,cname,address,cemail)VALUES (3,'Kebede','DTU','abie@gmail.com');
INSERT INTO customer(cid,cname,address,cemail)VALUES (4,'Almaz','DTU','abie@gmail.com');
INSERT INTO customer(cid,cname,address,cemail)VALUES (5,'Aster','DTU','abie@gmail.com');
INSERT INTO customer(cid,cname,address,cemail)VALUES (6,'Abebaw','DTU','abie@gmail.com');
INSERT INTO customer(cid,cname,address,cemail)VALUES (7,'Belete','DTU','bbie@gmail.com');
INSERT INTO customer(cid,cname,address,cemail)VALUES (8,'Beletu','DTU','bbie@gmail.com');
```

```
INSERT INTO customer(cid,cname,caddress,cemail)VALUES (9,'Tihunie','DTU','tbie@gmail.com');
INSERT INTO customer(cid,cname,caddress,cemail)VALUES (10,'Azeneg','DTU','zbie@gmail.com');
```

```
use DB_Lab
SELECT * FROM customer;
```

cid	cname	caddress	cemail
1	Abebe	DTU	abie@gmail.com
2	Abebe	DTU	abie@gmail.com
3	Kebede	DTU	abie@gmail.com
4	Almaz	DTU	abie@gmail.com
5	Aster	DTU	abie@gmail.com
6	Abeb...	DTU	abie@gmail.com
7	Belete	DTU	bbie@gmail.com
8	Beletu	DTU	bbie@gmail.com
9	Tihunie	DTU	tbie@gmail.com
10	Azeneg	DTU	zbie@gmail.com

## Insert into and select query into product table

```
use DB_Lab
INSERT INTO product(pid,cid,pname,pprice,pdat)VALUES ('pC1233171',5,'PC','15,000 birr','09/12/2010');
INSERT INTO product(pid,cid,pname,pprice,pdat)VALUES ('pC1233181',4,'PC','15,000 birr','09/12/2010');
INSERT INTO product(pid,cid,pname,pprice,pdat)VALUES ('pH1233191',6,'phone','5,000 birr','09/12/2010');
INSERT INTO product(pid,cid,pname,pprice,pdat)VALUES ('p1233161',7,'PC','15,000 birr','09/12/2010');
INSERT INTO product(pid,cid,pname,pprice,pdat)VALUES ('pH1233131',10,'phone','5,000 birr','09/12/2010');
INSERT INTO product(pid,cid,pname,pprice,pdat)VALUES ('pC1233101',9,'PC','15,000 birr','09/12/2010');
```

pid	cid	pname	pprice	pdat
p1233121	2	PC	15,000 birr	2010-09-12
p1233161	7	PC	15,000 birr	2010-09-12
pC1233101	9	PC	15,000 birr	2010-09-12
pC1233171	5	PC	15,000 birr	2010-09-12
pC1233181	4	PC	15,000 birr	2010-09-12
pH1233131	10	phone	5,000 birr	2010-09-12
pH1233191	6	phone	5,000 birr	2010-09-12

## Deleting record

use DB\_Lab

DELETE FROM customer WHERE cid=2;

cid	cname	caddress	cemail
1	Abebe	DTU	abie@gmail.com
3	Kebede	DTU	abie@gmail.com
4	Almaz	DTU	abie@gmail.com
5	Aster	DTU	abie@gmail.com
6	Abebaw	DTU	abie@gmail.com
7	Belete	DTU	bbie@gmail.com
8	Beletu	DTU	bbie@gmail.com
9	Tihunie	DTU	tbie@gmail.com
10	Azeneg	DTU	zbie@gmail.com

pid	cid	pname	pprice	pdat
p1233161	7	PC	15,000 birr	2010-09-12
pC1233101	9	PC	15,000 birr	2010-09-12
pC1233171	5	PC	15,000 birr	2010-09-12
pC1233181	4	PC	15,000 birr	2010-09-12
pH1233131	10	phone	5,000 birr	2010-09-12
pH1233191	6	phone	5,000 birr	2010-09-12

## Updating records

UPDATE customer SET cname='Amanuale', caddress='DMU'

WHERE cid=4;

cid	cname	caddress	cemail
1	Abebe	DTU	abie@gmail.com
3	Kebede	DTU	abie@gmail.com
4	Amanuale	DMU	abie@gmail.com
5	Aster	DTU	abie@gmail.com
6	Abebaw	DTU	abie@gmail.com
7	Belete	DTU	bbie@gmail.com
8	Beletu	DTU	bbie@gmail.com
9	Tihunie	DTU	tbie@gmail.com
10	Azeneg	DTU	zbie@gmail.com

## Aggregate functions

### Count(\*)

```
use DB_Lab
SELECT COUNT(*) as numberof_records FROM customer;
```

numberof_records
9

```
use DB_Lab
SELECT COUNT(cid)AS Count_product_price FROM product WHERE pname='PC';
```

Count_product_price
4

### AVG()

```
use DB_Lab
SELECT AVG(cid)AS Avaerage_product_price FROM product;
```

Avaerage_product_price
6

```
use DB_Lab
SELECT AVG(cid)AS Avaerage_product_price FROM product WHERE pname='phone';
```

Avaerage_product_price
8

### SUM()

```
use DB_Lab
SELECT SUM (cid)AS Sumeof_CID FROM product WHERE pname='PC';
```

Sumeof_CID
25

## MIN()

use DB\_Lab

```
SELECT MIN(cid) AS Minimum_CID FROM customer WHERE address='DTU';
```

Minimum_CID
1

## MAX()

use DB\_Lab

```
SELECT MAX(cid) AS Minimum_CID FROM customer WHERE address='DTU'
```

Minimum_CID
10

## Order by

use DB\_Lab

```
SELECT * FROM customer WHERE address='DTU' ORDER BY cname ASC;
```

cid	cname	caddress	cemail
6	Abebaw	DTU	abie@gmail.com
1	Abebe	DTU	abie@gmail.com
5	Aster	DTU	abie@gmail.com
10	Azeneg	DTU	zbie@gmail.com
7	Belete	DTU	bbie@gmail.com
8	Beletu	DTU	bbie@gmail.com
3	Kebede	DTU	abie@gmail.com
9	Tihunie	DTU	tbie@gmail.com

## Group by

use DB\_Lab

```
SELECT count(cid) AS num_of_CID, address
FROM customer GROUP BY address ;
```

num_of_CID	address
1	DMU
8	DTU

## Having

```
use DB_Lab
SELECT * from customer;
```

cid	cname	caddress	cemail
1	Abebe	DTU	abie@gmail.com
3	Kebede	DTU	abie@gmail.com
4	Amanuale	DMU	abie@gmail.com
5	Aster	DTU	abie@gmail.com
6	Abebaw	DTU	abie@gmail.com
7	Belete	DTU	bbie@gmail.com
8	Beletu	DTU	bbie@gmail.com
9	Tihunie	DTU	tbie@gmail.com
10	Azeneg	DTU	zbie@gmail.com
45	alebachew	BDU	aa@gmail.com
65	alebachew	DMU	aa@gmail.com
85	alebachew	DMU	aa@gmail.com
95	alebachew	BDU	aa@gmail.com

```
use DB_Lab
SELECT COUNT(cid)AS num_of_CID,caddress FROM customer
GROUP BY caddress
HAVING COUNT(cid)>2
ORDER BY caddress;
```

num_of_CID	caddress
3	DMU
8	DTU

## Relational query

### The SQL UNION Operator

```
use DB_Lab
SELECT cid as cid_from_union from customer
UNION select cid from product;
```

cid_from_union
1
3
4
5
6
7
8
9
10
45
65
85
95

## The SQL EXISTS Operator

use DB\_Lab

```
SELECT cname,address AS Customer_City from customer
WHERE EXISTS(select pname from product where cid=customer.cid);
```

cname	Customer_City
Amanuale	DMU
Aster	DTU
Abebaw	DTU
Belete	DTU
Tihunie	DTU
Azeneg	DTU

## SQL JOIN

### SQL INNER JOIN

use DB\_Lab

```
SELECT customer.cname,customer.address,product.pname,product.pprice
from customer
INNER JOIN product ON customer.cid=product.cid;
```

cname	address	pname	pprice
Belete	DTU	PC	15,000 birr
Tihunie	DTU	PC	15,000 birr
Aster	DTU	PC	15,000 birr
Amanuale	DMU	PC	15,000 birr
Azeneg	DTU	phone	5,000 birr
Abebaw	DTU	phone	5,000 birr

## SQL LEFT JOIN

```
use DB_Lab
SELECT customer.cname,customer.address,product.pname,product.pprice
from customer
LEFT JOIN product ON customer.cid=product.cid;
```

cname	address	pname	pprice
Abebe	DTU	NULL	NULL
Kebede	DTU	NULL	NULL
Amanuale	DMU	PC	15,000 birr
Aster	DTU	PC	15,000 birr
Abebaw	DTU	phone	5,000 birr
Belete	DTU	PC	15,000 birr
Beletu	DTU	NULL	NULL
Tihunie	DTU	PC	15,000 birr
Azeneg	DTU	phone	5,000 birr
alebachew	BDU	NULL	NULL
alebachew	DMU	NULL	NULL
alebachew	DMU	NULL	NULL
alebachew	BDU	NULL	NULL

## The SQL INSERT INTO SELECT Statement

```
use DB_Lab
INSERT INTO reserve(rid,rname,raddress)
SELECT cid,cname,caddress FROM customer;
```

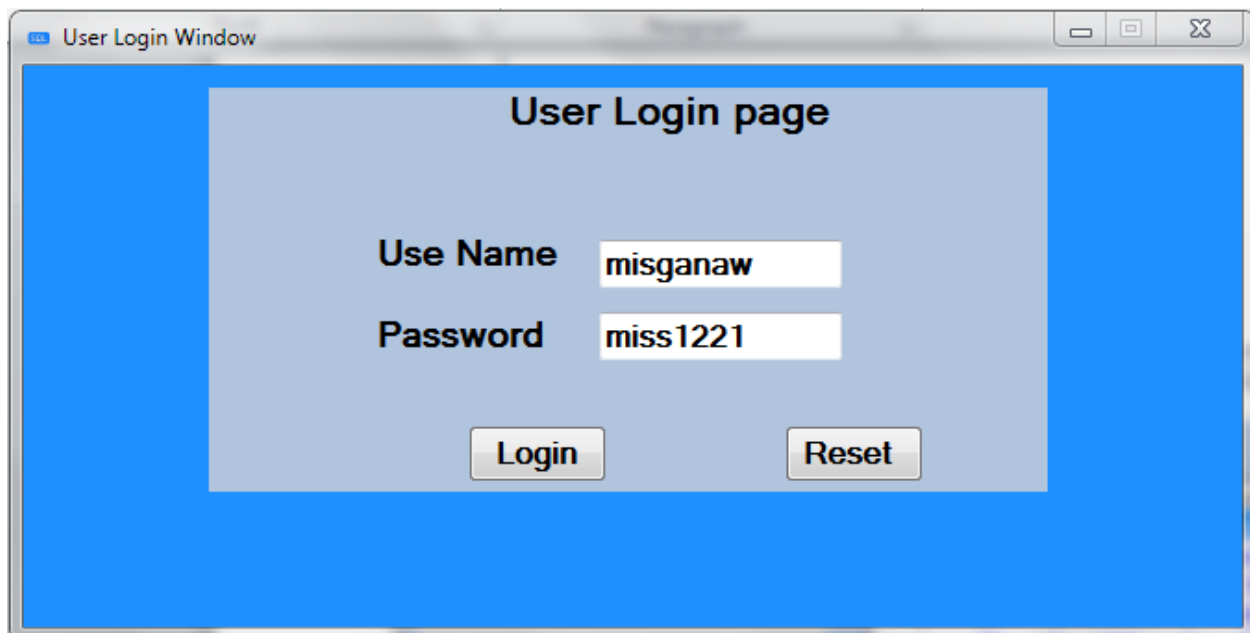
////////////////////////////////////

```
use DB_Lab
SELECT * FROM reserve;
```

rid	mame	raddress
1	Abebe	DTU
3	Kebede	DTU
4	Amanuale	DMU
5	Aster	DTU
6	Abebaw	DTU
7	Belete	DTU
8	Beletu	DTU
9	Tihunie	DTU
10	Azeneg	DTU
45	alebachew	BDU
65	alebachew	DMU
85	alebachew	DMU
95	alebachew	BDU

## Applications

### Form1.cs(desidgn)



### Form1.cs

```
using System;  
using System.Collections.Generic;  
using System.ComponentModel;  
using System.Data;
```

```
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
using System.Data.SqlClient;
namespace WindowsFormsApplication3
{
    public partial class Form1 : Form
    {
        public Form1()
        {
            InitializeComponent();
        }

        private void login_Click(object sender, EventArgs e)
        {
            SqlConnection con = new SqlConnection(" Data Source=FABOURIT-
PC\\SQLEXPRESS;Initial Catalog=user_login;Integrated Security=True");
            SqlDataAdapter sda = new SqlDataAdapter("SELECT count(*) FROM user_login
where username='" + username.Text + "' and user_password='" + user_password.Text + "'",
con);

            DataTable dt = new DataTable();
            sda.Fill(dt);
            //username.Text=dt.Rows[0][0].ToString();
            //password.Text=dt.Rows[0][1].ToString();
            if (dt.Rows[0][0].ToString() == "1")
            {
                //this.Hide();
                //Registration ss = new Registration();
                //ss.Show();
                SqlDataAdapter sda1 = new SqlDataAdapter("SELECT user_type FROM
user_login where username='" + username.Text + "' and user_password='" +
user_password.Text + "'", con);
                DataTable dt1 = new DataTable();
                sda1.Fill(dt1);
                if (dt1.Rows[0][0].ToString() == "admin")
                {
                    this.Hide();
                    Registration ss = new Registration();
                    ss.Show();
                }
                ////////////////////////////////////////
                if (dt1.Rows[0][0].ToString() == "user")
                {
                    this.Hide();
                    Customer_Data ss = new Customer_Data();
                    ss.Show();
                }
            }
            else
            {
                MessageBox.Show("the user name and password are not correct");
            }
        }
    }
}
```

```
private void Form1_Load(object sender, EventArgs e)
{
}

private void button2_Click(object sender, EventArgs e)
{
    username.Text = "";
    user_password.Text = "";
}
}
```

## Registration.cs(design)

care_tag	care_name	care_type	care_owner
321	www	qqqq	aaa
3455	reference	erd	aaa
98	fff	lll	bbbb
54	eeedd	ddd	eeee
22	eee	lll	ffff
56	rrrr	rrrddd	fffff
667	kkk	zzz	iiiiii
347	qqq	hhh	jjjj
11	sss	ddd	llll
6	bus	landcruzer	misqanaw
2	bus	landcruzer	misqanaw
1234	aaaa	xsd	redf
90	vvv	cccc	rreewd
44	ooo	ppp	rrr
45	34e	ddd	sas
55	ttt	qqqq	sssss
22	ttt	qqq	uuu

## Registration.cs

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;
```

```
using System.Data.SqlClient;
namespace WindowsFormsApplication3
{
    public partial class Registration : Form
    {
        SqlConnection con = new SqlConnection(" Data Source=FABOURIT-PC\\SQLEXPRESS;Initial Catalog=user_login;Integrated Security=True");
        public Registration()
        {
            InitializeComponent();
        }
        int selectedRow;
        private void Registration_Load(object sender, EventArgs e)
        {
        }

        private void insert_Click(object sender, EventArgs e)
        {
            con.Open();
            SqlCommand cmd = con.CreateCommand();
            cmd.CommandType = CommandType.Text;
            cmd.CommandText = "insert into care values('" + care_tag.Text + "','" + care_name.Text + "','" + care_type.Text + "','" + care_owner.Text + "')";
            cmd.ExecuteNonQuery();
            con.Close();
            care_tag.Text = "";
            care_name.Text = "";
            care_type.Text = "";
            care_owner.Text = "";
            display_data();
            MessageBox.Show("Your recorde Inserted Successfully");
        }
        public void display_data()
        {
            con.Open();
            SqlCommand cmd = con.CreateCommand();
            cmd.CommandType = CommandType.Text;
            cmd.CommandText = "select * from care ORDER BY care_owner ASC";
            cmd.ExecuteNonQuery();
            DataTable dt = new DataTable();
            SqlDataAdapter sda = new SqlDataAdapter(cmd);
            sda.Fill(dt);
            datagrideview.DataSource = dt;
            con.Close();
        }

        private void delete_Click(object sender, EventArgs e)
        {
            con.Open();
            SqlCommand cmd = con.CreateCommand();
            cmd.CommandType = CommandType.Text;
            cmd.CommandText = "delete from care where care_tag='" + care_tag.Text + "'";
            cmd.ExecuteNonQuery();
            con.Close();
        }
    }
}
```

```
        display_data();
        MessageBox.Show("Your recorde Deleted Successfully");
    }

    private void update_Click(object sender, EventArgs e)
    {
        con.Open();
        SqlCommand cmd = con.CreateCommand();
        cmd.CommandType = CommandType.Text;
        cmd.CommandText = "update care set care_name='" + care_name.Text + "',
care_type='" + care_type.Text + "', care_owner='" + care_owner.Text + "' where
care_tag='" + care_tag.Text + "'";
        cmd.ExecuteNonQuery();
        con.Close();
        display_data();
        MessageBox.Show("Your recorde Updated Successfully");
    }

    private void reset_Click(object sender, EventArgs e)
    {
        care_tag.Text = "";
        care_name.Text = "";
        care_type.Text = "";
        care_owner.Text = "";
    }

    private void search_Click(object sender, EventArgs e)
    {
        con.Open();
        SqlCommand cmd = con.CreateCommand();
        cmd.CommandType = CommandType.Text;
        cmd.CommandText = "select * from care where care_tag='" + care_tag.Text +
"ORDER BY care_owner ASC";
        cmd.ExecuteNonQuery();
        DataTable dt = new DataTable();
        SqlDataAdapter sda = new SqlDataAdapter(cmd);
        sda.Fill(dt);
        datagrideview.DataSource = dt;
        con.Close();
    }

    private void view_Click(object sender, EventArgs e)
    {
        display_data();
    }

    private void datagride_cell_click(object sender, DataGridViewCellEventArgs e)
    {
        selectedRow = e.RowIndex;
        DataGridViewRow row= datagrideview.Rows[selectedRow];
        care_tag.Text = row.Cells[0].Value.ToString();
        care_name.Text = row.Cells[1].Value.ToString();
        care_type.Text = row.Cells[2].Value.ToString();
        care_owner.Text = row.Cells[3].Value.ToString();
    }
}
```

```

private void datagridview_CellContentClick(object sender,
DataGridViewCellEventArgs e)
{
}

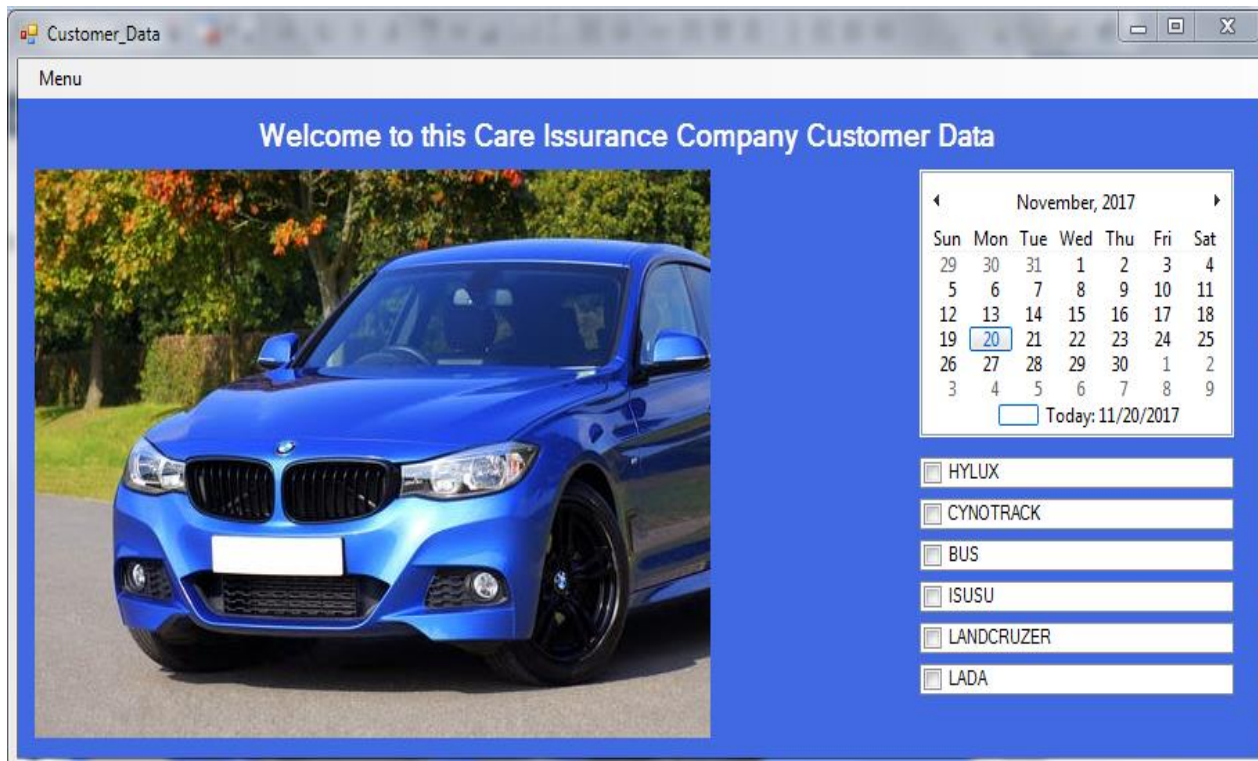
private void logoutToolStripMenuItem_Click(object sender, EventArgs e)
{
    this.Hide();
    Form1 ss = new Form1();
    ss.Show();
}

private void customerToolStripMenuItem_Click(object sender, EventArgs e)
{
    this.Hide();
    Customer_Data ss = new Customer_Data();
    ss.Show();
}
}
}

```

## Customer\_Data.cs(design)

## Customer\_Data.cs



```
using System;
using System.Collections.Generic;
using System.ComponentModel;

using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace WindowsFormsApplication3
{
    public partial class Customer_Data : Form
    {
        public Customer_Data()
        {
            InitializeComponent();
        }

        private void logoutToolStripMenuItem_Click(object sender, EventArgs e)
        {
            this.Hide();
            Form1 ss = new Form1();
            ss.Show();
        }
    }
}
```