



Технически университет Варна

Документация

По Технологии на софтуерното производство

На тема

„Автосалон“

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Проверил/а:

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Задание:

АВТОСАЛОН

Като се използва БД по избор да се създаде приложение Автосалон. Всяка таблица да съдържа следните полета:

1. Таблица **Кола**:

- Номер на кола
- Рег_номер_на_кола
- Марка
- Модел
- Цвят
- Година на производство
- Брой места
- Цена на ремонт

2. Таблица **Клиент**

- Номер на клиент
- Име на клиент
- Номер на лична карта
- Град
- Адрес
- Телефон

3. Таблица **Ремонт**

- Номер на клиент
- Номер на кола
- Дата на оставяне на ремонт
- Дата на връщане от ремонт
- Платено/неплатено
- Върната/не върната

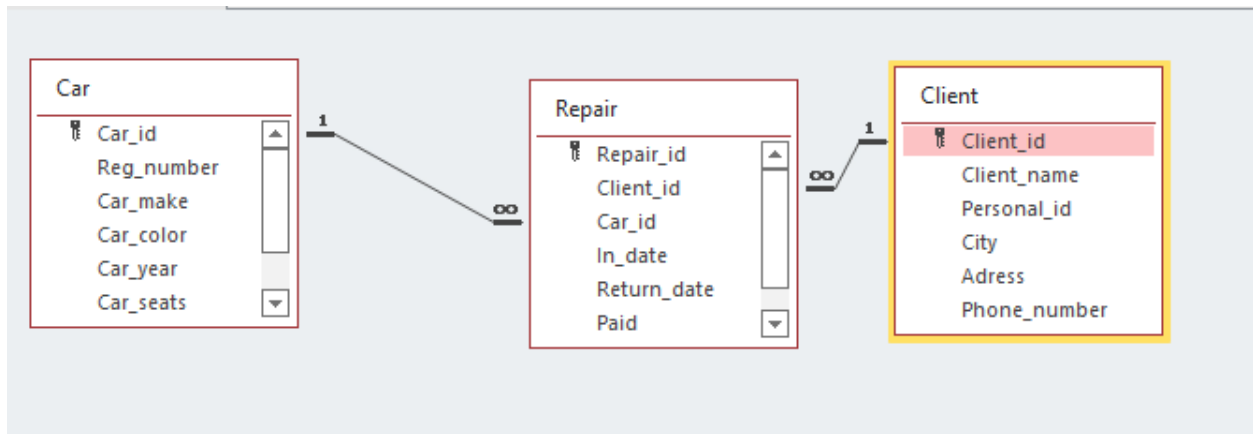
2) Създайте форми за попълване на данни в съответните таблици (въвеждане, актуализиране и изтриване на данни);

3) Създайте следни справки:

- всички клиенти, които са оставили през последните 24 часа своите коли за ремонт, списъкът да е подреден по марка и нарастващ регистрационен номер на колите;
- извеждане на минималната и максималната цена за наем подредена по марка на колата;
- извеждане на списък от всички неплатени ремонтирани коли;
- извеждане на списък с всички платени ремонтирани коли;
- справка за най-често ремонтираните коли /топ 3/;
- клиента, който е направил най-голям оборот от ремонт на кола/и.

4) Задължително реализацията да включва използване на класове, колекции – list, dictionary, queue, stack и други структури съобразно тяхната необходимост.

Таблицы:



Car:

Car_id	AutoNumber	
Reg_number	Short Text	
Car_make	Short Text	
Car_color	Short Text	
Car_year	Number	
Car_seats	Number	
Repair_price	Number	
Car_model	Short Text	

Client:

Client_id	AutoNumber	
Client_name	Short Text	
Personal_id	Short Text	
City	Short Text	
Adress	Short Text	
Phone_number	Short Text	

Repair:

Repair_id	AutoNumber	
Client_id	Number	
Car_id	Number	
In_date	Date/Time	
Return_date	Date/Time	
Paid	Yes/No	
Returned	Yes/No	

Връзки:

Vs Data connection:

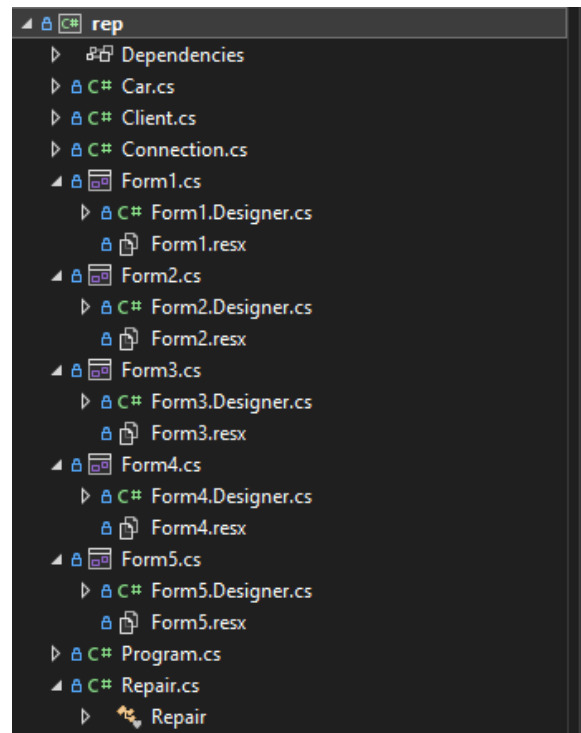
Connection		
Provider=Microsoft.ACE.OLEDB.12.0;Data Source=C:\TCP\repairs.accdb		
Provider		.NET Framework Data Provid
State		Open
Type		MS Jet
Version		04.00.0000

```
string conStr = @"Provider=Microsoft.ACE.OLEDB.12.0;Data Source=C:\TCP\repairs.accdb";  
OleDbConnection dbConnect = new OleDbConnection();
```

Data Connections	
repairs.accdb	
Tables	
Car	
Car_id	
Reg_number	
Car_make	
Car_color	
Car_year	
Car_seats	
Repair_price	
Car_model	
Client	
Client_id	
Client_name	
Personal_id	
City	
Adress	
Phone_numbe	
Repair	
Repair_id	
Client_id	
Car_id	
In_date	
Return_date	
Paid	
Returned	

Класова структура и форми:

Структура:



Menu form:



```

3 references
public partial class Form1 : Form
{
    1 reference
    public Form1()
    {
        InitializeComponent();
    }

    1 reference
    private void tablesToolStripMenuItem_Click(object sender, EventArgs e)
    {
    }

    1 reference
    private void carToolStripMenuItem_Click(object sender, EventArgs e)
    {
        Form2 form2 = new Form2();
        form2.Show();
    }

    1 reference
    private void clientToolStripMenuItem_Click(object sender, EventArgs e)
    {
        Form3 form3 = new Form3();
        form3.Show();
    }

    1 reference
    private void repairToolStripMenuItem_Click(object sender, EventArgs e)
    {
        Form4 form4 = new Form4();
        form4.Show();
    }

    1 reference
    private void reportToolStripMenuItem_Click(object sender, EventArgs e)
    {
        Form5 form5 = new Form5();
        form5.Show();
    }
}

```

Car form:

Form2

Car

Reg_number

Car_make

Car_color

Car_year

Car_seats

Repair_price

Car_model

Car_id

	Car_id	Reg_number	Car_make	
▶	1	1	1	1
	2	1	1	1
	3	1	1	1
	4	1	1	1
	5	1	dd	c
	7	22	4	2
	8	33	6	2
	9	11	4	1
	10	33	4	1

Insert

Update

Delete

Report

Refresh

```

1 reference
public Form2()
{
    InitializeComponent();
}

1 reference
private void Form2_Load(object sender, EventArgs e)
{
    label1.Text = "Car";
    label2.Text = "Reg_number";
    label3.Text = "Car_make";
    label4.Text = "Car_color";
    label5.Text = "Car_year ";
    label6.Text = "Car_seats";
    label7.Text = "Repair_price";
    label8.Text = "Car_model";
    label9.Text = "Car_id";
    button1.Text = "Insert";
    button2.Text = "Update";
    button3.Text = "Delete";
    button4.Text = "Report";
    button5.Text = "Refresh";
    DisplayData();
}

Connection connect = new Connection();
string conStr = @"Provider=Microsoft.ACE.OLEDB.12.0;Data Source=C:\TCP\repairs.accdb";
OleDbConnection dbConnect = new OleDbConnection();

2 references
private void DisplayData()
{
    string mySelect = "select * from Car";
    dbConnect.ConnectionString = conStr;
    dbConnect.Open();
    OleDbDataAdapter adapt = new OleDbDataAdapter(mySelect, dbConnect);
    DataTable dt = new DataTable();
    adapt.Fill(dt);
    dataGridView1.DataSource = dt;
    dbConnect.Close();
}

```

Client form:

Form3

Client

Client_name

Personal_id

City

Adress

Phone_number

Client_id

	Client_id	Client_name	Personal_id	City
▶	1	3	3	3
	3	1	1	1
*				

Insert

Update

Delete

Report

Refresh

```

public partial class Form3 : Form
{
    1 reference
    ---public Form3()
    ---{
    ---    InitializeComponent();
    ---}

    1 reference
    ---private void Form3_Load(object sender, EventArgs e)
    ---{
    ---    label1.Text = "Client_name";
    ---    label2.Text = "Personal_id";
    ---    label3.Text = "City";
    ---    label4.Text = "Adress";
    ---    label5.Text = "Phone_number";
    ---    label6.Text = "Client_id";
    ---    label7.Text = "Client";
    ---
    ---    button1.Text = "Insert";
    ---    button2.Text = "Update";
    ---    button3.Text = "Delete";
    ---    button4.Text = "Report";
    ---    button5.Text = "Refresh";
    ---    DisplayData();
    ---}

    ---Connection connect = new Connection();
    ---string conStr = @"Provider=Microsoft.ACE.OLEDB.12.0;Data Source=C:\TCP\repairs.accdb";
    ---OleDbConnection dbConnect = new OleDbConnection();
    2 references
    ---private void DisplayData()
    ---{
    ---    string mySelect = "select * from Client";
    ---    dbConnect.ConnectionString = conStr;
    ---    dbConnect.Open();
    ---    OleDbDataAdapter adapt = new OleDbDataAdapter(mySelect, dbConnect);
    ---    DataTable dt = new DataTable();
    ---    adapt.Fill(dt);
    ---    dataGridView1.DataSource = dt;
    ---    dbConnect.Close();
    ---}
}

```

Repair form:

Form4

Repair

Client_id

Car_id

In_date

Return_date

Paid

Returned

Repair_id

Repair_id	Client_id	Car_id	
2	1	2	7
3	1	2	7
4	1	5	1
5	1	1	1
6	1	7	1
7	1	8	1
8	1	9	1
9	1	10	1
11	1	11	1

Insert

Update

Delete

Report

Refresh


```

public partial class Form4 : Form
{
    1 reference
    public Form4()
    {
        InitializeComponent();
    }

    1 reference
    private void Form4_Load(object sender, EventArgs e)
    {
        label1.Text = "Repair";
        label2.Text = "Client_id";
        label3.Text = "Car_id";
        label4.Text = "In_date";
        label5.Text = "Return_date";
        label6.Text = "Paid";
        label7.Text = "Returned";
        label8.Text = "Repair_id";

        button1.Text = "Insert";
        button2.Text = "Update";
        button3.Text = "Delete";
        button4.Text = "Report";
        button5.Text = "Refresh";
        DisplayData();
    }

    Connection connect = new Connection();
    string conStr = @"Provider=Microsoft.ACE.OLEDB.12.0;Data Source=C:\TCP\repairs.accdb";
    OleDbConnection dbConnect = new OleDbConnection();
    2 references
    private void DisplayData()
    {
        string mySelect = "select * from Repair";
        dbConnect.ConnectionString = conStr;
        dbConnect.Open();
        OleDbDataAdapter adapt = new OleDbDataAdapter(mySelect, dbConnect);
        DataTable dt = new DataTable();
        adapt.Fill(dt);
        dataGridView1.DataSource = dt;
        dbConnect.Close();
    }
}

```

Reports form

Form5

	Client_id	Repair_Sum
▶	3	200
*		

```

1 reference
public partial class Form5 : Form
{
    1 reference
    public Form5()
    {
        InitializeComponent();
    }

    1 reference
    private void Form5_Load(object sender, EventArgs e)
    {
        button1.Text = "1";
        button2.Text = "2";
        button3.Text = "3";
        button4.Text = "4";
        button5.Text = "5";
        button6.Text = "6";
    }

    string conStr = @"Provider=Microsoft.ACE.OLEDB.12.0;Data Source=C:\TCP\repairs.accdb";
    OleDbConnection dbConnect = new OleDbConnection();
    1 reference
}

```

Insert, delete, update:

Getters and setters:

```

internal class Car
{
    public string Car_id { get; set; }
    public string Reg_number { get; set; }
    public string Car_make { get; set; }
    public string Car_color { get; set; }
    4 references
    public string Car_year { get; set; }
    4 references
    public string Car_seats { get; set; }
    4 references
    public string Repair_price { get; set; }
    4 references
    public string Car_model { get; set; }
}

```

Insert:

```

1 reference
public void insert(Car car)
{
    try
    {
        command.CommandText = "Insert into Car([Reg_number], [Car_make], [Car_color], Car_year, Car_seats, Repair_price, [Car_model]) Values('" +
            car.Reg_number + "','" + car.Car_make + "','" + car.Car_color + "','" + car.Car_year + "','" + car.Car_seats + "','" + car.Repair_price + "','" + car.Car_model +
            "')";
        command.CommandType = System.Data.CommandType.Text;
        connect.Open();
        command.ExecuteNonQuery();
    }
    catch (Exception)
    {
        System.Windows.Forms.MessageBox.Show("Incorrect data.");
    }
    finally
    {
        if (connect != null)
        {
            connect.Close();
        }
    }
}
1 reference

```

```

private void button1_Click(object sender, EventArgs e)
{
    Car car = new Car();
    car.Reg_number = textBox1.Text;
    car.Car_make = textBox2.Text;
    car.Car_color = textBox3.Text;
    car.Car_year = textBox4.Text;
    car.Car_seats = textBox5.Text;
    car.Repair_price = textBox6.Text;
    car.Car_model = textBox7.Text;
    connect.insert(car);
}

```

Update:

```

public void updateCar(Car car)
{
    try
    {
        command.CommandText = "UPDATE Car SET Reg_number = '" + car.Reg_number + "', Car_make = '" + car.Car_color + "', Car_year = '" + car.Car_year + 
        "', Car_seats = '" + car.Car_seats + "', Repair_price = '" + car.Repair_price + "', Car_model = '" + car.Car_model + "' Where Car_id=" + car.Car_id;
        // command.CommandText = "UPDATE Car SET Reg_number = '" + car.Reg_number + "' WHERE Car_id = " + car.Car_id;
        command.CommandType = System.Data.CommandType.Text;
        connect.Open();
        command.ExecuteNonQuery();
    }
    catch (Exception)
    {
        System.Windows.Forms.MessageBox.Show("Incorrect data.");
    }
    finally
    {
        if (connect != null)
        {
            connect.Close();
        }
    }
}

```

```

private void button2_Click(object sender, EventArgs e)
{
    Car car = new Car();
    car.Reg_number = textBox1.Text;
    car.Car_make = textBox2.Text;
    car.Car_color = textBox3.Text;
    car.Car_year = textBox4.Text;
    car.Car_seats = textBox5.Text;
    car.Repair_price = textBox6.Text;
    car.Car_model = textBox7.Text;
    car.Car_id = textBox8.Text;
    connect.updateCar(car);
}

```

Delete:

```
public void deleteCar(Car car)
{
    try
    {
        command.CommandText = "Delete From Car WHERE Car_id=" + car.Car_id;
        // command.CommandText = "UPDATE Car SET Reg_number = '" + car.Reg_number + "' WHERE Car_id = " + car.Car_id;
        command.CommandType = System.Data.CommandType.Text;
        connect.Open();
        command.ExecuteNonQuery();
    }
    catch (Exception)
    {
        System.Windows.Forms.MessageBox.Show("Incorrect data.");
    }
    finally
    {
        if (connect != null)
        {
            connect.Close();
        }
    }
}
```

```
private void button3_Click(object sender, EventArgs e)
{
    Car car = new Car();
    car.Car_id = textBox8.Text;
    connect.deleteCar(car);
}
```

Reports:

- всички клиенти, които са оставили през послените 24 часа своите коли за ремонт, списъкът да е подреден по марка и нарастващ регистрационен номер на колите;

```
void view1()
{
    string mySelect = "Select [Repair].Client_id,[Client].Client_name,[Repair].Repair_id,[Repair].Car_id,Car.Car_make,Car.Reg_number,[Repair].In_date FROM( [Repair] INNER JOIN " +
    "Client " +
    "ON [Client].Client_id = [Repair].Client_id" +
    ") INNER JOIN " +
    "Car" +
    " ON Car.Car_id = [Repair].Car_id" +
    " WHERE In_date >= (Now - 1)" +
    " ORDER BY Car_make, Reg_number ASC";
    dbConnect.ConnectionString = conStr;
    dbConnect.Open();
    OleDbDataAdapter adapt = new OleDbDataAdapter(mySelect, dbConnect);
    DataTable dt = new DataTable();
    adapt.Fill(dt);
    dataGridView1.DataSource = dt;
    dbConnect.Close();
}
```

1

2

3

4

5

6

	Client_id	Client_name	Repair_id	Car_id	Car_make	Reg_number	In_date
▶	1	3	12	1	1	1	11/30/2022
*							

5:52 PM
11/30/2022

- извеждане на минималната и максималната цена за наем подрена по марка на колата;

```

void view2()
{
    string mySelect = "SELECT Car.Car_id, Car.Car_make, Car.Repair_price FROM Car" +
        " WHERE Repair_price = ( SELECT MAX(Repair_price) FROM Car)" +
        " union all" +
        " SELECT Car.Car_id, Car.Car_make, Car.Repair_price FROM Car" +
        " WHERE Repair_price = ( SELECT MIN(Repair_price) FROM Car)" +
        " ORDER BY Car_make";
    dbConnect.ConnectionString = conStr;
    dbConnect.Open();
    OleDbDataAdapter adapt = new OleDbDataAdapter(mySelect, dbConnect);
    DataTable dt = new DataTable();
    adapt.Fill(dt);
    dataGridView1.DataSource = dt;
    dbConnect.Close();
}

```

	Car_id	Car_make	Repair_price
▶	4	1	1
	11	1	200
*			

- извеждане на списък от всички неплатени ремонтирани коли;

```
void view3()
{
    string mySelect = "SELECT Car.Car_id, [Repair].Repair_id, [Repair].Paid, Car.Reg_number, Car.Car_make FROM [Repair]" +
        " INNER JOIN Car ON Car.Car_id = [Repair].Car_id" +
        " WHERE Paid = FALSE";
    dbConnect.ConnectionString = conStr;
    dbConnect.Open();
    OleDbDataAdapter adapt = new OleDbDataAdapter(mySelect, dbConnect);
    DataTable dt = new DataTable();
    adapt.Fill(dt);
    dataGridView1.DataSource = dt;
    dbConnect.Close();
}
```

Form5

1 2 3 4 5 6

	Car_id	Repair_id	Paid	Reg_number	Car_make
▶	4	13	<input type="checkbox"/>	1	1
	5	14	<input type="checkbox"/>	1	dd
*			<input type="checkbox"/>		

- извеждане на списък с всички платени ремонтирани коли;

```
void view4()
{
    string mySelect = "SELECT Car.Car_id, [Repair].Repair_id, [Repair].Paid, Car.Reg_number, Car.Car_make FROM [Repair]" +
        " INNER JOIN Car ON Car.Car_id = [Repair].Car_id" +
        " WHERE Paid = TRUE";
    dbConnect.ConnectionString = conStr;
    dbConnect.Open();
    OleDbDataAdapter adapt = new OleDbDataAdapter(mySelect, dbConnect);
    DataTable dt = new DataTable();
    adapt.Fill(dt);
    dataGridView1.DataSource = dt;
    dbConnect.Close();
}
```

1 2 3 4 5 6

	Car_id	Repair_id	Paid	Reg_number	Car_make
▶	5	4	<input checked="" type="checkbox"/>	1	dd
	7	6	<input checked="" type="checkbox"/>	22	4
	8	7	<input checked="" type="checkbox"/>	33	6
	11	11	<input checked="" type="checkbox"/>	1	1
*			<input type="checkbox"/>		

- справка за най-често ремонтираните коли /топ 3/;

```
void view5()
{
    string mySelect = "SELECT TOP 3 [Repair].Car_id, COUNT([Repair].Car_id) AS MOST_FREQUENT FROM [Repair]" +
        " GROUP BY [Repair].Car_id" +
        " ORDER BY COUNT([Repair].Car_id) DESC";
    dbConnect.ConnectionString = conStr;
    dbConnect.Open();
    OleDbDataAdapter adapt = new OleDbDataAdapter(mySelect, dbConnect);
    DataTable dt = new DataTable();
    adapt.Fill(dt);
    dataGridView1.DataSource = dt;
    dbConnect.Close();
}
```

	Car_id	MOST_FREQUENT
▶	5	2
	11	1
	4	1
*		

- клиента, който е направил най-голям оборот от ремонт на кола/и.

```
void view6()
{
    string mySelect = "SELECT TOP 1 Client.Client_id, SUM(Car.Repair_price) AS Repair_Sum" +
        " FROM([Repair] INNER JOIN [Client] ON [Client].Client_id = [Repair].Client_id)" +
        " INNER JOIN Car ON Car.Car_id = [Repair].Car_id" +
        " GROUP BY [Client].Client_id" +
        " ORDER BY SUM(Car.Repair_price) DESC";
    dbConnect.ConnectionString = conStr;
    dbConnect.Open();
    OleDbDataAdapter adapt = new OleDbDataAdapter(mySelect, dbConnect);
    DataTable dt = new DataTable();
    adapt.Fill(dt);
    dataGridView1.DataSource = dt;
    dbConnect.Close();
}
```

1	2	3	4	5	6
---	---	---	---	---	---

	Client_id	Repair_Sum
▶	3	200
*		