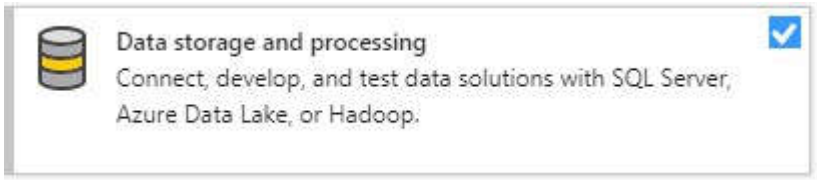
Database

1.mora install



2.
Tools
Connect to Database
Enter Server Name and database vo Advance ima conection string
Server Explorer
DataConections
ima connection string

ORM se EntetyFramework ,Dapper
`Entity Framework` is built on ADO.NET and it uses ADO.NET inside.

ADO.NET

```
   string connectionString = "Data Source=ALEK;Initial Catalog=northwind;Integrated
Security=True";

            using (SqlConnection connection = new SqlConnection(connectionString))
            {
                string queryString = "select * from Contacts";
                SqlCommand command = new SqlCommand(queryString, connection);

                try
                {
                    connection.Open();

                    SqlDataReader reader = command.ExecuteReader();
reader[0] [1] [2] se vrednosti od kolonite ili moze reader["imeNaKolona"]
                      while (reader.Read())//Read e za next record a //NextResult() za
next result(poveke tabeli)                    {
                        Debug.WriteLine("reader0" + reader[0].ToString());
                        Debug.WriteLine("reader1" + reader[1]);
                        Debug.WriteLine("reader2" + reader[2]);
                    }
                    reader.Close();
                    connection.Close();
                }
                catch (Exception e)
                {
                    Debug.WriteLine(e.ToString());
                }

            }
```

Kako da izvrsam query

LINQ

IEnumerable<Student> QuerySyntax =DbSet.Where(x => x.Status == 1)
IQueryable<Student> QuerySyntax =DbSet.Where(x => x.Status == 1)

ADO.NET

```
string connectionString =
            "Data Source=(local);Initial Catalog=Northwind;"
            + "Integrated Security=true";

        // Provide the query string with a parameter placeholder.
        string queryString =
            "SELECT ProductID, UnitPrice, ProductName from dbo.products "
                + "WHERE UnitPrice > @pricePoint "
                + "ORDER BY UnitPrice DESC;";

        // Specify the parameter value.
        int paramValue = 5;

        // Create and open the connection in a using block. This
        // ensures that all resources will be closed and disposed
        // when the code exits.
        using (SqlConnection connection =
            new SqlConnection(connectionString))
        {
            // Create the Command and Parameter objects.
            SqlCommand command = new SqlCommand(queryString, connection);
            command.Parameters.AddWithValue("@pricePoint", paramValue);

            // Open the connection in a try/catch block.
            // Create and execute the DataReader, writing the result
            // set to the console window.
            try
            {
                connection.Open();
                SqlDataReader reader = command.ExecuteReader();
                while (reader.Read())
                {
                    Console.WriteLine("\t{0}\t{1}\t{2}",
                        reader[0], reader[1], reader[2]);
                }
                reader.Close();
            }
            catch (Exception ex)
            {
                Console.WriteLine(ex.Message);
            }
            Console.ReadLine();
        }
```

Dapper

```
string sql = "SELECT TOP 10 * FROM OrderDetails";

                using (var connection = new SqlConnection(_connectionString)
                {

                        var orderDetails =
connection.QueryAsync<OrderDetail>(sql).Result.ToList();

                Console.WriteLine(orderDetails.Count());
}
```

Proceduri

ADO.NET

```
using (SqlConnection conn = new
SqlConnection("Server=(local);DataBase=Northwind;Integrated Security=SSPI")) {
   conn.Open();

string connectionString = "Data Source=ALEK;Initial Catalog=northwind;Integrated
Security=True";


        using (SqlConnection connection = new SqlConnection(connectionString))
        {

           SqlCommand cmd = new SqlCommand("[Customers By City]", connection);

           // 2. set the command object so it knows to execute a stored procedure
           cmd.CommandType = CommandType.StoredProcedure;

           // 3. add parameter to command, which will be passed to the stored procedure
           cmd.Parameters.Add(new SqlParameter("@param1", "Berlin"));
ili
command.Parameters.AddWithValue("@param", "Berlin");
           connection.Open();

           // execute the command
           using (SqlDataReader reader = cmd.ExecuteReader())
           {
              // iterate through results, printing each to console
```

```
            while (reader.Read())
            {
                Debug.WriteLine("reader0" + reader[0].ToString());
                Debug.WriteLine("reader1" + reader[1]);
                Debug.WriteLine("reader2" + reader[2]);
                Debug.WriteLine("name  " + reader["ContactName"]);
            }
        }
    }
```

Dapper

var res = await conn.QueryAsync<TEntity> (storedProcedure.ToString(), req, commandType: CommandType.StoredProcedure);

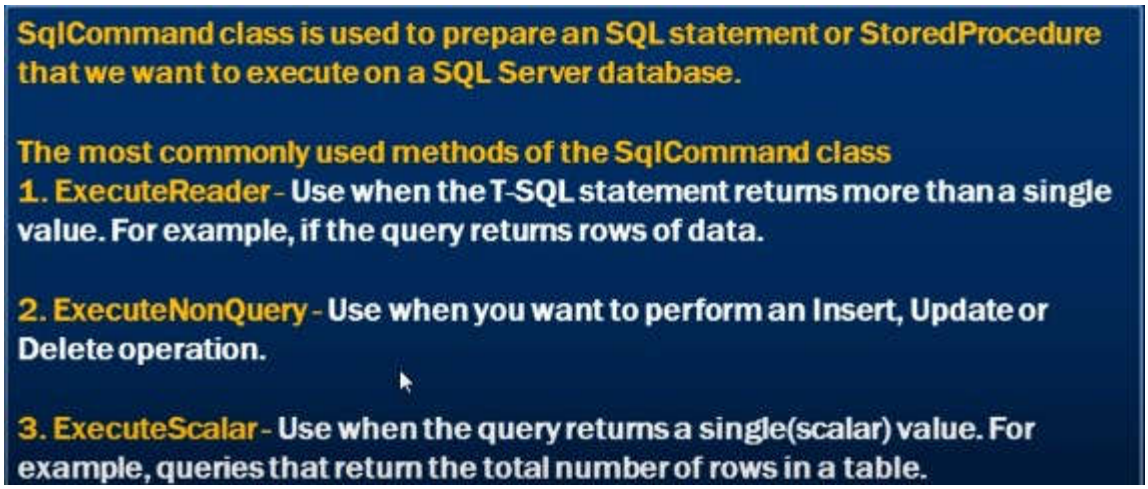
SqlDataReader is connection oriented and the connection needs to be opened explicitly, by calling the Open() method on the connection object, before calling the ExecuteReader() method of the command object.

using takes care of closing the conection

```
using (SqlConnection connection = new SqlConnection(connectionString))
{
}
```

is the same as

```
SqlConnection connection = null;
try
{
   connection = new SqlConnection(connectionString);
}
finally
{
  if(connection != null)
      ((IDisposable)connection).Dispose();
}
```



Object reader1 = command1.ExecuteScalar();ExecuteScalar e poefikasno od Eecutereaderot
 ako vrakame eden rezultat.

Object reader1 = command1.ExecuteNonQuery();//vraka total rows changed

//prevent sql injection attack
string queryString = "select * from Contacts where City like @param";
command.Parameters.AddWithValue("@param", "Berlin");

get output from procedure

```
SqlCommand cmd = new SqlCommand("spAddEmployee", con);
cmd.CommandType = System.Data.CommandType.StoredProcedure;

cmd.Parameters.AddWithValue("@Name", txtEmployeeName.Text);
cmd.Parameters.AddWithValue("@Gender", ddlGender.SelectedValue);
cmd.Parameters.AddWithValue("@Salary", txtSalary.Text);

SqlParameter outputParameter = new SqlParameter();
outputParameter.ParameterName = "@EmployeeId";
outputParameter.SqlDbType = System.Data.SqlDbType.Int;
outputParameter.Direction = System.Data.ParameterDirection.Output;
cmd.Parameters.Add(outputParameter);

con.Open();
cmd.ExecuteNonQuery();
```

SqlDataReader is connection oriented, meaning it requires an active and open connection to the data source.

SqlDataAdapter and DataSet provides us with disconnected data access model.

A **SqlDataAdapter** is typically used to fill a DataSet or DataTable and so you will have access to the data after your connection has been closed.

SqlDataReader is a fast forward-only and connected cursor which tends to be generally quicker than filling a DataSet/DataTable

```
string CS = ConfigurationManager.ConnectionStrings["DBCS"].ConnectionString;
using (SqlConnection con = new SqlConnection(CS))
{
    SqlDataAdapter da = new SqlDataAdapter("Select * from tblProductInventory", con);
    DataSet ds = new DataSet();
    da.Fill(ds);

}
```

so Fill se otvara konekcija se pravi execute na query se zatvara i se puni dataset
ako ima poveke tabeli vo dataSet so d.Table[0] ili d.Table["Table"] se pristapuvaat

SqlDataAdapter for procedure

```
SqlDataAdapter da = new SqlDataAdapter("spGetProductInventory", con);
da.SelectCommand.CommandType = CommandType.StoredProcedure;
DataSet ds = new DataSet();
da.Fill(ds);
```

with parameters

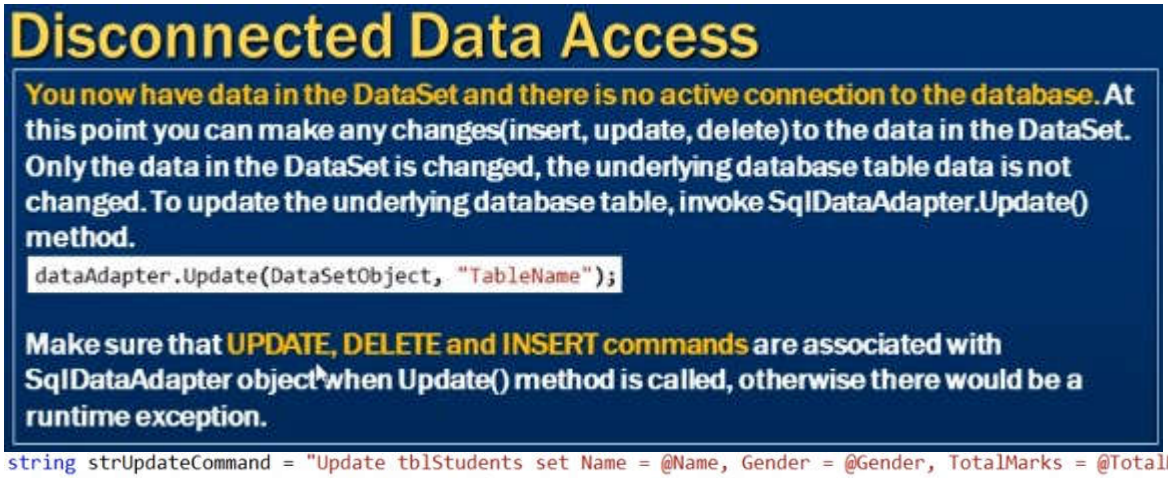
```
SqlDataAdapter da = new SqlDataAdapter("spGetProductInventoryById", con);
da.SelectCommand.CommandType = CommandType.StoredProcedure;
da.SelectCommand.Parameters.AddWithValue("@ProductId", TextBox1.Text);

DataSet ds = new DataSet();
da.Fill(ds);
```

the dataSet will have table Students filled with rows

```
dataAdapter.Fill(dataSet, "Students");
```

put it in cache Cache["Data"]=ds
get it from cache (DataSet)Cache["Data"]




```
string strUpdateCommand = "Update tblStudents set Name = @Name, Gender = @Gender, TotalMarks = @TotalMarks wh
SqlCommand updateCommand = new SqlCommand(strUpdateCommand, con);
updateCommand.Parameters.Add("@Name", SqlDbType.NVarChar, 50, "Name");
updateCommand.Parameters.Add("@Gender", SqlDbType.NVarChar, 20, "Gender");
updateCommand.Parameters.Add("@TotalMarks", SqlDbType.Int, 0, "TotalMarks");
updateCommand.Parameters.Add("@Id", SqlDbType.Int, 0, "Id");

da.UpdateCommand = updateCommand;

string strDeleteCommand = "Delete from tblStudents where Id = @Id";
SqlCommand deleteCommand = new SqlCommand(strDeleteCommand, con);
deleteCommand.Parameters.Add("@Id", SqlDbType.Int, 0, "Id");
da.DeleteCommand = deleteCommand;

da.Update(ds, "Students");
```

```
DataSet ds = (DataSet)Cache["DATASET"];
DataRow newDataRow = ds.Tables["Students"].NewRow();
newDataRow["Id"] = 101;
//ds.Tables["Students"].Rows.Add(newDataRow);

foreach (DataRow dr in ds.Tables["Students"].Rows)
{
    if (dr.RowState == DataRowState.Deleted)
    {
        Response.Write(dr["Id", DataRowVersion.Original].ToString() + " - " + dr.RowState.ToString() + "<br/>");
    }
    else
    {
        Response.Write(dr["Id"].ToString() + " - " + dr.RowState.ToString() + "<br/>");
    }
}
```

dataset has table that contain rows which can be accessed

ORM od query(tabela) vo objecti

```
string connectionString = ConfigurationManager.ConnectionStrings["DBCS"].ConnectionString;
SqlConnection connection = new SqlConnection(connectionString);
string selectQuery = "Select * from tblStudents";
SqlDataAdapter dataAdapter = new SqlDataAdapter(selectQuery, connection);

DataSet dataSet = new DataSet();
dataAdapter.Fill(dataSet, "Students");

GridView1.DataSource = from dataRow in dataSet.Tables["Students"].AsEnumerable()
                       select new Student { ID = Convert.ToInt32(dataRow["Id"]),
                                            Name = dataRow["Name"].ToString(),
                                            Gender = dataRow["Gender"].ToString(),
                                            TotalMarks = Convert.ToInt32(dataRow["TotalMarks"])};
```

context clasa vo koja ke gi ima dbsetovite i ke nasleduva od DbContext kade ke mu prati connectionString vo base
class Context:DbContext
public Context():base(ConnectionString)

kako da dobijam konekcija
so

string connectionString =
ConfigurationManager.ConnectionStrings["myConnectionString"].ConnectionString;

<connectionStrings>

```
   <add name="myConnectionString" connectionString="Data Source=ALEK;Initial
Catalog=northwind;Integrated Security=True" />
  </connectionStrings>
```

ili

so override na OnConfiguring metoda koja se naoga na DbContext

```
 protected override void OnConfiguring(DbContextOptionsBuilder optionsBuilder)
      {
         optionsBuilder.UseSqlServer(ConnectionString);
      }
```

The DataBind() method binds the data to the control on which you have invoked it. If this method is not called, the data will not be bound to the control and will not be displayed. Setting DataSource property and invoking DataBind() method is required if you want the data to be displayed in the databound controls like DropDownList, ListBox, GridView, Repeater etc.