ADO.NET Interview Questions and Answers

What is ADO.NET?

ADO.net Stands for Microsoft ActiveX Data Object**.** Ado.net is a database technology which we can think like a set of classes that can be used to interact with the data sources like databases and XML files.Asp.net application, windows application, console application are the few types of .net applications that use ADO.NET to connect with the databases to execute commands and retrieve data.

What are the key features of ADO.NET?

- Disconnected Data Architecture.
- Data cached in DataSet.
- Scalability
- Data transfer in XML Format.
- Strongly typed language.

Why is it important to close an ADO.NET application?

Connections need to be closed properly because it affects the scalability and reliability of the applications. For open connections it is always vulnerable to attack, so to be short, 'Open connections as late as possible and close it as early as possible'. We can 'Close' the connections by 'final' block or 'using' the USING statement.

What is a Dataset?

Dataset is a disconnected copy of data that gets populated in the client PC. It contains Datatable and Data relations. Generally, DataAdapter is required for populating a Dataset with the data. Since it is disconnected, the user no longer need to be connected to the database every time and data manipulations are performed without interacting with the data source. It is very fast and reliable as it resides in the local system.

What are the different methods by which we can populate a Dataset?

We can populate the Dataset using different the approaches mentioned below:

- Using DataAdapter objects and 'fill' method.
- Programmatically creating Datatable, Datarow, and Data column objects.
- Data from Xml Documents.
- Merging with another Dataset.

What is DataAdapter?

DataAdapter helps in linking the database and connection object. DataAdapter provides the communication between Dataset and data sources.

What are DataReaders?

DataReader object is 'stream-based', 'read-only' and 'forward-only', which provides a connection based data access from a database. This contains a 'Read ()' method that retrieves the data stored in a data source.

A Connection Object has only one DataReader at a time. 'Read ()' method retrieves only one row at a time. That is data need not be completely read into the application before it is processed.

What is the difference between DataReader and DataSet?

DataReader	DataSet
Performance is better	Provides lower performance
It cannot modify data	It can modify data
It supports connected Architecture	It supports disconnected architecture
It has Read-only access	It has Read/Write access
It has faster access to data	It has slower access to data
It must be manually coded	Visual studio has toolset to support it

What are the rules to implement connection pooling?

To establish a connection pooling, following rules must be followed:

- The connection string must be the same for every User.
- The UserID must be the same for every user.

What are the different execute methods of Ado.Net?

Following are different execute methods of ADO.Net command object:

- ExecuteScalar – Returns single value from the dataset
- ExecutenonQuery – Returns resultset from dataset and it has multiple values
- ExecuteReader – Forwardonly resultset
- ExecuteXMLReader – Build XMLReader object from a SQL Query

What are all the different methods under sqlcommand?

There are different methods under SqlCommand and they are:

- Cancel – Cancel the query
- CreateParameter – returns SQL Parameter
- ExecuteNonQuery – Executes and does not return result set
- ExecuteReader – executes and returns data in DataReader
- ExecuteScalar – Executes and returns single value
- ExecuteXmlReader – Executes and return data in XMLDataReader object
- ResetCommandTimeout – Reset Timeout property

What are the methods of XML dataset object?

There are various methods of XML dataset object:

GetXml() – Get XML data in a Dataset as a single string.
GetXmlSchema() – Get XSD Schema in a Dataset as a single string.
ReadXml() – Reads XML data from a file.
ReadXmlSchema() – Reads XML schema from a file.
WriteXml() – Writes the contents of Dataset to a file.
WriteXmlSchema() – Writes XSD Schema into a file.

What are the Data providers in ADO.Net?

Following are the Data Providers used in ADO.Net:

- MS SQL Server.
- OLEDB.
- ODBC.

What are different layers of ADO.Net?

There are three different layers of ADO.Net:

- Presentation Layer
- Business Logic Layer
- Database Access Layer

What are all the classes that are available in System.Data Namespace?

Following are the classes that are available in System.Data Namespace:

- Dataset.
- DataTable.
- DataColumn.
- DataRow.
- DataRelation.
- Constraint.

What are the uses of Stored Procedure?

Following are uses of Stored Procedure:

- Improved Performance.
- Easy to use and maintain.
- Security.
- Less time and effort taken to execute.
- Less Network traffic.

What is difference between dataset and DataReader?

DataReader is used to fetch data from a database in a much faster way. Since the rows are fetched one at a time, load on the network will be low. Since DataReader is read only, transactions are not allowed. Since it support forward only data iteration, random data fetch is not supported.

DataSet is an in-memory representation of a table in a database. Dataset takes lot of application memory compared to DataReader. It is slower compared to DataReader. But user can do transactions using DataSet. It also support querying.