1. Which class in ADO.NET is used to establish a connection to a SQL Server database?

- A) `SqlCommand`
- B) `SqlDataAdapter`
- C) `SqlConnection`
- D) `SqlDataReader`

Answer: C) `SqlConnection`

2. Which property of the `SqlConnection` object is used to get the state of the connection?

- A) `ConnectionString`
- B) `Open`
- C) `State`
- D) `Database`

Answer: C) `State`

3. Which method is used to open a connection using the `SqlConnection` class?

- A) `Connect()`

- B) `Open()`
- C) `Execute()`
- D) `Start()`

Answer: B) `Open()`

4. What is the correct syntax to create a new `SqlConnection` object in ADO.NET?

- A) `SqlConnection conn = new SqlConnection(connectionString);`
- B) `SqlConnect conn = SqlConnection(connectionString);`
- C) `SqlConnection conn = SqlConnect(connectionString);`
- D) `new SqlConnection(connectionString);`

Answer: A) `SqlConnection conn = new SqlConnection(connectionString);`

5. Which of the following is NOT a property of the `SqlConnection` class?

- A) `DataSource`

- B) `ConnectionTimeout`
- C) `Database`
- D) `ExecuteQuery`

Answer: D) `ExecuteQuery`

6. What will happen if an invalid connection string is provided to a `SqlConnection` object when calling `Open()`?

- A) A runtime error will occur.
- B) The connection will be established successfully.
- C) The connection will switch to a default database.
- D) It will automatically correct the connection string.

Answer: A) A runtime error will occur.

7. Which event of the `SqlConnection` class can be used to handle when the connection state changes?

- A) `StateChange`
- B) `ConnectionChanged`

- C) `OnStateChange`
- D) `StateChanged`

Answer: A) `StateChange`

8. Which method is used to close an open `SqlConnection`?

- A) `Terminate()`
- B) `Disconnect()`
- C) `Close()`
- D) `Dispose()`

Answer: C) `Close()`

9. What is the default value of the `ConnectionTimeout` property in the `SqlConnection` class?

- A) 0 seconds
- B) 15 seconds
- C) 30 seconds
- D) 60 seconds

Answer: C) 30 seconds

10. Which of the following statements is true about the `ConnectionString` property of a `SqlConnection`?

- A) It is a read-only property.
- B) It is used to define the database type.
- C) It must be set before opening a connection.
- D) It is used to execute SQL commands.

Answer: C) It must be set before opening a connection.

11. Which method ensures that a `SqlConnection` is closed, even if an exception occurs during its use?

- A) `Try...Catch`
- B) `Using`
- C) `Close()`
- D) `Dispose()`

Answer: B) `Using`

12. Which exception is specifically thrown by the `SqlConnection` class when a database-related error occurs?

- A) `InvalidOperationException`
- B) `SqlException`
- C) `IOException`
- D) `DatabaseException`

Answer: B) `SqlException`

13. In which namespace is the `SqlConnection` class found?

- A) `System.Data`
- B) `System.Data.SqlClient`
- C) `System.Data.Connection`
- D) `System.Data.Common`

Answer: B) `System.Data.SqlClient`

14. Which of the following is TRUE when using the `Open()` method of `SqlConnection`?

- A) It throws an exception if the connection is already open.

- B) It opens a new connection if one is already open.

- C) It returns a boolean indicating success.

- D) It opens a connection and starts a transaction automatically.

Answer: A) It throws an exception if the connection is already open.

15. What happens if the `Open()` method of `SqlConnection` is called and the network is down?

- A) The method waits until the network is up.

- B) An `InvalidOperationException` is thrown.

- C) An `SqlException` is thrown.

- D) The method will automatically retry the connection.

Answer: C) An `SqlException` is thrown.

16. How do you specify the database name in a connection string for a `SqlConnection`?

- A) `DatabaseName=...`
- B) `DB=...`
- C) `InitialCatalog=...`
- D) `DataName=...`

Answer: C) `InitialCatalog=...`

17. Which of the following is the best practice when working with `SqlConnection` objects in an application?

- A) Open a global connection and keep it open throughout the application.
- B) Open a connection as late as possible and close it as soon as possible.
- C) Use multiple connections for the same database.
- D) Avoid closing the connection to improve performance.

Answer: B) Open a connection as late as possible and close it as soon as possible.

18. Which of the following keywords is used to manage a `SqlConnection` object to ensure it is properly closed?

- A) `Dispose`
- B) `Finalize`
- C) `Try...Catch`
- D) `Using`

Answer: D) `Using`

19. What does the `DataSource` property of a `SqlConnection` object represent?

- A) The database name.
- B) The server name or network address of the SQL Server instance.
- C) The connection timeout value.
- D) The current state of the connection.

Answer: B) The server name or network address of the SQL Server instance.

20. When a `SqlConnection` is closed, what happens to its resources?

- A) They remain allocated until the application exits.
- B) They are immediately released back to the connection pool.
- C) They are automatically transferred to the next connection.
- D) They cause a memory leak.

Answer: B) They are immediately released back to the connection pool.

1. Which of the following is the purpose of the `SqlCommand` class in ADO.NET?

- A) To connect to a database
- B) To execute SQL queries against a database
- C) To retrieve database schema information
- D) To manage database transactions

Answer: B) To execute SQL queries against a database

2. Which method of the `SqlCommand` class is used to execute a SQL query that does not return any data?

- A) `ExecuteReader`
- B) `ExecuteNonQuery`
- C) `ExecuteScalar`
- D) `ExecuteXmlReader`

Answer: B) `ExecuteNonQuery`

3. Which `SqlCommand` method would you use to retrieve a single value (e.g., aggregate values like COUNT or SUM)?

- A) `ExecuteReader`
- B) `ExecuteNonQuery`
- C) `ExecuteScalar`
- D) `ExecuteXmlReader`

Answer: C) `ExecuteScalar`

4. What is the return type of the `ExecuteNonQuery` method of the `SqlCommand` class?

- A) `int`
- B) `string`
- C) `void`
- D) `bool`

Answer: A) `int`

5. When using `ExecuteReader` on a `SqlCommand` object, what object type is returned?

- A) `DataTable`
- B) `DataSet`
- C) `SqlDataReader`
- D) `SqlDataAdapter`

Answer: C) `SqlDataReader`

6. Which of the following is NOT a valid CommandType for the `SqlCommand` object?

- A) `CommandType.StoredProcedure`

- B) `CommandType.TableDirect`
- C) `CommandType.SqlCommand`
- D) `CommandType.Text`

Answer: C) `CommandType.SqlCommand`

7. How do you set a parameter for a `SqlCommand` object to prevent SQL injection?

- A) Concatenate strings directly in the SQL statement
- B) Use the `Add` method of `SqlParameterCollection`
- C) Use `String.Format` to build the query
- D) Use inline values in the SQL statement

Answer: B) Use the `Add` method of `SqlParameterCollection`

8. Which of the following code snippets correctly creates a `SqlCommand` object to execute a stored procedure?

- A) `SqlCommand cmd = new SqlCommand("procedure_name", conn);`
- B) `SqlCommand cmd = new SqlCommand("procedure_name");`
- C) `SqlCommand cmd = new SqlCommand("procedure_name", conn) { CommandType = CommandType.StoredProcedure };`
- D) `SqlCommand cmd = new SqlCommand(conn, CommandType.StoredProcedure, "procedure_name");`

Answer: C) `SqlCommand cmd = new SqlCommand("procedure_name", conn) { CommandType = CommandType.StoredProcedure };`

9. Which method of the `SqlCommand` class is used to retrieve XML data?

- A) `ExecuteReader`
- B) `ExecuteNonQuery`
- C) `ExecuteScalar`
- D) `ExecuteXmlReader`

Answer: D) `ExecuteXmlReader`

10. To specify a transaction for a `SqlCommand` object, which property should you use?

- A) `CommandType`
- B) `Transaction`
- C) `CommandTimeout`
- D) `Connection`

Answer: B) `Transaction`

11. What is the default value of the `CommandTimeout` property in `SqlCommand`?

- A) 0 seconds
- B) 15 seconds
- C) 30 seconds
- D) 60 seconds

Answer: C) 30 seconds

12. Which of the following statements correctly adds a parameter to a `SqlCommand`?

- A) `cmd.Parameters.Add("@name", SqlDbType.VarChar);`
- B) `cmd.Parameters["@name"].Value = "John";`
- C) `cmd.Parameters.AddWithValue("@name", "John");`
- D) `cmd.Parameters.Add(new SqlParameter("@name", SqlDbType.VarChar));`

Answer: C) `cmd.Parameters.AddWithValue("@name", "John");`

13. Which of the following statements is used to execute a command and load the results into a `DataTable`?

- A) `cmd.ExecuteReader()`
- B) `cmd.ExecuteNonQuery()`
- C) `DataAdapter.Fill()`
- D) `cmd.ExecuteXmlReader()`

Answer: C) `DataAdapter.Fill()`

14. To execute a SQL query asynchronously using `SqlCommand`, which method is used?

- A) `ExecuteAsync`
- B) `ExecuteNonQueryAsync`
- C) `BeginExecute`
- D) `StartExecute`

Answer: B) `ExecuteNonQueryAsync`

15. Which of the following statements about the `CommandType` property of a `SqlCommand` is TRUE?

- A) It must always be set to `CommandType.StoredProcedure`
- B) It defines how the `CommandText` property is interpreted
- C) It only applies to queries returning results
- D) It cannot be changed after execution

Answer: B) It defines how the `CommandText` property is interpreted

16. What happens if you call `ExecuteNonQuery` for a `SELECT` statement in `SqlCommand`?

- A) It throws an exception

- B) It returns -1

- C) It executes the query but does not return the result set

- D) It returns the number of rows affected

Answer: C) It executes the query but does not return the result set

17. How can you retrieve the value of an output parameter in a `SqlCommand` after executing a stored procedure?

- A) Use `cmd.ExecuteScalar()`

- B) Use `cmd.Parameters["@paramName"].Value`

- C) Use `cmd.ExecuteNonQuery()`

- D) Use `cmd.ExecuteReader()`

Answer: B) Use `cmd.Parameters["@paramName"].Value`

18. Which property of the `SqlCommand` class contains the SQL statement or stored procedure name to execute?

- A) `CommandText`
- B) `Connection`
- C) `Transaction`
- D) `CommandTimeout`

Answer: A) `CommandText`

19. Which `SqlCommand` method is best suited for executing a query that returns a single row and column of data?

- A) `ExecuteReader`
- B) `ExecuteNonQuery`
- C) `ExecuteScalar`
- D) `ExecuteXmlReader`

Answer: C) `ExecuteScalar`

20. How do you explicitly set a SQL command to use a specific connection in `SqlCommand`?

- A) `cmd.SetConnection(conn);`
- B) `cmd.Connection = conn;`
- C) `cmd.UseConnection(conn);`
- D) `cmd.Bind(conn);`

Answer: B) `cmd.Connection = conn;`

1. Which of the following is the correct method to create an `SqlDataReader` object in ADO.NET?

- A. `ExecuteScalar()`
- B. `ExecuteReader()`
- C. `ExecuteNonQuery()`
- D. `ExecuteXmlReader()`

Answer: B. `ExecuteReader()`

2. Which of the following is TRUE about the `SqlDataReader`?

- A. It provides forward-only access to data.
- B. It provides backward access to data.
- C. It stores the entire result set in memory.

- D. It allows random access to rows.

Answer: A. It provides forward-only access to data.

3. Which method is used to read the next record in `SqlDataReader`?

- A. `Next()`
- B. `Read()`
- C. `MoveNext()`
- D. `Fetch()`

Answer: B. `Read()`

4. Which method would you use to check if `SqlDataReader` contains any rows?

- A. `HasRows`
- B. `Rows.Count`
- C. `CheckRows()`
- D. `IsNotEmpty`

Answer: A. `HasRows`

5. What is the default value returned by `SqlDataReader` if the column value is NULL?

- A. 0
- B. `DBNull`
- C. `Null`
- D. Throws an exception

Answer: B. `DBNull`

6. Which method in `SqlDataReader` can be used to get the value of a column as a string?

- A. `GetValue()`
- B. `GetString()`
- C. `GetText()`
- D. `GetColumnValue()`

Answer: B. `GetString()`

7. Before calling which method on `SqlDataReader`, you must open the database connection?

- A. `ExecuteReader()`
- B. `Close()`
- C. `GetValue()`
- D. `Dispose()`

Answer: A. `ExecuteReader()`

8. What happens if you try to access a column value from `SqlDataReader` that doesn't exist?

- A. It returns `DBNull`.
- B. It throws an `IndexOutOfRangeException`.
- C. It returns an empty string.
- D. It closes the `SqlDataReader`.

Answer: B. It throws an `IndexOutOfRangeException`.

9. Which of the following statement is used to release the resources used by `SqlDataReader`?

- A. `Close()`
- B. `Dispose()`
- C. `End()`
- D. `Stop()`

Answer: A. `Close()`

10. The `SqlDataReader` object requires which of the following to retrieve data?

- A. An `INSERT` command
- B. A `SELECT` command
- C. An `UPDATE` command
- D. A `DELETE` command

Answer: B. A `SELECT` command

11. Which property of `SqlDataReader` indicates whether the data reader is closed?

- A. `IsOpen`
- B. `Closed`
- C. `IsClosed`

- D. `IsFinished`

Answer: C. `IsClosed`

12. How do you retrieve data from a column in `SqlDataReader` as an integer?

- A. `GetInt()`
- B. `GetInteger()`
- C. `GetInt32()`
- D. `GetValue()`

Answer: C. `GetInt32()`

13. Which method would you use to get the column's value by its name?

- A. `GetColumnByName()`
- B. `GetValueByName()`
- C. `GetField()`
- D. `this[string columnName]`

Answer: D. `this[string columnName]`

14. Which of the following statements is FALSE about `SqlDataReader`?

- A. It provides a fast way to retrieve data from a database.

- B. It can navigate backward and forward through the result set.

- C. It is a connected architecture.

- D. It reads one row at a time.

Answer: B. It can navigate backward and forward through the result set.

15. Which property of `SqlDataReader` provides information about the number of columns in the current row?

- A. `FieldCount`

- B. `RowCount`

- C. `ColumnCount`

- D. `Count`

Answer: A. `FieldCount`

16. To avoid an exception when retrieving nullable columns from `SqlDataReader`, you should use which method?

- A. `IsDBNull()`
- B. `GetNullable()`
- C. `CheckNull()`
- D. `IsNull()`

Answer: A. `IsDBNull()`

17. Which of the following represents the best use case for `SqlDataReader`?

- A. Performing an update operation on a database.
- B. Retrieving a small, read-only, forward-only dataset.
- C. Storing large volumes of data for offline processing.
- D. Writing changes back to the database.

Answer: B. Retrieving a small, read-only, forward-only dataset.

18. When using `SqlDataReader`, which of the following statements is true about accessing data?

- A. Data must be accessed using column names only.

- B. Data can be accessed using either column names or column indexes.

- C. Data can only be accessed in batches.

- D. Data is automatically converted to the correct data type.

Answer: B. Data can be accessed using either column names or column indexes.

19. Which method in `SqlDataReader` can you use to obtain the value of a column as an object?

- A. `GetObject()`

- B. `GetValue()`

- C. `GetField()`

- D. `GetData()`

Answer: B. `GetValue()`

20. When using `SqlDataReader`, which of the following is necessary to free up the database connection?

- A. Call `Dispose()` method.
- B. Set the object to `null`.
- C. Call `Close()` method.
- D. Use the `End()` method.

Answer: C. Call `Close()` method.

1. Which of the following classes is used to fill a DataSet with data from a database using ADO.NET?

- A. SqlConnection
- B. SqlDataAdapter
- C. SqlCommand
- D. SqlDataReader
- **Answer:** B. SqlDataAdapter

2. What is the primary role of the `SqlDataAdapter` class in ADO.NET?

- A. Execute SQL queries directly
- B. Manage database connections

- C. Act as a bridge between a DataSet and a data source

- D. Perform data encryption

- **Answer:** C. Act as a bridge between a DataSet and a data source

3. Which method of the `SqlDataAdapter` is used to fill a DataSet or DataTable with data from a data source?

- A. ExecuteNonQuery()

- B. ExecuteReader()

- C. Fill()

- D. Update()

- **Answer:** C. Fill()

4. Which of the following properties of `SqlDataAdapter` is used to execute an SQL SELECT statement to retrieve data?

- A. SelectCommand

- B. InsertCommand

- C. UpdateCommand

- D. DeleteCommand

- **Answer:** A. SelectCommand

5. How can you update changes made in a `DataSet` back to the database using `SqlDataAdapter`?

- A. By calling the `Fill()` method
- B. By calling the `Update()` method
- C. By calling the `ExecuteNonQuery()` method
- D. By directly modifying the database
- **Answer:** B. By calling the `Update()` method

6. Which method of the `SqlDataAdapter` can be used to add or refresh rows in the DataSet to match those in the data source?

- A. Update()
- B. Refresh()
- C. Load()
- D. Fill()
- **Answer:** D. Fill()

7. Which of the following is true about the `SqlDataAdapter` class?

- A. It can only be used with SQL Server databases.

- B. It provides a way to fetch data from a database and store it in memory without keeping the database connection open.

- C. It is used to execute commands without retrieving data.

- D. It is used only for bulk data operations.

- **Answer:** B. It provides a way to fetch data from a database and store it in memory without keeping the database connection open.

8. Which method of `SqlDataAdapter` is used to update changes in a DataSet to the data source?

- A. ExecuteNonQuery()

- B. ExecuteReader()

- C. Update()

- D. Insert()

- **Answer:** C. Update()

9. Which `SqlDataAdapter` property must be set to insert new records into the data source?

- A. SelectCommand

- B. InsertCommand
- C. UpdateCommand
- D. DeleteCommand
- **Answer:** B. InsertCommand

10. If you want to delete rows in the data source using `SqlDataAdapter`, which property should you use?

- A. SelectCommand
- B. InsertCommand
- C. UpdateCommand
- D. DeleteCommand
- **Answer:** D. DeleteCommand

11. Which of the following statements about `SqlDataAdapter` is false?

- A. It can be used to fill a DataSet with data.
- B. It automatically opens and closes the database connection as needed.
- C. It directly binds to controls on the UI.
- D. It can be used to update the data source using the UpdateCommand.

- **Answer:** C. It directly binds to controls on the UI.

12. Which method of `SqlDataAdapter` can be used to define or redefine the schema of a DataSet or DataTable?

- A. Fill()
- B. FillSchema()
- C. Update()
- D. ExecuteReader()
- **Answer:** B. FillSchema()

13. Which of the following is NOT a property of `SqlDataAdapter`?

- A. SelectCommand
- B. InsertCommand
- C. UpdateCommand
- D. ExecuteCommand
- **Answer:** D. ExecuteCommand

14. When using `SqlDataAdapter`, which object is responsible for maintaining the connection to the data source?

- A. SqlCommand

- B. SqlConnection

- C. DataSet

- D. SqlParameter

- **Answer:** B. SqlConnection

15. What happens when you call the `SqlDataAdapter.Fill()` method?

- A. Data is inserted into the database.

- B. A DataSet or DataTable is filled with data from the data source.

- C. The database schema is modified.

- D. The database connection is closed permanently.

- **Answer:** B. A DataSet or DataTable is filled with data from the data source.

16. Which of the following is used by `SqlDataAdapter` to update a data source?

- A. DataCommand

- B. CommandBuilder
- C. SqlConnection
- D. SqlTransaction
- **Answer:** B. CommandBuilder

17. Which command object of `SqlDataAdapter` is used to modify existing rows in the data source?

- A. SelectCommand
- B. InsertCommand
- C. UpdateCommand
- D. DeleteCommand
- **Answer:** C. UpdateCommand

18. What is the primary difference between `SqlDataAdapter` and `SqlDataReader`?

- A. `SqlDataAdapter` works only with SQL Server databases, while `SqlDataReader` does not.
- B. `SqlDataAdapter` fills DataSets/DataTables, while `SqlDataReader` provides a forward-only, read-only stream of data.
- C. `SqlDataAdapter` requires an open connection, while `SqlDataReader` does not.

- D. `SqlDataAdapter` is used only for executing non-query commands.

- **Answer:** B. `SqlDataAdapter` fills DataSets/DataTables, while `SqlDataReader` provides a forward-only, read-only stream of data.

19. Can you use `SqlDataAdapter` to perform transactions in a database?

- A. Yes, by using the Transaction property of `SqlCommand`.

- B. No, `SqlDataAdapter` does not support transactions.

- C. Yes, by setting the transaction mode in `SqlDataAdapter`.

- D. No, transactions are only supported by `SqlDataReader`.

- **Answer:** A. Yes, by using the Transaction property of `SqlCommand`.

20. Which of the following can be used to automatically generate `InsertCommand`, `UpdateCommand`, and `DeleteCommand` for a `SqlDataAdapter`?

- A. SqlCommandBuilder

- B. SqlDataReader
- C. SqlParameter
- D. DataSet
- **Answer:** A. SqlCommandBuilder

---

1. **What is a DataTable in ADO.NET?**

A) A class for managing connections to a database

B) A class for creating an in-memory representation of a single table of data

C) A method for performing CRUD operations

D) A property for managing database schemas

Answer: B

---

2. **Which method is used to create a new DataTable in ADO.NET?**

A) CreateTable()

B) NewTable()

C) CreateNewTable()

D) None of the above

Answer: D

(*To create a DataTable, you instantiate it using the `new DataTable()` constructor.*)

---

3. **How can you add a new DataColumn to a DataTable?**

A) `table.Rows.Add()`

B) `table.Columns.Add()`

C) `table.NewColumn()`

D) `table.DataColumn.Add()`

Answer: B

---

4. **Which property of DataTable is used to access the collection of DataRow objects?**

A) `Columns`

B) `Rows`

C) `Tables`

D) `Items`

Answer: B

---

5. **Which of the following statements is true about DataTable?**

A) A DataTable can have only one DataColumn.

B) A DataTable can belong to only one DataSet.

C) A DataTable can have multiple foreign key relationships.

D) A DataTable automatically persists changes to the database.

Answer: C

---

6. **What is the method to add a new row in a DataTable?**

A) `table.AddRow()`

B) `table.NewRow()`

C) `table.Rows.Add()`

D) `table.InsertRow()`

Answer: C

---

7. **How do you delete a DataRow from a DataTable?**

A) `table.Rows.Delete(row)`

B) `table.Rows.Remove(row)`

C) `table.Rows.RemoveAt(index)`

D) Both B and C

Answer: D

---

8. **Which method is used to copy the structure of a DataTable including all constraints?**

A) `Clone()`

B) `Copy()`

C) `NewTable()`

D) `Duplicate()`

Answer: A

(*The `Clone()` method copies the structure but not the data.*)

---

9. **Which method copies both the structure and data of a DataTable?**

A) `Clone()`

B) `Copy()`

C) `Replicate()`

D) `Export()`

Answer: B

---

10. **What is the default value of the DataColumn’s `AllowDBNull` property?**

A) True

B) False

C) Null

D) Not Set

Answer: A

---

11. **Which of the following properties does a DataTable contain?**

A) `Constraints`

B) `PrimaryKey`

C) `DataSet`

D) All of the above

Answer: D

---

12. **Which of the following is NOT a valid DataTable method?**

A) `Clear()`

B) `Load()`

C) `Save()`

D) `Select()`

Answer: C

(*The `DataTable` class does not have a `Save()` method. You use a DataAdapter to save changes back to the database.*)

---

13. **What method is used to retrieve an array of DataRow objects from a DataTable that meet specific criteria?**

A) `GetRows()`

B) `RetrieveRows()`

C) `Select()`

D) `FindRows()`

Answer: C

(*The `Select()` method is used to filter rows based on a specified filter expression.*)

---

14. **Which property of a DataColumn specifies whether the column automatically increments its value?**

A) `AutoIncrementSeed`

B) `AutoNumber`

C) `AutoIncrement`

D) `AutoFill`

Answer: C

---

15. **What method is used to load a DataTable with data from a data source?**

A) `Load()`

B) `Fill()`

C) `Update()`

D) `Insert()`

Answer: B

(*The `Fill()` method is used by a `DataAdapter` to load a DataTable.*)

---

16. **What is the use of the DataTable's `PrimaryKey` property?**

A) To identify unique rows in the DataTable

B) To set up foreign key relationships

C) To specify the first row in the table

D) To determine the default sort order

Answer: A

---

17. **Which event occurs when a row in a DataTable is changed?**

A) `RowChanged`

B) `RowModified`

C) `DataModified`

D) `DataChanged`

Answer: A

---

18. **Which method is used to begin an edit operation on a DataRow?**

A) `BeginEdit()`

B) `StartEdit()`

C) `EditRow()`

D) `Modify()`

Answer: A

---

19. **Which method finalizes editing of the current DataRow?**

A) `EndEdit()`

B) `FinishEdit()`

C) `SaveRow()`

D) `ApplyChanges()`

Answer: A

---

20. **Which property of a DataTable allows navigation from the DataTable to its parent or child rows?**

A) `ParentRelations`

B) `ChildRelations`

C) `DataRelation`

D) Both A and B

Answer: D

---

1. Which of the following best describes a `DataSet` in ADO.NET?

- A. An in-memory representation of data.

- B. A direct connection to the database.

- C. A collection of stored procedures.

- D. A tool for executing SQL commands.

Answer: A. An in-memory representation of data.

2. Which object does a `DataSet` primarily contain in ADO.NET?

- A. DataRows
- B. DataTables
- C. DataAdapters
- D. DataReaders

Answer: B. DataTables

3. How can a `DataSet` be filled with data in ADO.NET?

- A. Using a `DataReader`
- B. Using a `Command` object
- C. Using a `DataAdapter`
- D. Using an `XmlReader`

Answer: C. Using a `DataAdapter`

4. A `DataSet` in ADO.NET is:

- A. Read-only
- B. Read-write

- C. Write-only
- D. Immutable

Answer: B. Read-write

5. Which method is used to clear all rows from all tables in a `DataSet`?

- A. `Clear()`
- B. `Remove()`
- C. `Dispose()`
- D. `Reset()`

Answer: A. `Clear()`

6. Which of the following properties of a `DataTable` in a `DataSet` can be used to define relationships between tables?

- A. Columns
- B. Constraints
- C. PrimaryKey
- D. DataRelation

Answer: D. DataRelation

7. What is the default state of a `DataSet` when it is first created?

- A. Filled with default data
- B. Populated from the database
- C. Empty
- D. Read-only

Answer: C. Empty

8. Which method is used to write the contents of a `DataSet` to an XML file?

- A. `WriteXml()`
- B. `ExportToXml()`
- C. `SaveXml()`
- D. `WriteToXml()`

Answer: A. `WriteXml()`

9. Which of the following can be used to update the database with changes made in a `DataSet`?

- A. `DataAdapter.Update()`
- B. `DataSet.Update()`
- C. `DataTable.Commit()`
- D. `DataRow.SaveChanges()`

Answer: A. `DataAdapter.Update()`

10. Which method is used to read XML schema into a `DataSet`?

- A. `ReadSchema()`
- B. `LoadXmlSchema()`
- C. `ReadXmlSchema()`
- D. `ImportSchema()`

Answer: C. `ReadXmlSchema()`

11. What kind of data structure is a `DataSet`?

- A. One-dimensional array
- B. Two-dimensional array

- C. Multi-table, in-memory cache
- D. Linked list

Answer: C. Multi-table, in-memory cache

12. Can a `DataSet` contain multiple `DataTables`?

- A. Yes
- B. No
- C. Only if they have the same schema
- D. Only if they are from the same database

Answer: A. Yes

13. What is the role of `DataRelation` in a `DataSet`?

- A. To fetch data from the database
- B. To define relationships between tables in the `DataSet`
- C. To execute commands on the database
- D. To store temporary data

Answer: B. To define relationships between tables in the `DataSet`

14. Which event in the `DataTable` class can be used to detect changes in the rows of a `DataTable`?

- A. `RowUpdated`
- B. `RowChanged`
- C. `TableChanged`
- D. `DataChanged`

Answer: B. `RowChanged`

15. To merge the contents of another `DataSet` into the current `DataSet`, which method is used?

- A. `Add()`
- B. `Merge()`
- C. `Combine()`
- D. `Union()`

Answer: B. `Merge()`

16. Which method is used to copy the structure of the `DataSet`, including all tables, schemas, and relations?

- A. `Clone()`
- B. `Copy()`
- C. `CreateCopy()`
- D. `Duplicate()`

Answer: A. `Clone()`

17. Which of the following is NOT a valid way to access rows in a `DataTable` within a `DataSet`?

- A. Using `DataTable.Rows` property
- B. Using a `DataAdapter`
- C. Using `DataTable.Select()`
- D. Using `DataTable.Rows.Find()`

Answer: B. Using a `DataAdapter`

18. What happens when you call the `AcceptChanges()` method on a `DataSet`?

- A. Rejects all changes in the `DataSet`
- B. Commits all changes to the original data source
- C. Accepts all changes and marks them as unchanged
- D. Deletes all rows in the `DataSet`

Answer: C. Accepts all changes and marks them as unchanged

19. Which of the following can be used to enforce data integrity within a `DataSet`?

- A. `Constraints`
- B. `DataAdapter`
- C. `DataReader`
- D. `CommandBuilder`

Answer: A. `Constraints`

20. What type of data can a `DataSet` store?

- A. Only primitive types (int, string, etc.)
- B. Only relational data

- C. Heterogeneous data (multiple types) in the form of tables

- D. Binary data only

Answer: C. Heterogeneous data (multiple types) in the form of tables

1. Which of the following statements is used to create a new `DataRow` in a `DataTable`?

- A) `DataRow row = new DataRow();`

- B) `DataRow row = table.NewRow();`

- C) `DataRow row = table.Rows.AddNew();`

- D) `DataRow row = table.CreateRow();`

Answer: B) `DataRow row = table.NewRow();`

2. How can you add a `DataRow` to a `DataTable`?

- A) `table.Rows.Add(row);`

- B) `table.NewRow(row);`

- C) `table.InsertRow(row);`

- D) `table.Append(row);`

Answer: A) `table.Rows.Add(row);`

3. Which method is used to delete a `DataRow` from a `DataTable`?

- A) `row.Delete();`
- B) `table.Rows.Delete(row);`
- C) `table.Remove(row);`
- D) `row.Remove();`

Answer: A) `row.Delete();`

4. Which of the following methods is used to reject changes made to a `DataRow`?

- A) `row.RejectChanges();`
- B) `row.CancelChanges();`
- C) `table.Undo(row);`
- D) `row.Rollback();`

Answer: A) `row.RejectChanges();`

5. How can you check if a `DataRow` is in an unchanged state?

- A) `row.RowState == DataRowState.Unchanged`
- B) `row.State == DataRowState.Original`
- C) `row.Status == DataRowState.Unmodified`
- D) `row.State == DataRowState.Modified`

Answer: A) `row.RowState == DataRowState.Unchanged`

6. How can you set the value of a specific column in a `DataRow`?

- A) `row["ColumnName"] = value;`
- B) `row.SetColumn("ColumnName", value);`
- C) `row.Columns["ColumnName"].Value = value;`
- D) `row.SetValue("ColumnName", value);`

Answer: A) `row["ColumnName"] = value;`

7. Which method would you use to accept all changes made to a `DataRow`?

- A) `row.Commit();`

- B) `row.AcceptChanges();`
- C) `row.Save();`
- D) `row.Update();`

Answer: B) `row.AcceptChanges();`

8. To get the value of a column in a `DataRow`, you use:

- A) `row["ColumnName"]`
- B) `row.GetValue("ColumnName");`
- C) `row.Columns["ColumnName"].Value`
- D) `row.Column("ColumnName")`

Answer: A) `row["ColumnName"]`

9. Which of the following is not a possible `DataRowState` value?

- A) `Detached`
- B) `Added`
- C) `Modified`
- D) `Rejected`

Answer: D) `Rejected`

10. What does the `DataRow.IsNull()` method do?

- A) Checks if the row is empty
- B) Checks if the row contains a null value in any column
- C) Checks if a specific column contains a null value
- D) Sets a column value to null

Answer: C) Checks if a specific column contains a null value

11. Which of the following will remove a `DataRow` permanently from the `DataTable`?

- A) `row.Delete();`
- B) `table.Rows.Remove(row);`
- C) `row.Clear();`
- D) `table.Rows.Delete(row);`

Answer: B) `table.Rows.Remove(row);`

12. What happens if you call `row.Delete()` on a `DataRow` and then `table.AcceptChanges()`?

- A) The row is marked for deletion but not removed.

- B) The row is permanently removed from the `DataTable`.

- C) The row is restored to its original state.

- D) An exception is thrown.

Answer: B) The row is permanently removed from the `DataTable`.

13. Which of the following states that a `DataRow` can have in a `DataTable`?

- A) `Current`

- B) `Modified`

- C) `Active`

- D) `Changed`

Answer: B) `Modified`

14. How do you create a copy of an existing `DataRow` with its values?

- A) `DataRow newRow = row.Copy();`
- B) `DataRow newRow = table.CloneRow(row);`
- C) `DataRow newRow = row.Table.NewRow(); newRow.ItemArray = row.ItemArray;`
- D) `DataRow newRow = row.Duplicate();`

Answer: C) `DataRow newRow = row.Table.NewRow(); newRow.ItemArray = row.ItemArray;`

15. To set a column in a `DataRow` to a null value, you use:

- A) `row["ColumnName"] = DBNull.Value;`
- B) `row.SetNull("ColumnName");`
- C) `row["ColumnName"] = null;`
- D) `row.MakeNull("ColumnName");`

Answer: A) `row["ColumnName"] = DBNull.Value;`

16. Which of the following properties of `DataRow` is used to get the parent `DataRow`?

- A) `row.GetParent()`
- B) `row.ParentRow`
- C) `row.GetParentRow()`
- D) `row.Parent()`

Answer: C) `row.GetParentRow()`

17. How can you get all rows that belong to a specific `DataTable`?

- A) `table.GetRows()`
- B) `table.Rows`
- C) `table.AllRows`
- D) `table.DataRows`

Answer: B) `table.Rows`

18. What is the result of calling `row.Delete()` on a `DataRow`?

- A) The row is removed from the `DataTable`.

- B) The row's state is marked as `Deleted`.
- C) The row is marked as `Detached`.
- D) The row is marked as `Null`.

Answer: B) The row's state is marked as `Deleted`.

19. Which property of `DataRow` allows access to its error description?

- A) `row.GetError()`
- B) `row.Error`
- C) `row.RowError`
- D) `row.ErrorMessage`

Answer: C) `row.RowError`

20. Which of the following can be used to copy the `DataRow` values to a new array?

- A) `row.ToArray()`
- B) `row.GetValues()`
- C) `row.ItemArray`

- D) `row.CopyValues()`

Answer: C) `row.ItemArray`

1. Which of the following is used to represent a column in a DataTable in ADO.NET?

- A. DataRow
- B. DataSet
- C. DataTable
- D. DataColumn

Answer: D. DataColumn

2. Which property of DataColumn indicates whether the column allows null values?

- A. AllowDBNull
- B. Unique
- C. ReadOnly
- D. DefaultValue

Answer: A. AllowDBNull

3. What is the default data type of a DataColumn if none is specified?

- A. String
- B. Int32
- C. Object
- D. Boolean

Answer: C. Object

4. Which method is used to add a new DataColumn to a DataTable?

- A. DataTable.Columns.Add()
- B. DataTable.NewColumn()
- C. DataTable.AddColumn()
- D. DataTable.CreateColumn()

Answer: A. DataTable.Columns.Add()

5. Which property of DataColumn specifies whether the column’s values must be unique?

- A. Unique
- B. PrimaryKey
- C. ReadOnly
- D. AutoIncrement

Answer: A. Unique

6. How do you create a DataColumn with auto-incrementing values?

- A. Set `AutoIncrement` to `true`
- B. Set `AutoIncrementStep` to a positive value
- C. Set `AutoIncrementSeed` to the initial value
- D. All of the above

Answer: D. All of the above

7. Which property is used to specify the default value for a DataColumn?

- A. Default
- B. DefaultValue
- C. Value

- D. ColumnValue

Answer: B. DefaultValue

8. Which of the following is the correct way to set the data type of a DataColumn?

- A. `column.DataType = typeof(int);`
- B. `column.Type = typeof(int);`
- C. `column.DataType = "int";`
- D. `column.Type = "int";`

Answer: A. `column.DataType = typeof(int);`

9. Which property of DataColumn can be used to enforce a read-only column in a DataTable?

- A. AllowEdit
- B. IsReadOnly
- C. ReadOnly
- D. AllowDBNull

Answer: C. ReadOnly

10. What happens if you try to set a value that does not match the DataType of a DataColumn?

- A. The value is automatically converted
- B. An exception is thrown
- C. The value is set to null
- D. The value is ignored

Answer: B. An exception is thrown

11. How can you specify the maximum length of a string column in a DataTable?

- A. Set the `MaxLength` property of the DataColumn
- B. Set the `Size` property of the DataColumn
- C. Set the `Length` property of the DataColumn
- D. Set the `ColumnSize` property of the DataColumn

Answer: A. Set the `MaxLength` property of the DataColumn

12. Which of the following properties is NOT associated with DataColumn?

- A. DataType
- B. Table
- C. ColumnMapping
- D. ConnectionString

Answer: D. ConnectionString

13. Which property of DataColumn controls whether the column's value is automatically generated by the system?

- A. AutoIncrement
- B. AllowDBNull
- C. Unique
- D. IsAuto

Answer: A. AutoIncrement

14. How do you access the collection of DataColumn objects in a DataTable?

- A. `table.Rows`
- B. `table.Columns`

- C. `table.DataColumns`
- D. `table.Schema`

Answer: B. `table.Columns`

15. If you want to create a DataColumn with unique values only, which property must be set?

- A. `AutoIncrement = true`
- B. `Unique = true`
- C. `ReadOnly = true`
- D. `AllowDBNull = false`

Answer: B. `Unique = true`

16. Which event of DataColumn is triggered when the value of a column changes?

- A. ColumnChanging
- B. ColumnChanged
- C. RowChanging
- D. RowChanged

Answer: B. ColumnChanged

17. To specify the starting value of an auto-increment column, which property is used?

- A. AutoIncrementSeed
- B. AutoIncrementValue
- C. AutoIncrementStart
- D. AutoIncrementBase

Answer: A. AutoIncrementSeed

18. What is the default value of the AllowDBNull property in DataColumn?

- A. true
- B. false
- C. Depends on DataType
- D. There is no default value

Answer: A. true

19. To set a DataColumn as the primary key, what do you need to do?

- A. Set `PrimaryKey` property on DataColumn

- B. Add the DataColumn to `DataTable.PrimaryKey` array

- C. Set `Unique` and `AllowDBNull` properties to true

- D. None of the above

Answer: B. Add the DataColumn to `DataTable.PrimaryKey` array

20. Which method is used to remove a DataColumn from a DataTable?

- A. `DataTable.RemoveColumn()`

- B. `DataTable.Columns.Delete()`

- C. `DataTable.Columns.Remove()`

- D. `DataTable.DeleteColumn()`

Answer: C. `DataTable.Columns.Remove()`

1. Which of the following classes in ADO.NET is used to represent a transaction in SQL Server?

- A) SqlCommand
- B) SqlTransaction
- C) SqlDataAdapter
- D) SqlConnection

Answer: B) SqlTransaction

2. To begin a transaction in ADO.NET, which method of the `SqlConnection` class is used?

- A) BeginCommand
- B) StartTransaction
- C) BeginTransaction
- D) ExecuteTransaction

Answer: C) BeginTransaction

3. Which of the following is NOT a property of the `SqlTransaction` class?

- A) IsolationLevel
- B) Connection
- C) CommandText

- D) Rollback

Answer: C) CommandText

4. What is the correct method to commit a transaction in ADO.NET?

- A) transaction.Commit()
- B) transaction.Complete()
- C) transaction.Save()
- D) transaction.Execute()

Answer: A) transaction.Commit()

5. Which of the following methods of `SqlTransaction` class is used to undo a transaction?

- A) Undo()
- B) Reverse()
- C) Rollback()
- D) Cancel()

Answer: C) Rollback()

6. When working with transactions, which isolation level ensures that no other process can

read or modify the data until the transaction is complete?

- A) ReadUncommitted
- B) ReadCommitted
- C) RepeatableRead
- D) Serializable

Answer: D) Serializable

7. Which of the following is the default isolation level in ADO.NET when starting a transaction?

- A) ReadUncommitted
- B) ReadCommitted
- C) RepeatableRead
- D) Serializable

Answer: B) ReadCommitted

8. If a transaction is neither committed nor rolled back, what happens when the `SqlConnection` object is closed?

- A) The transaction is automatically committed
- B) The transaction is automatically rolled back
- C) The transaction remains pending

- D) An error is thrown

Answer: B) The transaction is automatically rolled back

9. Which of the following isolation levels allows dirty reads?

- A) ReadUncommitted
- B) ReadCommitted
- C) RepeatableRead
- D) Serializable

Answer: A) ReadUncommitted

10. To associate a `SqlCommand` with a transaction, which property of `SqlCommand` needs to be set?

- A) TransactionCommand
- B) TransactionId
- C) Transaction
- D) CommandTransaction

Answer: C) Transaction

11. Which exception is thrown if a transaction is committed or rolled back more than once?

- A) InvalidOperationException
- B) SqlException
- C) TransactionException
- D) ArgumentException

Answer: A) InvalidOperationException

12. If you need to set a save point in a transaction that allows you to roll back to a specific point, which method of `SqlTransaction` would you use?

- A) SetCheckpoint()
- B) SaveTransaction()
- C) Save()
- D) Mark()

Answer: C) Save()

13. Which method of the `SqlTransaction` class ends the transaction and makes all changes permanent?

- A) transaction.Save()

- B) transaction.End()
- C) transaction.Commit()
- D) transaction.Execute()

Answer: C) transaction.Commit()

14. Which property of the `SqlTransaction` object specifies the isolation level for the transaction?

- A) IsolationState
- B) IsolationLevel
- C) TransactionLevel
- D) TransactionMode

Answer: B) IsolationLevel

15. Can a `SqlTransaction` object be used across multiple `SqlConnection` objects?

- A) Yes
- B) No

Answer: B) No

16. Which of the following scenarios can cause a `SqlTransaction` to fail and be rolled back?

- A) Deadlock
- B) Incorrect SQL syntax
- C) Network failure during execution
- D) All of the above

Answer: D) All of the above

17. What happens if an exception occurs within a transaction and it is not caught?

- A) The transaction is automatically committed
- B) The transaction remains pending
- C) The transaction is automatically rolled back
- D) The program terminates without affecting the transaction

Answer: C) The transaction is automatically rolled back

18. In the following code snippet, what is missing to ensure the transaction is properly handled?

```csharp
SqlTransaction transaction = connection.BeginTransaction();
```

```
SqlCommand command = new
SqlCommand("INSERT INTO Customers (Name)
VALUES ('John')", connection);

command.Transaction = transaction;

command.ExecuteNonQuery();
```

- A) transaction.Commit()
- B) transaction.Rollback()
- C) Isolation level setting
- D) Both A and B

Answer: D) Both A and B

19. Which method is used to release the resources used by the `SqlTransaction` object?

- A) Dispose()
- B) Release()
- C) Close()
- D) Free()

Answer: A) Dispose()

20. What is the purpose of using a transaction in ADO.NET?

- A) To execute multiple commands independently

- B) To ensure a group of commands either all succeed or all fail

- C) To improve query performance

- D) To modify the database schema

Answer: B) To ensure a group of commands either all succeed or all fail

1. What is the main purpose of using Database-First (DbFirst) in Entity Framework?

- A. To create a new database from scratch

- B. To generate code based on an existing database schema

- C. To define the database schema within the application

- D. To automatically synchronize database and code

Answer: B. To generate code based on an existing database schema

2. Which tool in Visual Studio can be used to generate DbContext and entity classes in Database-First approach?

- A. Entity Data Model Wizard
- B. Code Editor
- C. Package Manager Console
- D. Solution Explorer

Answer: A. Entity Data Model Wizard

3. In the DbFirst approach, which file contains the generated model classes and context?

- A. *.xml file
- B. *.cs file
- C. *.config file
- D. *.edmx file

Answer: D. *.edmx file

4. Which of the following is **NOT** a step in the DbFirst approach?

- A. Add a new item in Visual Studio and select ADO.NET Entity Data Model.
- B. Create an existing database connection.

- C. Manually define all model classes in C#.

- D. Choose the tables, views, and stored procedures to include.

Answer: C. Manually define all model classes in C#.

5. What does the `.edmx` file in the DbFirst approach represent?

- A. A plain-text file that stores application settings

- B. The connection string of the database

- C. The database schema, mappings, and model configuration

- D. A script file to create the database

Answer: C. The database schema, mappings, and model configuration

6. Which of the following is **TRUE** about the model classes generated in the DbFirst approach?

- A. They are automatically updated when the database schema changes.

- B. They need to be manually created by the developer.

- C. They are auto-generated and mapped to the database tables.

- D. They can only be used in a console application.

Answer: C. They are auto-generated and mapped to the database tables.

7. How can you update the Entity Framework model when the database schema changes?

- A. Edit the model classes manually.

- B. Update the model in the .edmx designer and save it.

- C. Create a new project and add a new Entity Data Model.

- D. Modify the connection string.

Answer: B. Update the model in the .edmx designer and save it.

8. In the DbFirst approach, which file contains the connection string to the database?

- A. `App.config` or `Web.config`
- B. `Program.cs`
- C. `.edmx`
- D. `Startup.cs`

Answer: A. `App.config` or `Web.config`

9. Which namespace is generally included when working with Entity Framework in a DbFirst project?

- A. `System.IO`
- B. `System.Net`
- C. `System.Data.Entity`
- D. `System.Linq.Expressions`

Answer: C. `System.Data.Entity`

10. How do you specify which database objects (tables, views, stored procedures) to include in the model during the DbFirst setup?

- A. By writing custom SQL queries
- B. By selecting objects in the Entity Data Model Wizard

- C. By manually creating classes for each object
- D. By editing the `.config` file

Answer: B. By selecting objects in the Entity Data Model Wizard

11. In DbFirst, what will happen if you manually modify the code in the generated model classes?

- A. The changes will be overwritten when the model is updated.
- B. The changes are automatically synchronized with the database.
- C. The application will crash at runtime.
- D. Nothing; the changes are permanent.

Answer: A. The changes will be overwritten when the model is updated.

12. What can you use in the DbFirst approach to map a database stored procedure to a function in the model?

- A. Mapping editor in `.edmx`

- B. Code-first migrations
- C. LINQ-to-SQL
- D. Stored procedure wizard

Answer: A. Mapping editor in `.edmx`

13. Which of the following code is used to create an instance of the database context in DbFirst?

- A. `new DatabaseContext()`
- B. `new SqlConnection()`
- C. `new EntityContext()`
- D. `new DbContext()`

Answer: A. `new DatabaseContext()`

14. What is the main advantage of the DbFirst approach over Code-First?

- A. It allows for code-first migrations.
- B. It can generate models based on an existing database schema.
- C. It uses convention-based configurations.

- D. It allows for faster database creation.

Answer: B. It can generate models based on an existing database schema.

15. Which of the following components is NOT a part of an `.edmx` file in DbFirst?

- A. Conceptual model
- B. Storage model
- C. Mapping model
- D. Data context

Answer: D. Data context

16. When using the DbFirst approach, how are relationships (e.g., foreign keys) handled in the model?

- A. They are ignored.
- B. They must be added manually in the code.
- C. They are automatically generated based on the database schema.
- D. They are defined using LINQ.

Answer: C. They are automatically generated based on the database schema.

17. Which method can be used to fetch data from the database using a DbFirst approach?

- A. `SelectDatabase`
- B. `GetData`
- C. `DbSet<T>.ToList()`
- D. `Database.FetchAll()`

Answer: C. `DbSet<T>.ToList()`

18. How can you remove a table from the Entity Data Model in the DbFirst approach?

- A. Delete the table directly from the database.
- B. Remove the corresponding class from the `.edmx` file.
- C. Edit the `App.config` file.
- D. Remove the reference in `Program.cs`.

Answer: B. Remove the corresponding class from the `.edmx` file.

19. In the DbFirst approach, if a stored procedure is imported into the model, what type of method is generated in the context class?

- A. Synchronous method
- B. Asynchronous method
- C. Function import method
- D. LINQ method

Answer: C. Function import method

20. Which of the following operations can you **NOT** perform using the `.edmx` designer in DbFirst?

- A. Add new tables
- B. Update existing model from the database
- C. Add associations (relationships)
- D. Rename entities

Answer: A. Add new tables

1. **What does the Model-First approach in Entity Framework involve?**

   - A) Defining the database schema first

   - B) Writing code-first entity classes first

   - C) Creating an entity data model using the Entity Framework Designer

   - D) Directly executing SQL commands

   Answer: C) Creating an entity data model using the Entity Framework Designer

2. **In the Model-First approach, what is typically created after defining the conceptual model?**

   - A) Database schema

   - B) Entity classes

   - C) DataContext class

   - D) Mapping files

   Answer: A) Database schema

3. **Which tool is used to visually design the entity model in Model-First approach?**

- A) SQL Server Management Studio
- B) Visual Studio Entity Data Model Designer
- C) .NET Reflector
- D) LINQPad

Answer: B) Visual Studio Entity Data Model Designer

4. **How can you generate the database schema from the model in Model-First approach?**

- A) Use the `Update-Database` command
- B) Run `Initialize-Database` in the Package Manager Console
- C) Use the `Generate Database from Model` option
- D) Write SQL scripts manually

Answer: C) Use the `Generate Database from Model` option

5. **What file extension is typically used for the entity data model in Model-First approach?**

- A) .edmx
- B) .cs
- C) .xml
- D) .json

Answer: A) .edmx

6. **When you modify the model in the Model-First approach, what action is needed to reflect these changes in the database?**

- A) Manually update the database
- B) Re-generate the database schema from the model
- C) Modify the connection string
- D) No action is needed

Answer: B) Re-generate the database schema from the model

7. **Which of the following steps is NOT part of the Model-First workflow?**

- A) Create an Entity Data Model
- B) Define the database schema
- C) Write entity classes manually
- D) Generate the database schema from the model

Answer: C) Write entity classes manually

8. **What does the Entity Data Model (EDM) in Model-First contain?**

- A) Database schema
- B) Application logic
- C) Conceptual model and mappings
- D) Code-behind files

Answer: C) Conceptual model and mappings

9. **Which of the following is NOT a benefit of using the Model-First approach?**

- A) Visual design of the data model

- B) Immediate database schema generation
- C) Full control over database schema
- D) Reduced need for manual coding

Answer: C) Full control over database schema

10. **What happens if you manually modify the database schema after using Model-First approach?**
    - A) The changes are automatically reflected in the model
    - B) You need to re-generate the model from the database
    - C) The changes will cause runtime errors
    - D) The model will be automatically updated

    Answer: B) You need to re-generate the model from the database

11. **Which diagram view in Visual Studio's Entity Data Model Designer allows you to add and arrange entities visually?**

- A) Code view
- B) Model view
- C) Mapping view
- D) Diagram view

Answer: D) Diagram view

12. **What does the 'Generate Database from Model' feature do?**
- A) Creates a SQL script to update the database schema
- B) Creates a database schema from the model definitions
- C) Converts the model into C# classes
- D) Creates data files for the database

Answer: B) Creates a database schema from the model definitions

13. **What is a common format for the .edmx file?**
- A) XML
- B) JSON

- C) Binary
- D) Plain text

Answer: A) XML

14. **In the Model-First approach, which file holds the conceptual model, storage model, and mapping information?**
- A) .cs file
- B) .sql file
- C) .edmx file
- D) .xml file

Answer: C) .edmx file

15. **When would you typically use the 'Update Model from Database' feature?**
- A) When you need to create a new database
- B) When you want to synchronize changes from the database to the model
- C) When you need to generate code from the model

- D) When you are setting up a new project

Answer: B) When you want to synchronize changes from the database to the model

16. **What is the role of the 'Model Browser' in Entity Framework Designer?**

- A) To browse the database schema
- B) To visualize the entity relationships and model details
- C) To write custom SQL queries
- D) To manage project references

Answer: B) To visualize the entity relationships and model details

17. **Which of the following actions would require regenerating the database schema from the model?**

- A) Changing the data type of a property in the model
- B) Adding a new class to the project

- C) Updating the connection string

- D) Changing the name of a namespace

Answer: A) Changing the data type of a property in the model

18. **What is the primary purpose of the 'Entity Framework Designer' in the Model-First approach?**

- A) To write SQL scripts

- B) To design and manage the entity data model visually

- C) To configure web services

- D) To handle user interface design

Answer: B) To design and manage the entity data model visually

19. **Which Entity Framework component is generated from the .edmx file to interact with the database?**

- A) DataContext

- B) DbContext
- C) DatabaseInitializer
- D) EntitySet

Answer: B) DbContext

20. **How does the Model-First approach handle relationships between entities?**
- A) By using foreign key constraints in the database
- B) By defining relationships in the .edmx file
- C) By writing custom join queries
- D) By using entity class inheritance

Answer: B) By defining relationships in the .edmx file

1. **What is CodeFirst in Entity Framework?**
- A) A method to create a database first
- B) A way to define your model classes and generate the database schema from these classes
- C) A way to use existing databases

- D) A way to generate model classes from an existing database

Answer: B) A way to define your model classes and generate the database schema from these classes

2. **Which attribute is used to specify a primary key in CodeFirst?**

- A) `[Key]`
- B) `[PrimaryKey]`
- C) `[Identity]`
- D) `[Table]`

Answer: A) `[Key]`

3. **How do you specify a required property in a CodeFirst model?**

- A) Use the `[Required]` attribute
- B) Use the `[NotNull]` attribute
- C) Set `Required=true` in the property definition

- D) Use `IsRequired()` in the `OnModelCreating` method

Answer: A) Use the `[Required]` attribute

4. **What does the `DbSet<T>` property represent in a `DbContext` class?**

- A) A collection of entities in memory
- B) A database connection
- C) A database table
- D) A method to save changes to the database

Answer: C) A database table

5. **Which method is used to apply CodeFirst migrations?**

- A) `Update-Database`
- B) `Apply-Migration`
- C) `Generate-Migrations`
- D) `Create-Database`

Answer: A) `Update-Database`

6. **How do you specify a one-to-many relationship in CodeFirst?**

- A) Use a navigation property in the "one" side of the relationship
- B) Use a navigation property in the "many" side of the relationship
- C) Use a foreign key attribute
- D) Use the `[OneToMany]` attribute

Answer: A) Use a navigation property in the "one" side of the relationship

7. **What is the default convention for primary key names in CodeFirst?**

- A) `Id`
- B) `PrimaryKey`
- C) `Key`
- D) `EntityId`

Answer: A) `Id`

8. **Which method is used to configure the model in CodeFirst?**

   - A) `OnModelCreating`

   - B) `ConfigureModel`

   - C) `SetUpModel`

   - D) `DefineModel`

   Answer: A) `OnModelCreating`

9. **How do you configure a many-to-many relationship in CodeFirst?**

   - A) Use a junction entity

   - B) Use a navigation property on both sides of the relationship

   - C) Use the `[ManyToMany]` attribute

   - D) Define a many-to-many relationship in the `OnModelCreating` method

   Answer: B) Use a navigation property on both sides of the relationship

10. **What does the `Fluent API` in CodeFirst allow you to do?**

- A) Define database schemas using code
- B) Configure complex mappings between classes and tables
- C) Automatically generate migration scripts
- D) Manage database connections

Answer: B) Configure complex mappings between classes and tables

11. **How do you specify a unique constraint on a property in CodeFirst?**

- A) Use the `[Unique]` attribute
- B) Use the `HasIndex()` method in the `OnModelCreating` method
- C) Use the `[Index]` attribute
- D) Use the `IsUnique()` method in the `OnModelCreating` method

Answer: B) Use the `HasIndex()` method in the `OnModelCreating` method

12. **Which method in the `DbContext` class is used to persist changes to the database?**

- A) `Commit()`
- B) `SaveChanges()`
- C) `Update()`
- D) `ApplyChanges()`

Answer: B) `SaveChanges()`

13. **In CodeFirst, what is a `Migration`?**

- A) A way to define complex relationships between entities
- B) A class that represents changes to the database schema
- C) A method to retrieve data from the database
- D) A property used to set default values

Answer: B) A class that represents changes to the database schema

14. **How do you specify a table name for a model class in CodeFirst?**

- A) Use the `[Table]` attribute
- B) Use the `HasTableName()` method in the `OnModelCreating` method
- C) Use the `TableName` property in the `DbSet<T>` class
- D) Use the `[EntityName]` attribute

Answer: A) Use the `[Table]` attribute

15. **What is the purpose of the `Database.SetInitializer` method?**

- A) To configure database connection settings
- B) To set up the initial database schema
- C) To seed data into the database
- D) To define database migrations

Answer: B) To set up the initial database schema

16. **Which class is used to represent a many-to-many relationship in CodeFirst?**

- A) `JoinEntity`
- B) `BridgeEntity`
- C) `AssociationEntity`
- D) `JunctionEntity`

Answer: D) `JunctionEntity`

17. **How do you specify the relationship between two entities if CodeFirst conventions are not sufficient?**

- A) Use data annotations
- B) Use the Fluent API in the `OnModelCreating` method
- C) Modify the migration script directly
- D) Use the `DataContext` class

Answer: B) Use the Fluent API in the `OnModelCreating` method

18. **What is the default behavior of CodeFirst if no `DbSet<T>` is defined for an entity?**

- A) The entity will be ignored
- B) The entity will be automatically mapped
- C) An exception will be thrown
- D) The entity will not be saved to the database

Answer: A) The entity will be ignored

19. **How do you add seed data to a CodeFirst database?**

- A) Override the `Seed` method in the `Configuration` class
- B) Use the `[SeedData]` attribute
- C) Add data manually to the database
- D) Use the `Database.Seed()` method

Answer: A) Override the `Seed` method in the `Configuration` class

20. **Which Entity Framework version introduced CodeFirst?**

- A) EF 4.0
- B) EF 4.1
- C) EF 4.3
- D) EF 5.0

Answer: B) EF 4.1

1. **What is the primary purpose of using the Database-First approach in Entity Framework Core?**
   - a) To create a database from an existing model
   - b) To generate a model from an existing database
   - c) To update an existing database schema
   - d) To write database-specific queries

   Answer: b) To generate a model from an existing database

2. **Which command is used to scaffold a DbContext and entity classes from an existing database in Entity Framework Core?**
   - a) `dotnet ef database update`

- b) `dotnet ef migrations add`
- c) `dotnet ef dbcontext scaffold`
- d) `dotnet ef dbcontext create`

Answer: c) `dotnet ef dbcontext scaffold`

3. **What is the default tool used for reverse engineering in Entity Framework Core?**
- a) EF Core Power Tools
- b) SQL Server Management Studio
- c) EF Core CLI
- d) Visual Studio Designer

Answer: c) EF Core CLI

4. **Which parameter is used with the `dotnet ef dbcontext scaffold` command to specify the provider for the database?**
- a) `--provider`
- b) `--dbprovider`
- c) `--provider-type`

- d) `--use-provider`

Answer: a) `--provider`

5. **Which of the following is NOT a valid provider option for the `dotnet ef dbcontext scaffold` command?**

- a) `Microsoft.EntityFrameworkCore.SqlServer`
- b) `Microsoft.EntityFrameworkCore.Sqlite`
- c) `Microsoft.EntityFrameworkCore.InMemory`
- d) `Microsoft.EntityFrameworkCore.MySql`

Answer: c) `Microsoft.EntityFrameworkCore.InMemory`

6. **What does the `-o` option specify in the `dotnet ef dbcontext scaffold` command?**

- a) Output directory for the scaffolded files
- b) Output format for the database schema
- c) Overwrite existing files
- d) Output connection string

Answer: a) Output directory for the scaffolded files

7. **In the Database-First approach, what is the primary file generated by the `dotnet ef dbcontext scaffold` command?**

- a) Migration file
- b) DbContext class
- c) Configuration file
- d) Seed data file

Answer: b) DbContext class

8. **Which option is used to include foreign key relationships when scaffolding the DbContext and entity classes?**

- a) `--foreign-keys`
- b) `--context-dir`
- c) `--no-onconfiguring`
- d) `--use-database-names`

Answer: d) `--use-database-names`

9. **How can you exclude specific tables from being scaffolded?**

- a) Use the `--exclude-tables` option
- b) Modify the connection string
- c) Use the `--tables` option with a negative list
- d) Exclude tables manually after scaffolding

Answer: c) Use the `--tables` option with a negative list

10. **When scaffolding a DbContext, what does the `--no-pluralize` option do?**

- a) Prevents the use of pluralized names for entity classes
- b) Skips pluralization of table names
- c) Disables entity class generation
- d) Omits navigation properties

Answer: a) Prevents the use of pluralized names for entity classes

11. **Which file contains the connection string used by the DbContext?**

- a) `appsettings.json`
- b) `DbContext.cs`
- c) `app.config`
- d) `DatabaseContext.cs`

Answer: a) `appsettings.json`

12. **What does the `--context` option specify in the `dotnet ef dbcontext scaffold` command?**

- a) The name of the DbContext class to generate
- b) The name of the database context in the connection string
- c) The context type to be used for migration
- d) The namespace of the DbContext class

Answer: a) The name of the DbContext class to generate

13. **What is the purpose of the `--data-annotations` option when scaffolding?**

- a) It generates code based on data annotations for entity properties.

- b) It ignores data annotations during the scaffold process.

- c) It adds additional data annotations to the existing model.

- d) It configures data annotations for relationships.

Answer: a) It generates code based on data annotations for entity properties.

14. **Which file is typically used to customize the generated entity classes after scaffolding?**

- a) `DbContextCustomization.cs`

- b) `EntityExtensions.cs`

- c) `ModelBuilderExtensions.cs`

- d) `PartialModels.cs`

Answer: d) `PartialModels.cs`

15. **How do you update the scaffolded model if the database schema changes?**

- a) Re-run the `dotnet ef dbcontext scaffold` command
- b) Use the `Update-Database` command
- c) Modify the model manually
- d) Use a migration script

Answer: a) Re-run the `dotnet ef dbcontext scaffold` command

16. **Which of the following commands is used to remove an existing DbContext and related entity classes?**

- a) `dotnet ef dbcontext remove`
- b) `dotnet ef dbcontext drop`
- c) Manually delete the files
- d) `dotnet ef dbcontext delete`

Answer: c) Manually delete the files

17. **What does the `--schema` option do in the `dotnet ef dbcontext scaffold` command?**

- a) Specifies which database schema to include in the scaffolded model
- b) Defines the schema for the generated code
- c) Sets the schema version for migration
- d) Excludes the schema from the model

Answer: a) Specifies which database schema to include in the scaffolded model

18. **Which configuration file is typically used to set up the Entity Framework Core connection string in a .NET Core application?**

- a) `config.json`
- b) `appsettings.json`
- c) `settings.config`
- d) `efconfig.json`

Answer: b) `appsettings.json`

19. **What is the role of `OnModelCreating` method in the DbContext class?**

- a) It configures the model by using Fluent API.
- b) It sets up the database connection string.
- c) It initializes the database with seed data.
- d) It generates the initial migration.

Answer: a) It configures the model by using Fluent API.

20. **Which of the following best describes a scenario where Database-First approach is preferred over Code-First?**

- a) When designing a new database schema from scratch
- b) When you have an existing database and need to generate a model from it
- c) When you want to create migrations and update the database schema
- d) When the application requires extensive custom data annotations

Answer: b) When you have an existing database and need to generate a model from it

1. **What is the primary purpose of Code First in Entity Framework Core?**

   - A) To generate a database schema from a model

   - B) To create and configure the database schema in code

   - C) To manage database migrations automatically

   - D) To define the database schema using SQL scripts

   - **Answer: B) To create and configure the database schema in code**

2. **Which attribute is used to specify the primary key of an entity in Code First?**

   - A) `[PrimaryKey]`

   - B) `[Key]`

   - C) `[ID]`

   - D) `[Primary]`

   - **Answer: B) [Key]**

3. **How do you specify a database table name for an entity in Code First?**

   - A) Using the `[Table]` attribute

   - B) Using the `Table` method in `OnModelCreating`

   - C) Using the `ToTable` method in `OnModelCreating`

   - D) Using the `TableName` property in the entity class

   - **Answer: A) Using the [Table] attribute**

4. **Which method in `DbContext` is used to configure entity relationships in Code First?**

   - A) `Configure`

   - B) `OnConfiguring`

   - C) `OnModelCreating`

   - D) `Setup`

   - **Answer: C) OnModelCreating**

5. **What does the `Fluent API` in Entity Framework Core refer to?**

   - A) Configuration using attributes

   - B) Configuration using SQL scripts

- C) Configuration using lambda expressions in `OnModelCreating`

- D) Configuration using database views

- **Answer: C) Configuration using lambda expressions in OnModelCreating**

6. **How can you specify a one-to-many relationship between entities in Code First?**

- A) Using the `[OneToMany]` attribute

- B) Using the `HasMany` method in `OnModelCreating`

- C) Using the `ManyToOne` attribute

- D) Using the `OneToMany` method in `OnModelCreating`

- **Answer: B) Using the HasMany method in OnModelCreating**

7. **Which class is used to represent a database context in Entity Framework Core?**

- A) `DbContext`

- B) `DatabaseContext`

- C) `DataContext`

- D) `EntityContext`

- **Answer: A) DbContext**

8. **What is the role of migrations in Entity Framework Core Code First?**

- A) To update the database schema to match the model

- B) To create seed data for the database

- C) To query data from the database

- D) To optimize database performance

- **Answer: A) To update the database schema to match the model**

9. **How do you create a migration in Entity Framework Core?**

- A) Using `Add-Migration` command in Package Manager Console

- B) Using `Update-Database` command in Package Manager Console

- C) Using `Create-Migration` command in the terminal

- D) Using `Add-Migration` method in `DbContext`

- **Answer: A) Using Add-Migration command in Package Manager Console**

10. **What does the `DbSet<T>` property represent in a `DbContext` class?**

- A) A single entity instance
- B) A collection of entities in the database
- C) A database connection
- D) A database schema
- **Answer: B) A collection of entities in the database**

11. **Which method is used to apply pending migrations to the database?**

- A) `Apply-Migrations`
- B) `Update-Database`
- C) `Migrate-Database`
- D) `Run-Migrations`
- **Answer: B) Update-Database**

12. **What is the purpose of the `OnConfiguring` method in `DbContext`?**

- A) To configure entity relationships

- B) To define the connection string for the database

- C) To seed initial data

- D) To apply migrations

- **Answer: B) To define the connection string for the database**

13. **Which method is used to specify a composite primary key in Code First?**

- A) `HasKey`

- B) `SetPrimaryKey`

- C) `CompositeKey`

- D) `PrimaryKey`

- **Answer: A) HasKey**

14. **What is the purpose of the `HasOne` method in the Fluent API?**

- A) To configure a one-to-one relationship

- B) To configure a one-to-many relationship

- C) To configure a many-to-many relationship

- D) To configure a one-to-zero or one relationship

- **Answer: A) To configure a one-to-one relationship**

15. **In Code First, how do you specify a required property?**

- A) Using the `[Required]` attribute
- B) Using the `IsRequired` method in `OnModelCreating`
- C) Using the `Required` method in `DbContext`
- D) Using the `NotNull` attribute
- **Answer: A) Using the [Required] attribute**

16. **How do you handle database seeding with Code First in Entity Framework Core?**

- A) Using the `Seed` method in `DbContext`
- B) Using the `OnModelCreating` method
- C) Using the `DbInitializer` class
- D) Using the `Migration` class
- **Answer: B) Using the OnModelCreating method**

17. **Which method in the Fluent API is used to configure a many-to-many relationship?**

- A) `HasMany`
- B) `WithMany`
- C) `HasManyWithMany`
- D) `ManyToMany`
- **Answer: B) WithMany**

18. **What is the purpose of the `ChangeTracker` class in Entity Framework Core?**

- A) To track changes made to entities
- B) To manage database connections
- C) To execute raw SQL queries
- D) To configure entity relationships
- **Answer: A) To track changes made to entities**

19. **How do you specify the maximum length of a string property in Code First?**

- A) Using the `[MaxLength]` attribute
- B) Using the `HasMaxLength` method in `OnModelCreating`

- C) Using the `StringLength` method in `DbContext`

- D) Using the `MaxLength` attribute

- **Answer: B) Using the HasMaxLength method in OnModelCreating**

20. **Which method is used to remove a migration from the project in Entity Framework Core?**

- A) `Remove-Migration`

- B) `Delete-Migration`

- C) `Undo-Migration`

- D) `Revert-Migration`

- **Answer: A) Remove-Migration**

1. **What is the primary purpose of data modeling in Entity Framework Core?**

- A) To optimize database queries

- B) To define the structure and relationships of data in the application

- C) To handle user interface design

- D) To manage application state

Answer: B) To define the structure and relationships of data in the application

2. **Which class is commonly used to configure entity mappings in Entity Framework Core?**

- A) DbContext
- B) EntityConfiguration
- C) DbSet
- D) ModelBuilder

Answer: D) ModelBuilder

3. **In Entity Framework Core, how do you define a one-to-many relationship between two entities?**

- A) Using the `HasOne` and `WithMany` methods
- B) Using the `ManyToOne` method
- C) Using the `OneToMany` attribute
- D) Using the `HasMany` method

Answer: A) Using the `HasOne` and `WithMany` methods

4. **How can you configure a primary key for an entity in Entity Framework Core?**

   - A) By using the `[Key]` attribute

   - B) By using the `HasKey` method in the `OnModelCreating` method

   - C) By defining a `PrimaryKey` property

   - D) By using the `SetPrimaryKey` method

   Answer: B) By using the `HasKey` method in the `OnModelCreating` method

5. **Which method is used to configure a many-to-many relationship in Entity Framework Core?**

   - A) `HasMany` and `WithMany`

   - B) `WithMany` and `HasOne`

   - C) `HasMany` and `HasMany`

   - D) `WithMany` and `WithMany`

   Answer: A) `HasMany` and `WithMany`

6. **How do you specify the column name for a property in Entity Framework Core?**

- A) Using the `HasColumnName` method
- B) Using the `[Column]` attribute
- C) Using the `ColumnName` property
- D) Using the `Column` method

Answer: B) Using the `[Column]` attribute

7. **What attribute is used to specify that a property should be excluded from the database?**
- A) `[Ignore]`
- B) `[NotMapped]`
- C) `[Exclude]`
- D) `[DatabaseIgnore]`

Answer: B) `[NotMapped]`

8. **Which method allows you to configure the relationship between an entity and its navigation property in Entity Framework Core?**
- A) `ConfigureRelationship`
- B) `HasRelationship`

- C) `HasOne` and `WithOne`
- D) `SetRelationship`

Answer: C) `HasOne` and `WithOne`

9. **How can you configure an entity to use a table with a different name than the default table name?**
- A) Using the `ToTable` method
- B) Using the `[Table]` attribute
- C) Using the `TableName` property
- D) Using the `SetTable` method

Answer: A) Using the `ToTable` method

10. **In Entity Framework Core, what method is used to configure a required property?**
- A) `IsRequired`
- B) `Required`
- C) `HasRequired`
- D) `NotNull`

Answer: A) `IsRequired`

11. **How do you configure a property to have a default value in Entity Framework Core?**

- A) Using the `HasDefaultValue` method
- B) Using the `[DefaultValue]` attribute
- C) Using the `DefaultValue` property
- D) Using the `SetDefaultValue` method

Answer: A) Using the `HasDefaultValue` method

12. **What is the purpose of the `Fluent API` in Entity Framework Core?**

- A) To provide a way to configure entity mappings using attributes
- B) To configure entity mappings using method chaining in code
- C) To generate SQL scripts automatically
- D) To handle database migrations

Answer: B) To configure entity mappings using method chaining in code

13. **Which method would you use to configure a unique index on a property in Entity Framework Core?**

- A) `HasIndex`
- B) `HasUniqueIndex`
- C) `IsUnique`
- D) `CreateIndex`

Answer: A) `HasIndex`

14. **How do you define a composite primary key in Entity Framework Core?**

- A) Using the `HasKey` method with multiple parameters
- B) Using the `[CompositeKey]` attribute
- C) Using the `SetPrimaryKeys` method
- D) Using the `Key` method with a list of properties

Answer: A) Using the `HasKey` method with multiple parameters

15. **What method is used to configure the precision and scale of a decimal property in Entity Framework Core?**

- A) `HasPrecision`
- B) `SetPrecision`
- C) `Precision`
- D) `ConfigureDecimal`

Answer: A) `HasPrecision`

16. **In Entity Framework Core, which method is used to configure a many-to-one relationship?**

- A) `HasMany` and `WithOne`
- B) `HasOne` and `WithMany`
- C) `WithOne` and `WithMany`
- D) `HasOne` and `HasMany`

Answer: B) `HasOne` and `WithMany`

17. **How do you configure a property to be an auto-incrementing column in Entity Framework Core?**

- A) Using the `ValueGeneratedOnAdd` method
- B) Using the `AutoIncrement` attribute
- C) Using the `GeneratedValue` property
- D) Using the `SetAutoIncrement` method

Answer: A) Using the `ValueGeneratedOnAdd` method

18. **What method allows you to configure the maximum length of a string property in Entity Framework Core?**

- A) `HasMaxLength`
- B) `SetMaxLength`
- C) `MaxLength`
- D) `ConfigureLength`

Answer: A) `HasMaxLength`

19. **Which method is used to configure an entity type to be mapped to a specific schema in Entity Framework Core?**

- A) `HasSchema`
- B) `MapToSchema`
- C) `ToTable` with schema parameter
- D) `SetSchema`

Answer: C) `ToTable` with schema parameter

20. **How do you configure a navigation property to be optional in Entity Framework Core?**

- A) Using the `IsOptional` method
- B) Using the `WithOptional` method
- C) By setting the navigation property to `null`
- D) Using the `IsRequired` method with `false`

Answer: D) Using the `IsRequired` method with `false`

1. **What command is used to create a new migration in Entity Framework Core?**

- A) `ef migrations add`
- B) `dotnet ef migrations add`
- C) `ef new migration`
- D) `dotnet ef new migration`

Answer: B) `dotnet ef migrations add`

2. **Which command applies pending migrations to the database?**
- A) `dotnet ef database update`
- B) `dotnet ef migrations update`
- C) `ef database update`
- D) `ef migrations update`

Answer: A) `dotnet ef database update`

3. **What is the purpose of the `Migration` class in EF Core?**
- A) To manage database connections
- B) To configure Entity Framework services
- C) To define changes to the database schema

- D) To seed the database with initial data

Answer: C) To define changes to the database schema

4. **How can you revert the last applied migration?**

- A) `dotnet ef migrations remove`
- B) `dotnet ef database rollback`
- C) `dotnet ef migrations remove last`
- D) `dotnet ef database update PreviousMigrationName`

Answer: D) `dotnet ef database update PreviousMigrationName`

5. **Which class is used to represent a migration in EF Core?**

- A) `MigrationBuilder`
- B) `DbContext`
- C) `Migration`
- D) `MigrationExecutor`

Answer: C) `Migration`

6. **What is the role of `DbContext` in the migration process?**

- A) It tracks changes to entities and handles data migrations.
- B) It configures database connections.
- C) It executes SQL commands directly.
- D) It defines the schema for the database tables.

Answer: A) It tracks changes to entities and handles data migrations.

7. **In which file are the migration commands typically written?**

- A) `Migration.cs`
- B) `DbContext.cs`
- C) `ApplicationDbContext.cs`
- D) `MigrationConfiguration.cs`

Answer: A) `Migration.cs`

8. **Which command generates a SQL script from the migrations?**

- A) `dotnet ef migrations script`
- B) `dotnet ef migrations generate`
- C) `ef migrations script`
- D) `ef migrations generate`

Answer: A) `dotnet ef migrations script`

9. **What is the default location for migration files in an EF Core project?**

- A) `Migrations` folder
- B) `Database` folder
- C) `Scripts` folder
- D) `MigrationsScripts` folder

Answer: A) `Migrations` folder

10. **How do you specify a custom name for a migration?**

- A) `dotnet ef migrations add CustomMigrationName`
- B) `dotnet ef migrations new CustomMigrationName`
- C) `dotnet ef migrations create CustomMigrationName`
- D) `dotnet ef migrations make CustomMigrationName`

Answer: A) `dotnet ef migrations add CustomMigrationName`

11. **Which method is used to apply custom changes in a migration?**

- A) `Up()`
- B) `Down()`
- C) `Apply()`
- D) `Execute()`

Answer: A) `Up()`

12. **Which method in a migration class is used to reverse changes made in the `Up()` method?**

- A) `Reverse()`
- B) `Rollback()`
- C) `Undo()`
- D) `Down()`

Answer: D) `Down()`

13. **How can you check the status of applied migrations?**

- A) `dotnet ef migrations list`
- B) `dotnet ef database status`
- C) `dotnet ef migrations show`
- D) `dotnet ef migrations history`

Answer: D) `dotnet ef migrations history`

14. **What does `dotnet ef migrations remove` do?**

- A) Removes the last migration from the database.
- B) Deletes the last migration file.

- C) Rolls back all migrations.

- D) Resets the migration history.

Answer: B) Deletes the last migration file.

15. **Which command would you use to generate a SQL script for a specific migration?**

- A) `dotnet ef migrations script MigrationName`

- B) `dotnet ef script MigrationName`

- C) `dotnet ef database script MigrationName`

- D) `dotnet ef migrations generate MigrationName`

Answer: A) `dotnet ef migrations script MigrationName`

16. **How do you handle migrations when deploying to production?**

- A) Manually apply migrations using `dotnet ef database update`.

- B) Include migration scripts in the deployment package.

- C) Use continuous integration to apply migrations automatically.

- D) All of the above.

Answer: D) All of the above.

17. **Which property in `DbContext` is used to configure the connection string for the database?**

- A) `Database.Connection`

- B) `DbContextOptions`

- C) `ConnectionString`

- D) `DatabaseProvider`

Answer: B) `DbContextOptions`

18. **Can you create multiple migrations in one command?**

- A) Yes, by specifying multiple names.

- B) No, each migration must be created separately.

- C) Yes, by using `dotnet ef migrations add` with a batch option.

- D) Yes, by specifying a range of migration names.

Answer: B) No, each migration must be created separately.

19. **What happens if you modify a migration file after it has been applied?**

- A) The changes will be ignored.
- B) You must create a new migration to update the database.
- C) The previous migration will be updated automatically.
- D) EF Core will throw an error and halt the process.

Answer: B) You must create a new migration to update the database.

20. **What is the purpose of the `MigrationBuilder` class in EF Core migrations?**

- A) To build the migration files.
- B) To define operations for modifying the database schema.
- C) To apply migrations to the database.

- D) To validate migration scripts.

Answer: B) To define operations for modifying the database schema.

1. **What is Entity Framework Code First Migrations used for?**
   - A) Creating new databases
   - B) Upgrading the database schema automatically
   - C) Deleting existing databases
   - D) None of the above
   - **Answer: B) Upgrading the database schema automatically**

2. **Which command initializes Code First Migrations in Entity Framework?**
   - A) `Add-Migration`
   - B) `Enable-Migrations`
   - C) `Update-Database`
   - D) `Drop-Database`
   - **Answer: B) Enable-Migrations**

3. **What file is created when you run the `Enable-Migrations` command?**

   - A) `MigrationConfig.cs`

   - B) `MigrationHistory.cs`

   - C) `Configuration.cs`

   - D) `Context.cs`

   - **Answer: C) Configuration.cs**

4. **What does the `Add-Migration` command do?**

   - A) Deletes a migration

   - B) Adds a new migration file to the project

   - C) Applies migrations to the database

   - D) Rolls back a migration

   - **Answer: B) Adds a new migration file to the project**

5. **What is the purpose of the `Update-Database` command?**

   - A) Create a new database

   - B) Delete the database

   - C) Apply pending migrations to the database

- D) Rollback a database

- **Answer: C) Apply pending migrations to the database**

6. **Which method of the `Configuration` class is used to disable automatic migrations?**

- A) `SetAutomaticMigrationsEnabled(false)`

- B) `EnableAutomaticMigrations(false)`

- C) `AutomaticMigrations(false)`

- D) `DisableAutomaticMigrations()`

- **Answer: A) SetAutomaticMigrationsEnabled(false)**

7. **What file format are migrations typically stored in?**

- A) `.sql`

- B) `.json`

- C) `.cs`

- D) `.xml`

- **Answer: C) .cs**

8. **Which property of the `Migration` class allows for custom SQL to be executed during a migration?**

   - A) `Sql()`

   - B) `ExecuteSql()`

   - C) `RunSql()`

   - D) `CustomSql()`

   - **Answer: A) Sql()**

9. **What should you do if you need to revert a migration?**

   - A) Use the `Add-Migration` command

   - B) Use the `Update-Database` command with the `-TargetMigration` parameter

   - C) Delete the migration file manually

   - D) Use the `Remove-Migration` command

   - **Answer: B) Use the Update-Database command with the -TargetMigration parameter**

10. **How can you seed initial data to the database in Entity Framework?**

    - A) By modifying the `Migration` class

    - B) By using the `DbContext`'s `Seed` method

- C) By adding data directly to the `Database` class

- D) By configuring data in the `Configuration` class

- **Answer: B) By using the DbContext's Seed method**

11. **Which of the following is not a valid option for the `AutomaticMigrationsEnabled` property?**

- A) `true`

- B) `false`

- C) `default`

- D) `null`

- **Answer: D) null**

12. **What is the purpose of the `DbSet` class in Entity Framework?**

- A) To create database tables

- B) To execute SQL queries

- C) To manage database connections

- D) To perform CRUD operations on entities

- **Answer: D) To perform CRUD operations on entities**

13. **How can you check which migrations have been applied to the database?**

    - A) By running the `Get-Migration` command

    - B) By examining the `__MigrationHistory` table in the database

    - C) By looking at the `MigrationHistory.cs` file

    - D) By using the `Database.GetMigrations()` method

    - **Answer: B) By examining the __MigrationHistory table in the database**

14. **What is the default folder where Entity Framework stores migration files?**

    - A) `Migrations`

    - B) `MigrationScripts`

    - C) `Models`

    - D) `Scripts`

    - **Answer: A) Migrations**

15. **Which method allows you to modify the database schema after applying a migration?**

- A) `Down()`
- B) `Up()`
- C) `Apply()`
- D) `Revert()`
- **Answer: B) Up()**

16. **Which class does Entity Framework use to track the migration history?**
- A) `MigrationHistory`
- B) `MigrationStore`
- C) `__MigrationHistory`
- D) `MigrationTracker`
- **Answer: C) __MigrationHistory**

17. **What is the purpose of the `Down` method in a migration file?**
- A) To apply schema changes
- B) To revert schema changes
- C) To seed data
- D) To log migration history
- **Answer: B) To revert schema changes**

18. **How do you ensure that a migration file is not applied to a specific environment?**

    - A) By using conditional statements in the migration file

    - B) By modifying the `Configuration.cs` file

    - C) By using a custom migration strategy

    - D) By excluding the migration file from the build

    - **Answer: A) By using conditional statements in the migration file**

19. **What is the role of the `Migration` base class in Entity Framework?**

    - A) To provide methods for creating migrations

    - B) To define the structure and methods used for database migrations

    - C) To execute database operations directly

    - D) To seed the database with initial data

    - **Answer: B) To define the structure and methods used for database migrations**

20. **Which Entity Framework feature allows you to test database schema changes in a safe manner?**

- A) TransactionScope
- B) Database First Approach
- C) Code First Migrations
- D) Model First Approach
- **Answer: C) Code First Migrations**

1. **What is `DbContext` in Entity Framework?**

- A) A class for database connectivity
- B) A class that manages database operations and entity objects
- C) A database table
- D) A type of database

Answer: B) A class that manages database operations and entity objects

2. **Which method is used to save changes made to entities in a `DbContext`?**

- A) `Commit()`
- B) `Update()`

- C) `SaveChanges()`
- D) `Persist()`

Answer: C) `SaveChanges()`

3. **Which method is used to initialize a `DbContext` with a connection string?**
- A) `DbContext()`
- B) `DbContext(string connectionString)`
- C) `Configure()`
- D) `Initialize()`

Answer: B) `DbContext(string connectionString)`

4. **What is the default behavior of `DbContext` regarding database connections?**
- A) It opens and closes connections automatically.
- B) It requires manual connection management.
- C) It never opens a connection.
- D) It uses a constant connection throughout the application.

Answer: A) It opens and closes connections automatically.

5. **Which property of `DbContext` represents the set of entities in the context?**

- A) `Entities`
- B) `DbSets`
- C) `Tables`
- D) `Collections`

Answer: B) `DbSets`

6. **How do you configure a `DbContext` to use a specific database provider?**

- A) By overriding the `OnConfiguring` method
- B) By modifying the `DbSet` properties
- C) By setting the `ConnectionString` property
- D) By creating a `DatabaseConfig` class

Answer: A) By overriding the `OnConfiguring` method

7. **What is the purpose of the `OnModelCreating` method in `DbContext`?**

   - A) To configure database connections

   - B) To set up database schema and relationships

   - C) To handle transactions

   - D) To execute raw SQL queries

   Answer: B) To set up database schema and relationships

8. **In which scenario would you use the `DbContext` constructor with `DbContextOptions`?**

   - A) When you need to specify the connection string directly

   - B) When you need to pass configuration options for the context

   - C) When you want to manually manage the database connection

   - D) When you need to initialize database schema

Answer: B) When you need to pass configuration options for the context

9. **Which method allows you to execute raw SQL queries in `DbContext`?**

- A) `ExecuteSqlCommand()`
- B) `RunSqlQuery()`
- C) `SqlQuery()`
- D) `RawSql()`

Answer: A) `ExecuteSqlCommand()`

10. **What is the purpose of `DbContext`'s `ChangeTracker` property?**

- A) To track changes to entities and detect modifications
- B) To handle database connections
- C) To track query performance
- D) To manage entity relationships

Answer: A) To track changes to entities and detect modifications

11. **Which method in `DbContext` is used to detach an entity from the context?**

- A) `Remove()`
- B) `Detach()`
- C) `Untrack()`
- D) `DetachEntity()`

Answer: B) `Detach()`

12. **How can you configure lazy loading in Entity Framework using `DbContext`?**

- A) By setting the `LazyLoadingEnabled` property
- B) By using the `OnModelCreating` method
- C) By setting `ProxyCreationEnabled` to true
- D) By configuring the connection string

Answer: C) By setting `ProxyCreationEnabled` to true

13. **What is the default value of `AutoDetectChangesEnabled` in `DbContext`?**

- A) True
- B) False
- C) Null
- D) 0

Answer: A) True

14. **Which class is the base class for `DbContext` in Entity Framework Core?**
- A) `ObjectContext`
- B) `DbContext`
- C) `DataContext`
- D) `EntityContext`

Answer: B) `DbContext`

15. **Which interface provides a contract for `DbContext` to support asynchronous operations?**
- A) `IAsyncDbContext`
- B) `IQueryable`
- C) `IContextAsync`

- D) `IEntityAsync`

Answer: B) `IQueryable`

16. **In `DbContext`, what does the `Database` property represent?**

- A) The actual database object
- B) The connection to the database
- C) Methods for executing SQL commands and managing transactions
- D) A collection of database schemas

Answer: C) Methods for executing SQL commands and managing transactions

17. **What is the primary purpose of `DbSet` in `DbContext`?**

- A) To represent database connections
- B) To define sets of entities for CRUD operations
- C) To configure entity relationships
- D) To handle database schema changes

Answer: B) To define sets of entities for CRUD operations

18. **Which method in `DbContext` is used to initialize a new database schema if it does not exist?**

- A) `CreateDatabase()`
- B) `EnsureCreated()`
- C) `Migrate()`
- D) `InitializeSchema()`

Answer: B) `EnsureCreated()`

19. **How do you apply a migration to the database using `DbContext`?**

- A) `ApplyMigration()`
- B) `Migrate()`
- C) `UpdateDatabase()`
- D) `ExecuteMigration()`

Answer: B) `Migrate()`

20. **Which method in `DbContext` is used to reset the context and clear all tracked entities?**

- A) `Clear()`
- B) `Reset()`
- C) `Dispose()`
- D) `ChangeTracker.Clear()`

Answer: D) `ChangeTracker.Clear()`

1. **What is the primary role of `DbContext` in Entity Framework Core?**

- A) To define the database schema
- B) To track changes in entities
- C) To interact with the database and manage entity states
- D) To execute raw SQL commands

Answer: C) To interact with the database and manage entity states

2. **Which method in `DbContext` is used to retrieve a specific entity by its primary key?**

- A) `FindAsync`
- B) `GetById`
- C) `FindEntity`
- D) `GetEntityById`

Answer: A) `FindAsync`

3. **What is the purpose of the `DbSet<T>` property in a `DbContext` class?**
- A) To define a database connection
- B) To provide a way to perform CRUD operations on a specific entity type
- C) To configure database migrations
- D) To execute raw SQL queries

Answer: B) To provide a way to perform CRUD operations on a specific entity type

4. **How do you configure the database provider for a `DbContext`?**
- A) By overriding the `OnConfiguring` method
- B) By setting the `DatabaseProvider` property

- C) By using dependency injection in the constructor

- D) By calling `UseDatabaseProvider` method in `OnModelCreating`

Answer: A) By overriding the `OnConfiguring` method

5. **In which method of `DbContext` do you configure entity mappings and relationships?**

- A) `OnConfiguring`

- B) `OnModelCreating`

- C) `OnSaveChanges`

- D) `OnDatabaseCreating`

Answer: B) `OnModelCreating`

6. **What does the `SaveChanges` method do in a `DbContext`?**

- A) Saves changes to the database

- B) Discards changes in the entity state

- C) Synchronizes the entity model with the database schema

- D) Commits a transaction

Answer: A) Saves changes to the database

7. **Which method in `DbContext` is used to create a database if it does not exist?**

- A) `EnsureCreated`

- B) `CreateIfNotExists`

- C) `InitializeDatabase`

- D) `GenerateDatabase`

Answer: A) `EnsureCreated`

8. **What is the difference between `SaveChanges` and `SaveChangesAsync`?**

- A) `SaveChanges` is synchronous and `SaveChangesAsync` is asynchronous

- B) `SaveChanges` saves changes to a specific entity, while `SaveChangesAsync` saves changes to all entities

- C) `SaveChanges` saves changes to the database schema, while `SaveChangesAsync` saves entity state

- D) There is no difference between them

Answer: A) `SaveChanges` is synchronous and `SaveChangesAsync` is asynchronous

9. **Which of the following methods can be used to execute a raw SQL query in `DbContext`?**

- A) `FromSqlRaw`

- B) `ExecuteSqlCommand`

- C) `RunSqlQuery`

- D) `ExecuteSqlQuery`

Answer: A) `FromSqlRaw`

10. **What is `DbSet<TEntity>` used for in a `DbContext`?**

- A) To configure the database schema

- B) To represent a collection of entities of type `TEntity`

- C) To manage the database connection

- D) To execute stored procedures

Answer: B) To represent a collection of entities of type `TEntity`

11. **How can you ensure that a `DbContext` instance is disposed of properly?**

- A) By using `Dispose` method explicitly
- B) By implementing `IDisposable` interface
- C) By using a `using` statement
- D) By calling `Close` method

Answer: C) By using a `using` statement

12. **What method would you use to track changes in an entity and mark it as modified?**

- A) `MarkAsModified`
- B) `Update`
- C) `TrackEntity`
- D) `SetModified`

Answer: B) `Update`

13. **Which method is used to apply database migrations in Entity Framework Core?**

- A) `Update-Database`
- B) `Apply-Migrations`
- C) `Migrate-Database`
- D) `Execute-Migrations`

Answer: A) `Update-Database`

14. **Which of the following is used to configure a one-to-many relationship in Entity Framework Core?**

- A) Fluent API in `OnModelCreating`
- B) Data Annotations on the model
- C) Using a migration script
- D) Setting up the relationship in the constructor

Answer: A) Fluent API in `OnModelCreating`

15. **What does `DbContextOptions` allow you to configure?**

- A) The connection string
- B) The behavior of the `DbContext` instance
- C) The model relationships
- D) The database schema

Answer: B) The behavior of the `DbContext` instance

16. **Which method in `DbContext` can be used to retrieve an entity without tracking changes?**

- A) `AsNoTracking`
- B) `FindWithoutTracking`
- C) `NoTracking`
- D) `GetWithoutTracking`

Answer: A) `AsNoTracking`

17. **What does the `ChangeTracker` property of `DbContext` provide?**

- A) Access to the database schema

- B) Access to the state of tracked entities
- C) Access to raw SQL commands
- D) Access to the entity configurations

Answer: B) Access to the state of tracked entities

18. **Which method should you override to configure the `DbContext` options for a specific database provider?**
- A) `Configure`
- B) `OnConfiguring`
- C) `Initialize`
- D) `Setup`

Answer: B) `OnConfiguring`

19. **How do you enable lazy loading in Entity Framework Core?**
- A) By setting `LazyLoadingEnabled` property
- B) By installing and configuring `Microsoft.EntityFrameworkCore.Proxies` package

- C) By using `LazyLoad` attribute on entity properties

- D) By configuring it in the `OnModelCreating` method

Answer: B) By installing and configuring `Microsoft.EntityFrameworkCore.Proxies` package

20. **What method would you use to remove an entity from the context?**

- A) `Delete`

- B) `Remove`

- C) `DeleteEntity`

- D) `Discard`

Answer: B) `Remove`

1. **What is the purpose of Data Annotations in Entity Framework Core?**

- A) To define database schema

- B) To configure entity relationships

- C) To specify validation rules and constraints on entities

- D) To handle database migrations

Answer: C) To specify validation rules and constraints on entities

2. **Which attribute is used to specify the primary key of an entity in Entity Framework Core?**

- A) [PrimaryKey]
- B) [Key]
- C) [Identity]
- D) [PK]

Answer: B) [Key]

3. **How do you specify that a property should be required (non-nullable) in Entity Framework Core?**

- A) [Required]
- B) [NotNull]
- C) [Mandatory]
- D) [NotEmpty]

Answer: A) [Required]

4. **Which attribute is used to specify the maximum length of a string property?**

- A) [MaxLength]
- B) [Length]
- C) [StringLength]
- D) [TextLength]

Answer: C) [StringLength]

5. **What attribute is used to define a column's name in the database?**

- A) [Column]
- B) [Name]
- C) [Table]
- D) [Field]

Answer: A) [Column]

6. **Which attribute can be used to set a default value for a column in Entity Framework Core?**

- A) [DefaultValue]
- B) [Value]
- C) [Default]
- D) [DefaultColumn]

Answer: C) [Default]

7. **To specify that a property should be mapped to a database column with a specific type, which attribute is used?**

- A) [ColumnType]
- B) [Type]
- C) [Column]
- D) [DbType]

Answer: C) [Column]

8. **How do you configure a one-to-many relationship using Data Annotations?**

- A) [OneToMany]

- B) [ForeignKey]
- C) [Relationship]
- D) [Reference]

Answer: B) [ForeignKey]

9. **What attribute would you use to specify that a property should be used as a unique identifier in the database?**
- A) [Unique]
- B) [Identifier]
- C) [Key]
- D) [PrimaryKey]

Answer: C) [Key]

10. **Which Data Annotation attribute is used to specify that a property is part of a composite key?**
- A) [CompositeKey]
- B) [Key]
- C) [PrimaryKey]

- D) [Id]

Answer: B) [Key]

11. **How do you make a property optional in Entity Framework Core?**

- A) By not applying any Data Annotation
- B) [Optional]
- C) [Nullable]
- D) [AllowNull]

Answer: A) By not applying any Data Annotation

12. **Which attribute is used to set a property as a timestamp for concurrency checks?**

- A) [ConcurrencyCheck]
- B) [Timestamp]
- C) [Version]
- D) [Concurrency]

Answer: B) [Timestamp]

13. **How do you prevent an entity from being mapped to a database table?**

- A) [Ignore]
- B) [NotMapped]
- C) [Excluded]
- D) [Unmapped]

Answer: B) [NotMapped]

14. **To specify a property that should not be included in the database schema, which annotation is used?**

- A) [Exclude]
- B) [Ignore]
- C) [Transient]
- D) [NotMapped]

Answer: D) [NotMapped]

15. **Which attribute is used to define a decimal column with a specific precision and scale?**

- A) [Precision]
- B) [Decimal]
- C) [Column]
- D) [Number]

Answer: C) [Column]

16. **Which Data Annotation is used to enforce that a property must be unique across all records in the table?**

- A) [Unique]
- B) [UniqueConstraint]
- C) [Index]
- D) [UniqueIndex]

Answer: B) [UniqueConstraint]

17. **What does the [Required] attribute enforce in Entity Framework Core?**

- A) The property must have a default value

- B) The property cannot be null
- C) The property must be unique
- D) The property must be indexed

Answer: B) The property cannot be null

18. **Which attribute is used to specify the display name of a property in a UI application?**
- A) [DisplayName]
- B) [Label]
- C) [Display]
- D) [Name]

Answer: C) [Display]

19. **To specify the order of properties in the database table, which Data Annotation attribute is used?**
- A) [Order]
- B) [Sequence]
- C) [Index]

- D) [Column]

Answer: D) [Column]

20. **Which attribute is used to configure a property as an auto-incrementing column?**

- A) [AutoIncrement]
- B) [Identity]
- C) [Generated]
- D) [Auto]

Answer: B) [Identity]

1. **What does the Fluent API in Entity Framework Core primarily control?**

- A) Database schema and configurations
- B) User interface design
- C) Application performance
- D) Networking protocols

Answer: A) Database schema and configurations

2. **Which method is used to configure the primary key of an entity using Fluent API?**

- A) `.HasKey()`
- B) `.SetKey()`
- C) `.PrimaryKey()`
- D) `.Key()`

Answer: A) `.HasKey()`

3. **How do you specify a required property in Fluent API?**

- A) `.IsRequired()`
- B) `.MakeRequired()`
- C) `.SetRequired()`
- D) `.Required()`

Answer: A) `.IsRequired()`

4. **Which method would you use to configure a one-to-many relationship in Fluent API?**

   - A) `.HasOne().WithMany()`
   - B) `.OneToMany()`
   - C) `.HasMany().WithOne()`
   - D) `.OneToMany()`

   Answer: C) `.HasMany().WithOne()`

5. **What method is used to configure a table name in Fluent API?**

   - A) `.ToTable()`
   - B) `.SetTable()`
   - C) `.TableName()`
   - D) `.Table()`

   Answer: A) `.ToTable()`

6. **Which method is used to configure the column name for a property in Fluent API?**

   - A) `.HasColumnName()`

- B) `.ColumnName()`
- C) `.SetColumn()`
- D) `.RenameColumn()`

Answer: A) `.HasColumnName()`

7. **How do you configure a property to use a specific data type using Fluent API?**
   - A) `.HasColumnType()`
   - B) `.SetDataType()`
   - C) `.DataType()`
   - D) `.ColumnType()`

   Answer: A) `.HasColumnType()`

8. **Which method is used to configure a many-to-many relationship in Fluent API?**
   - A) `.HasMany().WithMany()`
   - B) `.ManyToMany()`
   - C) `.ManyToMany().WithMany()`
   - D) `.WithMany().HasMany()`

Answer: A) `.HasMany().WithMany()`

9. **How do you set a default value for a column using Fluent API?**
   - A) `.HasDefaultValue()`
   - B) `.SetDefault()`
   - C) `.DefaultValue()`
   - D) `.ColumnDefault()`

   Answer: A) `.HasDefaultValue()`

10. **What method is used to configure the maximum length of a string property in Fluent API?**
    - A) `.HasMaxLength()`
    - B) `.MaxLength()`
    - C) `.SetMaxLength()`
    - D) `.Length()`

    Answer: A) `.HasMaxLength()`

11. **Which method would you use to configure an index on a property using Fluent API?**

- A) `.HasIndex()`
- B) `.CreateIndex()`
- C) `.Index()`
- D) `.SetIndex()`

Answer: A) `.HasIndex()`

12. **How do you configure an entity to use a specific schema in Fluent API?**

- A) `.ToTable(tableName, schemaName)`
- B) `.SetSchema()`
- C) `.Schema()`
- D) `.TableSchema()`

Answer: A) `.ToTable(tableName, schemaName)`

13. **Which method is used to configure a property as a computed column in Fluent API?**

- A) `.HasComputedColumnSql()`
- B) `.Computed()`
- C) `.SetComputed()`
- D) `.ComputedColumn()`

Answer: A) `.HasComputedColumnSql()`

14. **What method is used to configure a property to be excluded from the database schema?**
- A) `.Ignore()`
- B) `.Exclude()`
- C) `.IgnoreProperty()`
- D) `.SetIgnore()`

Answer: A) `.Ignore()`

15. **How do you configure an entity to use a specific table name and schema with Fluent API?**
- A) `.ToTable()`
- B) `.SetTable()`
- C) `.TableName()`

- D) `.SchemaTable()`

Answer: A) `.ToTable()`

16. **Which method is used to configure a cascading delete behavior in Fluent API?**
    - A) `.OnDelete()`
    - B) `.SetCascadeDelete()`
    - C) `.CascadeDelete()`
    - D) `.DeleteBehavior()`

    Answer: A) `.OnDelete()`

17. **How do you configure an entity to use a specific discriminator column for table-per-hierarchy (TPH) inheritance?**
    - A) `.HasDiscriminator()`
    - B) `.SetDiscriminator()`
    - C) `.Discriminator()`
    - D) `.DiscriminatorColumn()`

Answer: A) `.HasDiscriminator()`

18. **Which method is used to configure a unique constraint on a property using Fluent API?**

- A) `.HasIndex().IsUnique()`
- B) `.Unique()`
- C) `.SetUnique()`
- D) `.Index().Unique()`

Answer: A) `.HasIndex().IsUnique()`

19. **How do you configure a navigation property to use a specific foreign key in Fluent API?**

- A) `.HasForeignKey()`
- B) `.SetForeignKey()`
- C) `.ForeignKey()`
- D) `.WithForeignKey()`

Answer: A) `.HasForeignKey()`

20. **What method is used to configure a property to be a concurrency token using Fluent API?**

- A) `.IsConcurrencyToken()`
- B) `.SetConcurrencyToken()`
- C) `.Concurrency()`
- D) `.Token()`

Answer: A) `.IsConcurrencyToken()`

1. **Which class library is used for creating web applications in .NET Core?**

- A) System.Web
- B) System.Net.Http
- C) Microsoft.AspNetCore
- D) System.IO
- **Answer: C) Microsoft.AspNetCore**

2. **Which namespace contains classes for working with file input and output in .NET Core?**

- A) System.Net
- B) System.IO

- C) System.Threading
- D) System.Collections
- **Answer: B) System.IO**

3. **Which class is used to create a new file stream in .NET Core?**
- A) FileStream
- B) StreamReader
- C) MemoryStream
- D) FileInfo
- **Answer: A) FileStream**

4. **Which method in the `Directory` class is used to create a new directory?**
- A) Create()
- B) CreateDirectory()
- C) NewDirectory()
- D) AddDirectory()
- **Answer: B) CreateDirectory()**

5. **What is the purpose of `JsonSerializer` in .NET Core?**

- A) Serialize and deserialize XML
- B) Serialize and deserialize JSON
- C) Read and write text files
- D) Manage application configuration
- **Answer: B) Serialize and deserialize JSON**

6. **Which library would you use to perform database operations in a .NET Core application?**

- A) System.Data
- B) EntityFrameworkCore
- C) System.Data.SqlClient
- D) Microsoft.EntityFrameworkCore
- **Answer: D) Microsoft.EntityFrameworkCore**

7. **What class in `System.Linq` provides LINQ query capabilities in .NET Core?**

- A) Queryable
- B) Enumerable
- C) LINQProcessor

- D) DataProvider
- **Answer: B) Enumerable**

8. **Which class is used for dependency injection in .NET Core applications?**
   - A) ServiceProvider
   - B) DependencyInjector
   - C) IServiceCollection
   - D) DependencyManager
   - **Answer: C) IServiceCollection**

9. **Which class provides methods to read and write configuration settings in .NET Core?**
   - A) ConfigurationManager
   - B) SettingsManager
   - C) IConfiguration
   - D) Configurator
   - **Answer: C) IConfiguration**

10. **Which class in `System.Threading` namespace is used to create and manage threads in .NET Core?**

- A) Thread
- B) ThreadManager
- C) ThreadController
- D) Task
- **Answer: A) Thread**

11. **What class is used to handle HTTP requests and responses in ASP.NET Core?**
- A) HttpClient
- B) HttpRequest
- C) HttpHandler
- D) HttpServer
- **Answer: A) HttpClient**

12. **Which namespace provides classes for asynchronous programming in .NET Core?**
- A) System.Threading
- B) System.Threading.Tasks
- C) System.Async
- D) System.Await
- **Answer: B) System.Threading.Tasks**

13. **Which method in `MemoryStream` is used to write data to the stream?**

- A) WriteBytes()
- B) Write()
- C) Append()
- D) Save()
- **Answer: B) Write()**

14. **What class in the `System.Collections.Generic` namespace is used to create a list?**

- A) List
- B) ArrayList
- C) Collection
- D) Dictionary
- **Answer: A) List**

15. **Which class provides methods for file path manipulation?**

- A) FilePath
- B) Path

- C) DirectoryPath
- D) FileUtils
- **Answer: B) Path**

16. **Which method is used to read the entire contents of a file as a string?**
- A) File.Read()
- B) File.ReadAllText()
- C) File.ReadString()
- D) File.ReadText()
- **Answer: B) File.ReadAllText()**

17. **What class in .NET Core is used to handle data serialization in XML format?**
- A) XmlSerializer
- B) XmlReader
- C) XmlWriter
- D) XmlDocument
- **Answer: A) XmlSerializer**

18. **Which class provides methods for handling HTTP requests and responses in ASP.NET Core?**

- A) HttpContext
- B) HttpManager
- C) HttpServer
- D) HttpHandler
- **Answer: A) HttpContext**

19. **Which interface is used to define a contract for dependency injection in .NET Core?**

- A) IDependency
- B) IService
- C) IServiceCollection
- D) IInjector
- **Answer: C) IServiceCollection**

20. **What class is used to handle exceptions and errors in .NET Core applications?**

- A) ErrorHandler
- B) ExceptionManager
- C) Exception

- D) ErrorLogger
- **Answer: C) Exception**

21. **Which library is used to interact with Azure services in .NET Core?**
    - A) Microsoft.Azure
    - B) Azure.Storage
    - C) Azure.Core
    - D) Microsoft.Azure.Storage
    - **Answer: D) Microsoft.Azure.Storage**

22. **Which method is used to asynchronously wait for a task to complete in .NET Core?**
    - A) Wait()
    - B) Await()
    - C) Task.Wait()
    - D) TaskAwaiter()
    - **Answer: B) Await()**

23. **What class in `System.Net.Http` is used to send HTTP requests and receive responses?**

- A) HttpClient
- B) HttpSender
- C) HttpRequest
- D) HttpResponse
- **Answer: A) HttpClient**

24. **Which class is used to configure logging in .NET Core applications?**
- A) Logger
- B) LogManager
- C) ILogger
- D) LoggerFactory
- **Answer: C) ILogger**

25. **What is the main purpose of `IDataReader` in .NET Core?**
- A) Read data from files
- B) Read data from a database
- C) Read JSON data
- D) Read XML data
- **Answer: B) Read data from a database**

26. **Which class in `System.Security.Cryptography` namespace is used for hashing?**

- A) HashProvider
- B) HashAlgorithm
- C) Encryption
- D) Cryptography
- **Answer: B) HashAlgorithm**

27. **Which class is used for working with the Windows registry in .NET Core?**

- A) Registry
- B) RegistryKey
- C) WindowsRegistry
- D) RegistryManager
- **Answer: B) RegistryKey**

28. **What class in .NET Core helps in creating in-memory data storage?**

- A) DataStore
- B) MemoryCache

- C) InMemoryData
- D) MemoryStorage
- **Answer: B) MemoryCache**

29. **Which class provides methods for serializing and deserializing objects in binary format?**
- A) BinaryFormatter
- B) BinarySerializer
- C) BinaryReader
- D) BinaryWriter
- **Answer: A) BinaryFormatter**

30. **Which class is used to manage and track the state of a `Task` in .NET Core?**
- A) TaskManager
- B) TaskTracker
- C) Task
- D) TaskState
- **Answer: C) Task**

31. **Which class is used to read configuration settings from a JSON file?**

- A) JsonReader
- B) JsonConfig
- C) JsonConfiguration
- D) IConfigurationRoot
- **Answer: D) IConfigurationRoot**

32. **What method is used to dispose of unmanaged resources in .NET Core?**

- A) Close()
- B) Dispose()
- C) Release()
- D) CleanUp()
- **Answer: B) Dispose()**

33. **Which method in `FileInfo` is used to copy a file?**

- A) CopyFile()
- B) Duplicate()
- C) CopyTo()

- D) Clone()
- **Answer: C) CopyTo()**

34. **What class is used for encryption and decryption in .NET Core?**
- A) CryptoProvider
- B) EncryptionManager
- C) Aes
- D) EncryptionAlgorithm
- **Answer: C) Aes**

35. **Which namespace provides classes for accessing and manipulating directories and files?**
- A) System.IO
- B) System.Net
- C) System.Data
- D) System.Security
- **Answer: A) System.IO**

36. **Which interface is used to define the

contract for a service collection in .NET Core?**

- A) IServiceProvider
- B) IService
- C) IServiceCollection
- D) IRegistration
- **Answer: C) IServiceCollection**

37. **What class provides methods for creating and managing application settings?**

- A) SettingsManager
- B) AppSettings
- C) ConfigurationBuilder
- D) SettingsProvider
- **Answer: C) ConfigurationBuilder**

38. **Which class provides functionality to serialize and deserialize objects in XML format?**

- A) XmlSerializer
- B) XmlFormatter
- C) XmlConverter
- D) XmlParser

- **Answer: A) XmlSerializer**

39. **Which class is used to handle web API requests and responses in ASP.NET Core?**
    - A) ApiController
    - B) HttpContext
    - C) WebHandler
    - D) ApiHandler
    - **Answer: B) HttpContext**

40. **What is the purpose of `IServiceProvider` in .NET Core?**
    - A) Manage application configuration
    - B) Provide application services
    - C) Handle data serialization
    - D) Manage file system operations
    - **Answer: B) Provide application services**

41. **Which class is used to create a new asynchronous task?**
    - A) AsyncTask

- B) Task
- C) AsyncWorker
- D) BackgroundTask
- **Answer: B) Task**

42. **What method is used to write data to a file asynchronously?**
- A) File.WriteAsync()
- B) FileStream.WriteAsync()
- C) File.Write()
- D) FileStream.Write()
- **Answer: B) FileStream.WriteAsync()**

43. **Which class helps in reading and writing character data in .NET Core?**
- A) FileStream
- B) TextReader
- C) MemoryStream
- D) BinaryReader
- **Answer: B) TextReader**

44. **What class provides methods to manage application-level logging in .NET Core?**

- A) LoggerFactory
- B) LogProvider
- C) LoggerManager
- D) LogManager
- **Answer: A) LoggerFactory**

45. **Which class is used to represent and manage configuration values from various sources?**

- A) Configurator
- B) Settings
- C) Configuration
- D) ConfigurationRoot
- **Answer: D) ConfigurationRoot**

46. **Which method is used to read data asynchronously from a stream in .NET Core?**

- A) Read()
- B) ReadAsync()
- C) Fetch()

- D) Retrieve()
- **Answer: B) ReadAsync()**

47. **What class in `System.Text` namespace provides methods for encoding and decoding text?**
- A) TextEncoder
- B) Encoding
- C) TextConverter
- D) Decoder
- **Answer: B) Encoding**

48. **Which class is used to perform file operations and manipulate file attributes?**
- A) File
- B) FileInfo
- C) FileManager
- D) FileHandler
- **Answer: B) FileInfo**

49. **Which class is used for managing thread synchronization in .NET Core?**

- A) Mutex
- B) Lock
- C) Semaphore
- D) Monitor
- **Answer: D) Monitor**

50. **Which method is used to convert an object to a JSON string representation?**
- A) ToJsonString()
- B) JsonConvert.SerializeObject()
- C) ConvertToJson()
- D) JsonSerializer.ToString()
- **Answer: B) JsonConvert.SerializeObject()**

1. **What does the `dotnet new` command do?**
- A) Creates a new .NET Core project or file
- B) Restores packages for a .NET Core project
- C) Runs a .NET Core application
- D) Builds a .NET Core application
- **Answer:** A) Creates a new .NET Core project or file

2. **Which command is used to restore NuGet packages for a .NET Core project?**
   - A) `dotnet build`
   - B) `dotnet run`
   - C) `dotnet restore`
   - D) `dotnet publish`
   - **Answer:** C) `dotnet restore`

3. **What does the `dotnet build` command do?**
   - A) Executes the application
   - B) Compiles the application
   - C) Creates a new project
   - D) Publishes the project
   - **Answer:** B) Compiles the application

4. **Which command will publish a .NET Core application to a specified folder?**
   - A) `dotnet build`
   - B) `dotnet run`
   - C) `dotnet publish`

- D) `dotnet test`
- **Answer:** C) `dotnet publish`

5. **To list all available templates for `dotnet new`, which command should be used?**
   - A) `dotnet new list`
   - B) `dotnet new -l`
   - C) `dotnet new --list`
   - D) `dotnet new --templates`
   - **Answer:** C) `dotnet new --list`

6. **How do you run a .NET Core application using the CLI?**
   - A) `dotnet execute`
   - B) `dotnet start`
   - C) `dotnet run`
   - D) `dotnet launch`
   - **Answer:** C) `dotnet run`

7. **Which command is used to update the .NET Core SDK?**

- A) `dotnet update`
- B) `dotnet sdk update`
- C) `dotnet tool update`
- D) `dotnet --version`
- **Answer:** C) `dotnet tool update`

8. **To create a new ASP.NET Core web application, which command should be used?**
- A) `dotnet new web`
- B) `dotnet new mvc`
- C) `dotnet new webapi`
- D) `dotnet new webapp`
- **Answer:** D) `dotnet new webapp`

9. **What does the `dotnet test` command do?**
- A) Builds the application
- B) Runs unit tests
- C) Restores NuGet packages
- D) Publishes the application
- **Answer:** B) Runs unit tests

10. **To remove a NuGet package from a project, which command is used?**

- A) `dotnet remove package`
- B) `dotnet uninstall package`
- C) `dotnet delete package`
- D) `dotnet package remove`
- **Answer:** A) `dotnet remove package`

11. **Which command provides information about the installed .NET SDK versions?**

- A) `dotnet --info`
- B) `dotnet --version`
- C) `dotnet list`
- D) `dotnet sdk list`
- **Answer:** A) `dotnet --info`

12. **To add a new package reference to a .NET Core project, which command is used?**

- A) `dotnet add package`
- B) `dotnet install package`
- C) `dotnet include package`

- D) `dotnet package add`
- **Answer:** A) `dotnet add package`

13. **Which command is used to list all the tools installed in a .NET Core project?**
- A) `dotnet tool list`
- B) `dotnet list tools`
- C) `dotnet tools`
- D) `dotnet tool --list`
- **Answer:** A) `dotnet tool list`

14. **To check the current version of the .NET Core SDK installed, which command should be used?**
- A) `dotnet --version`
- B) `dotnet version`
- C) `dotnet info`
- D) `dotnet sdk version`
- **Answer:** A) `dotnet --version`

15. **Which command is used to create a new solution file in a directory?**

- A) `dotnet new sln`
- B) `dotnet new solution`
- C) `dotnet new project`
- D) `dotnet create sln`
- **Answer:** A) `dotnet new sln`

16. **To add an existing project to a solution, which command should be used?**
- A) `dotnet sln add`
- B) `dotnet add solution`
- C) `dotnet solution add`
- D) `dotnet project add`
- **Answer:** A) `dotnet sln add`

17. **Which command is used to remove a project from a solution?**
- A) `dotnet sln remove`
- B) `dotnet remove project`
- C) `dotnet project remove`
- D) `dotnet solution remove`
- **Answer:** A) `dotnet sln remove`

18. **To check if a project is up-to-date with the latest NuGet packages, which command is used?**

- A) `dotnet restore`
- B) `dotnet update`
- C) `dotnet package update`
- D) `dotnet check`
- **Answer:** A) `dotnet restore`

19. **To build a project in release configuration, which command should be used?**

- A) `dotnet build -c Release`
- B) `dotnet build -r Release`
- C) `dotnet build --release`
- D) `dotnet build --config Release`
- **Answer:** A) `dotnet build -c Release`

20. **Which command is used to remove a .NET Core tool from the local tool cache?**

- A) `dotnet tool uninstall`
- B) `dotnet tool remove`

- C) `dotnet remove tool`
- D) `dotnet uninstall tool`
- **Answer:** A) `dotnet tool uninstall`

21. **To update a .NET Core tool to the latest version, which command should be used?**
- A) `dotnet tool update`
- B) `dotnet update tool`
- C) `dotnet tool upgrade`
- D) `dotnet tool refresh`
- **Answer:** A) `dotnet tool update`

22. **What does the `dotnet publish -c Release` command do?**
- A) Builds the project in debug mode
- B) Builds and packages the project for release
- C) Runs the project in release mode
- D) Creates a new project in release mode
- **Answer:** B) Builds and packages the project for release

23. **Which command is used to generate a new .NET Core console application?**

- A) `dotnet new console`
- B) `dotnet create console`
- C) `dotnet init console`
- D) `dotnet make console`
- **Answer:** A) `dotnet new console`

24. **To specify a different framework when building a .NET Core project, which command line option is used?**

- A) `-f`
- B) `--framework`
- C) `-r`
- D) `--runtime`
- **Answer:** B) `--framework`

25. **Which command will create a new class library project?**

- A) `dotnet new classlib`
- B) `dotnet new library`
- C) `dotnet create classlib`

- D) `dotnet new lib`
- **Answer:** A) `dotnet new classlib`

26. **What does the `dotnet clean` command do?**
- A) Deletes the project files
- B) Removes build artifacts from the project
- C) Uninstalls the .NET Core SDK
- D) Cleans up NuGet packages
- **Answer:** B) Removes build artifacts from the project

27. **To run a .NET Core application with a specific runtime identifier (RID), which option is used?**
- A) `-r`
- B) `--runtime`
- C) `--rid`
- D) `-rid`
- **Answer:** B) `--runtime`

28. **Which command is used to verify the syntax of a .NET Core project file?**

- A) `dotnet validate`
- B) `dotnet check`
- C) `dotnet build`
- D) `dotnet verify`
- **Answer:** C) `dotnet build`

29. **To create a new solution file and add an existing project to it,

which command sequence is used?**

- A) `dotnet new sln` followed by `dotnet sln add`
- B) `dotnet create sln` followed by `dotnet add project`
- C) `dotnet new solution` followed by `dotnet solution add`
- D) `dotnet init sln` followed by `dotnet project add`
- **Answer:** A) `dotnet new sln` followed by `dotnet sln add`

30. **Which command is used to remove all unneeded NuGet packages from a project?**

- A) `dotnet clean`
- B) `dotnet restore`
- C) `dotnet package clean`
- D) `dotnet package restore`
- **Answer:** A) `dotnet clean`

31. **To generate a new .NET Core Web API project, which command should be used?**
- A) `dotnet new webapi`
- B) `dotnet new api`
- C) `dotnet new webservice`
- D) `dotnet new restapi`
- **Answer:** A) `dotnet new webapi`

32. **To list the installed .NET Core CLI tools, which command is used?**
- A) `dotnet tool list`
- B) `dotnet list tools`
- C) `dotnet tools`
- D) `dotnet tool --list`
- **Answer:** A) `dotnet tool list`

33. **Which command creates a new .NET Core project based on the specified template?**

- A) `dotnet new <template>`
- B) `dotnet create <template>`
- C) `dotnet init <template>`
- D) `dotnet generate <template>`
- **Answer:** A) `dotnet new <template>`

34. **To run a specific project in a solution, which command is used?**

- A) `dotnet run <project>`
- B) `dotnet start <project>`
- C) `dotnet execute <project>`
- D) `dotnet launch <project>`
- **Answer:** A) `dotnet run <project>`

35. **What does the `dotnet pack` command do?**

- A) Creates a NuGet package from the project
- B) Builds the project
- C) Publishes the project

- D) Restores NuGet packages

- **Answer:** A) Creates a NuGet package from the project

36. **To install a .NET Core tool globally, which command is used?**

- A) `dotnet tool install --global`

- B) `dotnet install tool --global`

- C) `dotnet global tool install`

- D) `dotnet tool add --global`

- **Answer:** A) `dotnet tool install --global`

37. **Which command is used to get help information for a specific .NET Core CLI command?**

- A) `dotnet help <command>`

- B) `dotnet <command> --help`

- C) `dotnet <command> /?`

- D) `dotnet command help`

- **Answer:** B) `dotnet <command> --help`

38. **To display the version of a specific .NET Core CLI tool, which command is used?**

- A) `dotnet tool --version`
- B) `dotnet tool version`
- C) `dotnet --version`
- D) `dotnet tool info`
- **Answer:** C) `dotnet --version`

39. **Which command will build a .NET Core project and place the output in a specified directory?**
- A) `dotnet build -o <directory>`
- B) `dotnet publish -o <directory>`
- C) `dotnet build --output <directory>`
- D) `dotnet build --dir <directory>`
- **Answer:** B) `dotnet publish -o <directory>`

40. **To remove a .NET Core tool from the global tool cache, which command should be used?**
- A) `dotnet tool uninstall --global`
- B) `dotnet uninstall tool --global`
- C) `dotnet global tool remove`
- D) `dotnet tool delete --global`
- **Answer:** A) `dotnet tool uninstall --global`

41. **To create a new Blazor WebAssembly project, which command is used?**

- A) `dotnet new blazorwasm`
- B) `dotnet new blazor`
- C) `dotnet new blazor-wasm`
- D) `dotnet new wasm`
- **Answer:** A) `dotnet new blazorwasm`

42. **Which command is used to list all the projects in a solution?**

- A) `dotnet sln list`
- B) `dotnet list projects`
- C) `dotnet sln projects`
- D) `dotnet list sln`
- **Answer:** A) `dotnet sln list`

43. **To generate a new unit test project, which command is used?**

- A) `dotnet new xunit`
- B) `dotnet new test`

- C) `dotnet new unittest`
- D) `dotnet new testproject`
- **Answer:** A) `dotnet new xunit`

44. **Which command is used to display a detailed list of options for a specific .NET Core CLI command?**
- A) `dotnet <command> -?`
- B) `dotnet <command> --options`
- C) `dotnet <command> -help`
- D) `dotnet <command> --help`
- **Answer:** D) `dotnet <command> --help`

45. **To list all available .NET Core CLI commands, which command should be used?**
- A) `dotnet help`
- B) `dotnet commands`
- C) `dotnet list`
- D) `dotnet --list`
- **Answer:** A) `dotnet help`

46. **To change the target framework of a .NET Core project, which command is used?**

- A) `dotnet target`
- B) `dotnet change-framework`
- C) `dotnet update-framework`
- D) `dotnet build --framework`
- **Answer:** D) `dotnet build --framework`

47. **Which command generates a new Dockerfile for a .NET Core project?**

- A) `dotnet new dockerfile`
- B) `dotnet docker new`
- C) `dotnet add dockerfile`
- D) `dotnet publish --docker`
- **Answer:** A) `dotnet new dockerfile`

48. **To view the .NET Core SDK installation locations, which command should be used?**

- A) `dotnet --list-sdks`
- B) `dotnet list sdks`
- C) `dotnet sdk list`

- D) `dotnet --sdks`
- **Answer:** A) `dotnet --list-sdks`

49. **Which command displays the available runtime environments for a .NET Core project?**
- A) `dotnet --list-runtimes`
- B) `dotnet runtimes`
- C) `dotnet --info`
- D) `dotnet runtimes --list`
- **Answer:** C) `dotnet --info`

50. **To install a .NET Core tool in a local tool manifest, which command is used?**
- A) `dotnet tool install --local`
- B) `dotnet tool install --manifest`
- C) `dotnet tool install`
- D) `dotnet tool add`
- **Answer:** A) `dotnet tool install --local`

1. **What is Dependency Injection (DI) in .NET Core?**

- A. A design pattern for creating object instances
- B. A technique for creating classes
- C. A pattern for managing dependencies between objects
- D. A method for connecting databases

Answer: C

2. **Which namespace contains the Dependency Injection services in .NET Core?**
- A. `System.Collections`
- B. `Microsoft.Extensions.DependencyInjection`
- C. `System.IO`
- D. `Microsoft.AspNetCore.Mvc`

Answer: B

3. **Which method is used to register services in the DI container?**
- A. `AddService()`
- B. `ConfigureServices()`

- C. `RegisterServices()`
- D. `UseServices()`

Answer: B

4. **What is the default lifetime of a service registered using `AddTransient()`?**
   - A. Singleton
   - B. Scoped
   - C. Transient
   - D. Static

   Answer: C

5. **Which method registers a service with a singleton lifetime?**
   - A. `AddScoped()`
   - B. `AddSingleton()`
   - C. `AddTransient()`
   - D. `AddTransientService()`

Answer: B

6. **How is dependency injection typically configured in an ASP.NET Core application?**

- A. In the `Configure()` method of `Startup.cs`
- B. In the `ConfigureServices()` method of `Startup.cs`
- C. In the `Main()` method of `Program.cs`
- D. In the `Initialize()` method of `Program.cs`

Answer: B

7. **Which lifetime should you use if you want a service to be created once per HTTP request?**

- A. Singleton
- B. Transient
- C. Scoped
- D. Static

Answer: C

8. **What is a service scope?**
   - A. The range of objects an application can use
   - B. The lifetime of a service in the DI container
   - C. The collection of services registered in DI
   - D. The visibility of services in different modules

   Answer: B

9. **What happens if you register a service as `AddSingleton()` but inject it into a scoped service?**
   - A. It will work fine
   - B. The service will be created once per request
   - C. An exception will be thrown
   - D. The service will not be available

   Answer: C

10. **Which method would you use to resolve a service manually?**
    - A. `ServiceProvider.GetService()`
    - B. `ServiceResolver.Resolve()`

- C. `ServiceLocator.GetInstance()`
- D. `ServiceProvider.GetInstance()`

Answer: A

11. **What is the primary benefit of using Dependency Injection?**
- A. Increased memory usage
- B. Reduced code complexity
- C. Simplified unit testing
- D. Faster application performance

Answer: C

12. **Which interface does .NET Core use to represent a service provider?**
- A. `IServiceCollection`
- B. `IServiceProvider`
- C. `IServiceResolver`
- D. `IDependencyProvider`

Answer: B

13. **What is the purpose of `IServiceScope`?**
    - A. To create a new service provider
    - B. To manage the lifetime of a scoped service
    - C. To configure services in the container
    - D. To provide a service instance

    Answer: B

14. **Which method is used to register services with a scoped lifetime?**
    - A. `AddSingleton()`
    - B. `AddScoped()`
    - C. `AddTransient()`
    - D. `AddService()`

    Answer: B

15. **Which of the following is true about `AddTransient()` services?**

- A. They are created once per application
- B. They are created once per request
- C. They are created each time they are requested
- D. They are created once per user session

Answer: C

16. **Can you register multiple implementations of the same service interface in .NET Core DI container?**

- A. No, only one implementation per interface is allowed
- B. Yes, but you must use named registrations
- C. Yes, using `IEnumerable<T>` to inject all implementations
- D. Yes, but they will override each other

Answer: C

17. **How would you inject a service into a constructor in .NET Core?**

- A. Use property injection

- B. Use method injection
- C. Use constructor injection
- D. Use field injection

Answer: C

18. **What happens when a service with `AddTransient()` is injected into a `Singleton` service?**
- A. The `Transient` service is reused for the duration of the application
- B. The `Transient` service is recreated each time it is requested
- C. An exception is thrown
- D. The application crashes

Answer: B

19. **Which method allows you to replace an existing service registration in the DI container?**
- A. `Replace()`
- B. `Update()`

- C. `AddSingleton()`

- D. `ServiceCollection.Replace()`

Answer: D

20. **Which of the following is a correct way to register a service with its implementation?**

- A. `services.AddSingleton<IMyService, MyService>();`

- B. `services.Register<IMyService, MyService>();`

- C. `services.Use<IMyService, MyService>();`

- D. `services.AddService<IMyService, MyService>();`

Answer: A

21. **What is the purpose of the `IServiceCollection` interface?**

- A. To resolve service instances

- B. To configure service providers

- C. To register and manage service lifetimes

- D. To create service scopes

Answer: C

22. **Which lifetime should be used for a stateless service in .NET Core?**

- A. Singleton
- B. Scoped
- C. Transient
- D. Static

Answer: C

23. **Can you use Dependency Injection in a class library in .NET Core?**

- A. No, only in web applications
- B. Yes, but it requires special configuration
- C. Yes, by referencing `Microsoft.Extensions.DependencyInjection`
- D. No, class libraries do not support DI

Answer: C

24. **Which method in ASP.NET Core provides access to the configured services?**

- A. `IServiceCollection`
- B. `IServiceProvider`
- C. `IServiceLocator`
- D. `IServiceManager`

Answer: B

25. **What is the default service lifetime if none is specified?**

- A. Singleton
- B. Scoped
- C. Transient
- D. Static

Answer: C

26. **Which of the following is a valid way to resolve a service in an ASP.NET Core Controller?**

- A. Use constructor injection
- B. Use property injection
- C. Use method injection
- D. Use service location

Answer: A

27. **How can you create a new service provider from an existing service collection?**
- A. `new ServiceProvider(services)`
- B. `ServiceProvider.Create(services)`
- C. `services.BuildServiceProvider()`
- D. `ServiceLocator.Create(services)`

Answer: C

28. **Which method would you use to configure services that require configuration data?**
- A. `Configure()`
- B. `Setup()`
- C. `Initialize()`

- D. `ConfigureServices()`

Answer: D

29. **Which lifetime should you use for a service that should be created once per HTTP request?**

- A. Singleton
- B. Scoped
- C. Transient
- D. Static

Answer: B

30. **In which part of the application lifecycle is Dependency Injection configured?**

- A. Application startup
- B. Application shutdown
- C. During application execution
- D. During request handling

Answer: A

31. **How can you register a service with a specific implementation type and lifetime?**

- A. `services.Add(Type, ImplementationType, Lifetime)`
- B. `services.AddService(Type, ImplementationType, Lifetime)`
- C. `services.Add(Type, ImplementationType)`
- D. `services.AddSingleton<IType, ImplementationType>()`

Answer: D

32. **What does `AddSingleton()` do if you register the same service multiple times?**

- A. It creates multiple instances
- B. It replaces the previous registration with the new one
- C. It creates a new instance for each request
- D. It throws an exception

Answer: B

33. **What is a common use case for `AddScoped()` services?**

- A. For services that should be used throughout the application
- B. For services that need to be created every time they are requested
- C. For services that should be created once per user session
- D. For services that should be created once per request

Answer: D

34. **What interface should be implemented by services to use Dependency Injection?**

- A. `IDependency`
- B. `IService`
- C. `IDisposable`
- D. No specific interface is required

Answer: D

35. **How can you inject dependencies into a method?**

- A. Constructor Injection
- B. Property Injection
- C. Method Injection
- D. Field Injection

Answer: C

36. **What does `IServiceCollection` interface represent in .NET Core?**

- A. A collection of services available for injection
- B. A single service instance
- C. A service provider configuration
- D. A configuration file for services

Answer: A

37. **How do you register a service with multiple implementations?**

- A. Register each implementation separately
- B. Use `AddMultiple()` method
- C. Use `AddTransient()` with multiple types
- D. Use `AddEnumerable()` method

Answer: A

38. **Which lifetime is appropriate for a service that maintains state across multiple requests?**

- A. Singleton
- B. Scoped
- C. Transient
- D. Static

Answer: A

39. **Which method is used to register a service that has a factory method for creation?**

- A. `AddFactory()`

- B. `AddService()`
- C. `AddTransient()`
- D. `AddScoped()`

Answer: C

40. **What will happen if you try to resolve a service that was registered with `AddSingleton()` from a `Scoped` service?**
- A. The singleton instance will be used
- B. A new instance will be created
- C. An exception will be thrown
- D. The service will not be available

Answer: A

41. **What does `AddTransient()` registration imply for the service lifecycle?**
- A. The service is created once per request
- B. The service is created only once during the application’s lifetime
- C. The service is created each time it is requested

- D. The service is created once per session

Answer: C

42. **Which of the following methods would you use to replace an existing service registration?**

- A. `Replace()`
- B. `Override()`
- C. `AddSingleton()`
- D. `ServiceCollection.Replace()`

Answer: D

43. **How would you configure Dependency Injection for a class library project?**

- A. Configure in the `Startup.cs` of the application project
- B. Configure directly in the class library
- C. Configure using `DependencyConfig.cs`
- D. Configure in `Program.cs` of the class library

Answer: A

44. **What is the typical approach to resolve services in a background service?**

- A. Inject the `IServiceProvider` into the background service
- B. Use static methods to resolve services
- C. Use a service locator pattern
- D. Resolve services manually in the constructor

Answer: A

45. **What is the primary purpose of `IServiceScopeFactory`?**

- A. To create a new service provider
- B. To create a new scope for service resolution
- C. To register new services
- D. To resolve singleton services

Answer: B

46. **What will happen if you inject a `Scoped` service into a `Singleton` service?**

- A. The scoped service will be resolved correctly
- B. An exception will be thrown
- C. The service will be created multiple times
- D. The scoped service will be unavailable

Answer: B

47. **What is the effect of registering a service as `AddSingleton()` in terms of memory usage?**

- A. The service is disposed of after each request
- B. The service uses less memory due to reuse
- C. The service is created once and reused, increasing memory usage
- D. The service uses the same memory for each request

Answer: C

48. **What interface provides access to configure and manage services in .NET Core?**

- A. `IServiceProvider`
- B. `IServiceCollection`
- C. `IServiceManager`
- D. `IServiceConfigurator`

Answer: B

49. **How can you ensure a service is always available in the DI container?**
- A. Register it with `AddSingleton()`
- B. Register it with `AddScoped()`
- C. Register it with `AddTransient()`
- D. Register it with `AddAlways()`

Answer: A

50. **What method can be used to inject configuration values into services?**
- A. `Configure()`
- B. `Setup()`
- C. `Initialize()`

- D. `AddConfiguration()`

Answer: A

Questions and Answers

1. **What is NUnit?**
   - A) A web framework
   - B) A unit testing framework for .NET
   - C) A database management system
   - D) A development environment

   Answer: B) A unit testing framework for .NET

2. **Which attribute is used to mark a method as a test in NUnit?**
   - A) `[TestMethod]`
   - B) `[TestCase]`
   - C) `[Test]`
   - D) `[Fact]`

Answer: C) `[Test]`

3. **How do you run a test suite in NUnit?**
   - A) Using the `TestRunner` class
   - B) Using the NUnit Console Runner
   - C) By calling `RunTests()`
   - D) Through Visual Studio's Test Explorer

   Answer: B) Using the NUnit Console Runner

4. **Which NUnit attribute is used for a test that is expected to fail?**
   - A) `[Ignore]`
   - B) `[ExpectedException]`
   - C) `[ExpectedFailure]`
   - D) `[ExpectedException]`

   Answer: B) `[ExpectedException]`

5. **What is the purpose of `[SetUp]` attribute in NUnit?**

- A) It sets up the test data
- B) It runs before each test method
- C) It cleans up after each test method
- D) It runs after all test methods

Answer: B) It runs before each test method

6. **Which NUnit attribute is used to run a method after all test methods in a test class?**
- A) `[SetUp]`
- B) `[TearDown]`
- C) `[OneTimeSetUp]`
- D) `[OneTimeTearDown]`

Answer: D) `[OneTimeTearDown]`

7. **What does the `[TestCase]` attribute do in NUnit?**
- A) Marks a method as a test method
- B) Defines a test method with multiple input parameters

- C) Specifies the expected result of a test
- D) Ignored the test

Answer: B) Defines a test method with multiple input parameters

8. **What is the use of the `[Ignore]` attribute?**
- A) To mark a test method as ignored
- B) To mark a test method as expected to fail
- C) To temporarily disable a test method
- D) To run the test method conditionally

Answer: C) To temporarily disable a test method

9. **Which NUnit attribute is used to categorize tests?**
- A) `[Category]`
- B) `[Tag]`
- C) `[Group]`
- D) `[Label]`

Answer: A) `[Category]`

10. **How can you specify a timeout for a test method in NUnit?**

- A) `[Timeout]`
- B) `[TimeLimit]`
- C) `[MaxTime]`
- D) `[ExecutionTime]`

Answer: A) `[Timeout]`

11. **Which NUnit attribute indicates that a test method should be run on a specific platform?**

- A) `[Platform]`
- B) `[RunOn]`
- C) `[Target]`
- D) `[Environment]`

Answer: A) `[Platform]`

12. **How do you run tests in parallel using NUnit?**

- A) `[Parallelizable]`
- B) `[Async]`
- C) `[Parallel]`
- D) `[Concurrent]`

Answer: A) `[Parallelizable]`

13. **What is the purpose of `[OneTimeSetUp]` in NUnit?**

- A) It runs before each test method
- B) It runs once before any tests in the test class
- C) It runs after each test method
- D) It runs once after all tests in the test class

Answer: B) It runs once before any tests in the test class

14. **Which attribute is used to mark a test method that is expected to throw an exception?**

- A) `[Exception]`

- B) `[Throws]`
- C) `[ExpectedException]`
- D) `[Expected]`

Answer: C) `[ExpectedException]`

15. **What type of value does `[TestCase]` return?**
- A) Boolean
- B) Integer
- C) String
- D) Object

Answer: D) Object

16. **What NUnit attribute allows for parameterized tests?**
- A) `[Test]`
- B) `[TestCase]`
- C) `[TestMethod]`
- D) `[DataRow]`

Answer: B) `[TestCase]`

17. **Which attribute is used to mark a method that performs cleanup after each test?**

- A) `[Cleanup]`
- B) `[PostTest]`
- C) `[TearDown]`
- D) `[Dispose]`

Answer: C) `[TearDown]`

18. **How can you assert that two values are equal in NUnit?**

- A) `Assert.AreEqual()`
- B) `Assert.Equals()`
- C) `Assert.IsEqual()`
- D) `Assert.Compare()`

Answer: A) `Assert.AreEqual()`

19. **What does `Assert.IsTrue()` do in NUnit?**

- A) Asserts that the given condition is true
- B) Asserts that the given condition is false
- C) Asserts that the given object is true
- D) Asserts that the given string is true

Answer: A) Asserts that the given condition is true

20. **Which assertion is used to check if an object is null?**
- A) `Assert.IsNull()`
- B) `Assert.Null()`
- C) `Assert.Equals()`
- D) `Assert.IsEmpty()`

Answer: A) `Assert.IsNull()`

21. **How can you skip a test conditionally in NUnit?**
- A) By using `[Ignore]` with a condition
- B) By using `[ConditionalIgnore]`

- C) By using `Assume.That()`
- D) By using `Skip()`

Answer: C) By using `Assume.That()`

22. **Which attribute in NUnit is used to mark a class for parameterized tests?**
- A) `[TestFixture]`
- B) `[TestClass]`
- C) `[Parameterized]`
- D) `[TestSetup]`

Answer: A) `[TestFixture]`

23. **Which of the following is a valid NUnit assertion method?**
- A) `Assert.AreSame()`
- B) `Assert.IsEqual()`
- C) `Assert.IsEqualTo()`
- D) `Assert.Compare()`

Answer: A) `Assert.AreSame()`

24. **What is the purpose of the `[TestFixture]` attribute in NUnit?**

- A) To specify that a class contains tests
- B) To specify that a class should not contain tests
- C) To define test cases
- D) To ignore the test class

Answer: A) To specify that a class contains tests

25. **How do you define a test method that runs only if a certain condition is met?**

- A) `[Conditional]`
- B) `[If]`
- C) `[When]`
- D) `[TestCase]`

Answer: A) `[Conditional]`

26. **What does the `Assert.Throws()` method do?**

- A) Checks if a method throws an exception
- B) Checks if a method returns a value
- C) Checks if an object is of a certain type
- D) Checks if an exception is of a certain type

Answer: A) Checks if a method throws an exception

27. **Which NUnit method checks if two collections are equal?**

- A) `Assert.AreEqual()`
- B) `Assert.AreSame()`
- C) `Assert.Collection()`
- D) `Assert.Contains()`

Answer: A) `Assert.AreEqual()`

28. **How can you categorize tests in NUnit?**

- A) By using `[Category]` attribute
- B) By using `[Group]` attribute

- C) By using `[Tag]` attribute
- D) By using `[Label]` attribute

Answer: A) By using `[Category]` attribute

29. **Which attribute is used to run a test method in a specific order?**
- A) `[Order]`
- B) `[Priority]`
- C) `[Sequence]`
- D) `[TestOrder]`

Answer: A) `[Order]`

30. **What does the `Assert.Fail()` method do?**
- A) Marks the test as failed
- B) Marks the test as passed
- C) Igno

res the test
- D) Throws an exception

Answer: A) Marks the test as failed

31. **What NUnit attribute allows you to run tests on a specific platform?**

- A) `[Platform]`
- B) `[Environment]`
- C) `[RunOn]`
- D) `[Target]`

Answer: A) `[Platform]`

32. **Which NUnit attribute is used to mark a test as part of a specific test suite?**

- A) `[Category]`
- B) `[Suite]`
- C) `[Group]`
- D) `[TestGroup]`

Answer: A) `[Category]`

33. **What does the `[TestCaseSource]` attribute do?**

- A) Provides a source of parameters for test cases
- B) Marks a test case as required
- C) Specifies the type of test case
- D) Defines the data source for tests

Answer: A) Provides a source of parameters for test cases

34. **Which attribute is used to execute a test only if a certain condition is met?**

- A) `[Conditional]`
- B) `[Assume]`
- C) `[TestCase]`
- D) `[Requires]`

Answer: A) `[Conditional]`

35. **What is the purpose of `[TestFixtureSource]` attribute?**

- A) Provides a source of test data for a test fixture

- B) Defines a test fixture class
- C) Specifies the setup for a test fixture
- D) Indicates a source of tests

Answer: A) Provides a source of test data for a test fixture

36. **How can you run NUnit tests from the command line?**
- A) Using `nunit3-console`
- B) Using `nunit-runner`
- C) Using `nunit-console`
- D) Using `nunit-test`

Answer: C) Using `nunit-console`

37. **Which NUnit attribute is used to define a setup method for a test fixture?**
- A) `[SetUp]`
- B) `[OneTimeSetUp]`
- C) `[TestFixtureSetup]`

- D) `[Setup]`

Answer: B) `[OneTimeSetUp]`

38. **What is the purpose of the `[TestCase]` attribute?**

- A) To run a test method with different input parameters
- B) To define a test class
- C) To set up the test environment
- D) To tear down after the test

Answer: A) To run a test method with different input parameters

39. **What does `Assert.AreNotEqual()` do?**

- A) Asserts that two values are not equal
- B) Asserts that two values are equal
- C) Asserts that a value is not null
- D) Asserts that a value is not empty

Answer: A) Asserts that two values are not equal

40. **Which attribute is used to indicate that a test is not ready for execution?**

- A) `[Ignore]`
- B) `[Pending]`
- C) `[NotReady]`
- D) `[Skip]`

Answer: A) `[Ignore]`

41. **Which method is used to assert that a collection contains a specific item?**

- A) `Assert.Contains()`
- B) `Assert.Includes()`
- C) `Assert.HasItem()`
- D) `Assert.Found()`

Answer: A) `Assert.Contains()`

42. **Which NUnit attribute allows you to set up a fixture with parameters?**

- A) `[TestFixture]`
- B) `[TestFixtureSource]`
- C) `[Fixture]`
- D) `[ParameterizedFixture]`

Answer: B) `[TestFixtureSource]`

43. **What does the `[ExpectedException]` attribute do in NUnit?**

- A) Specifies that an exception is expected during test execution
- B) Marks a test method as expected to fail
- C) Indicates that the test should throw an exception
- D) Defines the type of exception expected

Answer: A) Specifies that an exception is expected during test execution

44. **How can you create a custom assertion in NUnit?**

- A) By inheriting from `Assert`
- B) By creating a new method in the test class
- C) By using `Assert.That()` with custom constraints
- D) By using a third-party library

Answer: C) By using `Assert.That()` with custom constraints

45. **Which method would you use to verify that a method does not throw an exception?**

- A) `Assert.DoesNotThrow()`
- B) `Assert.NoException()`
- C) `Assert.DoesNotThrowException()`
- D) `Assert.Pass()`

Answer: D) `Assert.Pass()`

46. **How do you specify a test case with multiple expected results?**

- A) `[TestCase]` with multiple parameters
- B) `[TestCaseSource]`
- C) `[TestCases]`
- D) `[MultipleResults]`

Answer: B) `[TestCaseSource]`

47. **What is the purpose of the `[TestFixture]` attribute?**
- A) To specify that a class contains tests
- B) To define a test case
- C) To group tests together
- D) To run tests in parallel

Answer: A) To specify that a class contains tests

48. **Which attribute is used to define a test that runs before all tests in a fixture?**
- A) `[SetUp]`
- B) `[OneTimeSetUp]`

- C) `[BeforeAll]`
- D) `[TestSetup]`

Answer: B) `[OneTimeSetUp]`

49. **What does the `Assert.Multiple()` method allow you to do?**
- A) Group multiple assertions to be checked together
- B) Run multiple tests simultaneously
- C) Compare multiple objects
- D) Validate multiple test cases

Answer: A) Group multiple assertions to be checked together

50. **Which NUnit assertion is used to check if a string contains a specific substring?**
- A) `Assert.Contains()`
- B) `Assert.ContainsSubstring()`
- C) `Assert.IsSubstring()`
- D) `Assert.HasSubstring()`

Answer: A) `Assert.Contains()`

1. **What is the primary purpose of the Moq framework?**
   - A) Database access
   - B) Dependency injection
   - C) Mocking objects in unit tests
   - D) Web service integration
   - **Answer:** C

2. **Which method is used to create a mock object in Moq?**
   - A) `Mock.Create()`
   - B) `Moq.Mock()`
   - C) `new Mock<T>()`
   - D) `Mock.CreateInstance()`
   - **Answer:** C

3. **How do you set up a method call expectation in Moq?**

- A) `Setup()`
- B) `Expect()`
- C) `Mock()`
- D) `Arrange()`
- **Answer:** A

4. **What method do you use to verify that a method was called on a mock?**
- A) `Verify()`
- B) `Check()`
- C) `Assert()`
- D) `Validate()`
- **Answer:** A

5. **Which Moq method would you use to return a specific value from a mocked method?**
- A) `Returns()`
- B) `Set()`
- C) `Output()`
- D) `Respond()`
- **Answer:** A

6. **How can you specify that a method should throw an exception when called?**

   - A) `Throws()`
   - B) `Raise()`
   - C) `Error()`
   - D) `Throw()`
   - **Answer:** A

7. **Which Moq method is used to set up an out parameter?**

   - A) `Setup()` with `Returns()`
   - B) `SetupSet()`
   - C) `Setup()` with `ReturnsAsync()`
   - D) `Setup()` with `Callback()`
   - **Answer:** A

8. **What does the `Verify()` method check for in Moq?**

   - A) Whether a method was called
   - B) Whether an exception was thrown

- C) The number of times a method was called
- D) The return value of a method
- **Answer:** C

9. **How do you set up a mock to call a base class implementation?**
- A) `CallBase = true`
- B) `BaseCall = true`
- C) `UseBaseImplementation()`
- D) `CallBaseImplementation()`
- **Answer:** A

10. **Which Moq method allows you to verify that a method was called with specific arguments?**
- A) `Verify()`
- B) `Assert()`
- C) `Check()`
- D) `Validate()`
- **Answer:** A

11. **What does the `Callback()` method do in Moq?**

- A) Sets the return value of a method
- B) Executes a delegate when a method is called
- C) Checks the method call frequency
- D) Configures the exception handling
- **Answer:** B

12. **How can you configure a mock to return a value asynchronously?**

- A) `ReturnsAsync()`
- B) `Returns()`
- C) `Return()`
- D) `Async()`
- **Answer:** A

13. **In Moq, what is the default behavior when setting up a method without specifying a return value?**

- A) It returns `null` for reference types
- B) It throws an exception
- C) It returns a default value for value types

- D) It returns an empty collection
- **Answer:** C

14. **Which method allows setting up a mock to behave differently based on input parameters?**
- A) `Setup()`
- B) `SetupSequence()`
- C) `Returns()`
- D) `Callback()`
- **Answer:** B

15. **How do you create a mock for an interface in Moq?**
- A) `new Mock<IInterface>()`
- B) `Mock.Create<IInterface>()`
- C) `Mock.For<IInterface>()`
- D) `Mock.Instance<IInterface>()`
- **Answer:** A

16. **How do you set up a mock to return a sequence of values?**

- A) `SetupSequence()`
- B) `ReturnsSequence()`
- C) `Setup()`
- D) `Sequence()`
- **Answer:** A

17. **What is the Moq method to setup a property getter?**
- A) `SetupGet()`
- B) `SetupProperty()`
- C) `ConfigureGet()`
- D) `SetGet()`
- **Answer:** A

18. **Which method is used to set up a property setter in Moq?**
- A) `SetupSet()`
- B) `SetProperty()`
- C) `ConfigureSet()`
- D) `SetupProperty()`
- **Answer:** A

19. **How do you handle method chaining in Moq setups?**

- A) `Returns()` with `Setup()`
- B) `Setup()` with `Returns()`
- C) `Callback()`
- D) `Sequence()`
- **Answer:** B

20. **How do you specify that a mock should not call any base class methods?**

- A) `CallBase = false`
- B) `NoBaseCall()`
- C) `SkipBase()`
- D) `IgnoreBase()`
- **Answer:** A

21. **What does the `ThrowsAsync()` method do in Moq?**

- A) Sets up a mock to throw an exception asynchronously
- B) Returns an exception asynchronously

- C) Handles synchronous exception throwing
- D) Throws an exception synchronously
- **Answer:** A

22. **How can you set up a mock to return different values based on different input parameters?**
- A) `Returns()`
- B) `ReturnsInOrder()`
- C) `Setup()` with `Returns()`
- D) `Callback()`
- **Answer:** C

23. **Which method is used to clear up all setups and verifications on a mock?**
- A) `Reset()`
- B) `Clear()`
- C) `Dispose()`
- D) `Setup()`
- **Answer:** A

24. **What is the purpose of the `MockSequence` class in Moq?**

- A) To specify a sequence of returns for a method
- B) To create a series of mocks
- C) To configure property setters
- D) To handle multiple interface mocks
- **Answer:** A

25. **What Moq method is used to configure a method to return a value based on a specific argument?**

- A) `Returns()`
- B) `ReturnsFor()`
- C) `Setup()`
- D) `With()`
- **Answer:** C

26. **How do you set up a mock to call an actual implementation of a method in Moq?**

- A) `CallBase = true`
- B) `UseBaseImplementation()`
- C) `Implement()`

- D) `InvokeBase()`
- **Answer:** A

27. **Which Moq feature allows you to define multiple return values for sequential calls to a method?**
- A) `SetupSequence()`
- B) `ReturnsInOrder()`
- C) `SequentialReturns()`
- D) `MultiReturns()`
- **Answer:** A

28. **How do you mock an abstract class method?**
- A) Use `CallBase = true`
- B) Setup the method with `Setup()`
- C) Abstract methods cannot be mocked
- D) Use `Mock.Abstract()`
- **Answer:** B

29. **What is the default return value for a method if not explicitly set in Moq?**

- A) `null` for reference types and `0` for value types

- B) `default` for value types and `null` for reference types

- C) `empty string` for strings

- D) `false` for booleans

- **Answer:** B

30. **Which method would you use to set up a mock to return a value based on a condition?**

- A) `Setup()`

- B) `SetupCondition()`

- C) `Returns()`

- D) `SetupConditional()`

- **Answer:** A

31. **How do you set up a mock to verify that a method was called a specific number of times?**

- A) `Verify()`

- B) `VerifyCallCount()`

- C) `CheckCallCount()`

- D) `AssertCallCount()`

- **Answer:** A

32. **Which method can be used to set up a mock to execute a delegate when a method is called?**
    - A) `Callback()`
    - B) `

Execute()`
    - C) `Action()`
    - D) `Delegate()`
    - **Answer:** A

33. **In Moq, what method allows you to set up a property to throw an exception when set?**
    - A) `SetupSet()`
    - B) `SetThrows()`
    - C) `PropertyException()`
    - D) `ThrowOnSet()`
    - **Answer:** A

34. **Which Moq method is used to configure a mock to return different values based on method input parameters?**

- A) `Setup()`
- B) `SetupParameter()`
- C) `Returns()`
- D) `ReturnValue()`
- **Answer:** A

35. **How do you use Moq to verify that no methods were called on a mock?**

- A) `VerifyNoOtherCalls()`
- B) `VerifyNoCalls()`
- C) `VerifyNoOtherInteractions()`
- D) `Verify()`
- **Answer:** C

36. **What does the `Verifiable()` method do in Moq?**

- A) Marks a setup to be verified later
- B) Ensures a method was called
- C) Sets up a verification callback

- D) Configures an exception for verification
- **Answer:** A

37. **Which method in Moq is used to ensure a mock returns different values for subsequent calls?**
- A) `ReturnsInSequence()`
- B) `Returns()`
- C) `ReturnsAsync()`
- D) `SetupSequence()`
- **Answer:** D

38. **How do you create a mock for a class that has a constructor with parameters?**
- A) `new Mock<ClassName>(param1, param2)`
- B) `Mock.Create<ClassName>(param1, param2)`
- C) `Mock.Of<ClassName>(param1, param2)`
- D) `Mock<ClassName>.Create(param1, param2)`
- **Answer:** A

39. **How can you use Moq to set up a method to return a value based on the method’s arguments?**

- A) `Returns()`
- B) `Setup()`
- C) `ReturnValue()`
- D) `Arguments()`
- **Answer:** B

40. **What is the purpose of the `VerifyAll()` method in Moq?**
- A) Verifies all setups and interactions on the mock
- B) Ensures all methods were called
- C) Verifies that no methods were called
- D) Confirms all exception handling
- **Answer:** A

41. **How do you mock a method that should be called only once in Moq?**
- A) `Verify()` with `Times.Once()`
- B) `VerifyOnce()`
- C) `AssertCallOnce()`
- D) `CheckOnce()`

- **Answer:** A

42. **Which Moq feature allows you to control how a mock behaves based on input parameters and sequence of calls?**

- A) `SetupSequence()`
- B) `ReturnsSequence()`
- C) `SequentialSetup()`
- D) `SetupInOrder()`
- **Answer:** A

43. **What method do you use to ensure that a mock's property getter returns a specific value?**

- A) `SetupGet()`
- B) `GetValue()`
- C) `ConfigureGet()`
- D) `ReturnValue()`
- **Answer:** A

44. **How do you set up a method to return a value based on a condition in Moq?**

- A) `Setup()` with a predicate

- B) `Returns()` with a condition
- C) `SetupCondition()`
- D) `ReturnOnCondition()`
- **Answer:** A

45. **What method is used to verify that a mock’s method was called with specific arguments?**
- A) `Verify()`
- B) `AssertCall()`
- C) `CheckArguments()`
- D) `ValidateCall()`
- **Answer:** A

46. **How do you set up a mock to return different values for consecutive calls?**
- A) `SetupSequence()`
- B) `Setup()` with `Returns()`
- C) `SequentialReturns()`
- D) `ReturnsInOrder()`
- **Answer:** A

47. **What is the purpose of the `MockBehavior.Strict` setting in Moq?**

- A) To enforce strict matching of setup and interactions
- B) To ignore unexpected calls
- C) To allow all interactions
- D) To set up default behaviors
- **Answer:** A

48. **Which Moq method is used to configure a mock's property to throw an exception when accessed?**

- A) `SetupGet()`
- B) `SetupSet()`
- C) `Throws()`
- D) `ThrowException()`
- **Answer:** A

49. **How do you configure a mock to execute specific logic when a method is called?**

- A) `Callback()`
- B) `Logic()`

- C) `OnCall()`
- D) `Execute()`
- **Answer:** A

50. **What is the main advantage of using Moq over other mocking frameworks?**
- A) It provides a fluent API for setting up and verifying mocks
- B) It has better performance
- C) It supports more complex mocking scenarios
- D) It integrates better with non-.NET languages
- **Answer:** A