**DDL**

1. ***Database level***

create database TestDatabase

use TestDatabase

--\_\_\_\_\_\_\_ create a test table and view \_\_\_\_\_\_\_\_\_\_\_

CREATE TABLE TestTable (ID INT PRIMARY KEY, Name VARCHAR(50));

CREATE VIEW TestView AS SELECT \* FROM TestTable;

-- create the DDL trigger to prevent table and view alteration or deletion

CREATE TRIGGER tr\_PreventTableAndViewAlterationAndDeletion

ON DATABASE

FOR ALTER\_TABLE, DROP\_TABLE, ALTER\_VIEW, DROP\_VIEW

AS

BEGIN

-- raise an error and rollback the transaction

RAISERROR('Table and view alteration or deletion is not allowed in this database.', 16, 1)

ROLLBACK TRANSACTION

END

GO

drop trigger tr\_PreventTableAndViewAlterationAndDeletion on database

--\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Testing Trigger \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

--\_\_\_ 1. Table Test \_\_\_\_\_\_

ALTER TABLE TestTable ADD Age INT; --alter

drop table TestTable -- drop

--\_\_\_ 2. View Test \_\_\_\_\_\_

ALTER VIEW TestView AS SELECT ID, Name FROM TestTable; -- Alter

drop View TestView -- drop

1. ***Server Level***

**Example 1.** *Procedure Create Trigger*

use master

--\_\_\_\_\_\_\_ create a test table and view \_\_\_\_\_\_\_\_\_\_\_

CREATE TABLE dbo.ProcedureLog

(

LogID INT IDENTITY(1,1) PRIMARY KEY,

LogMessage NVARCHAR(MAX) NOT NULL,

LogDate DATETIME NOT NULL

);

--\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Create proccedure Trigger \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

CREATE TRIGGER tr\_LogProcedureCreation

ON ALL SERVER

FOR CREATE\_PROCEDURE

AS

BEGIN

DECLARE @msg NVARCHAR(MAX)

SET @msg = 'Procedure created: ' + EVENTDATA().value('(/EVENT\_INSTANCE/ObjectName)[1]', 'nvarchar(max)')

INSERT INTO dbo.ProcedureLog (LogMessage, LogDate)

VALUES (@msg, GETDATE())

END

--drop trigger tr\_LogProcedureCreation on all server

--\_\_\_\_\_\_\_\_\_\_ Test Trigger \_\_\_\_\_\_\_\_\_\_

create proc selectmyTable

as

begin

select \* from practice2.dbo.orders

end

--See result ---

select \* from ProcedureLog

**Example 2.** *Create\_Database Trigger*

CREATE TRIGGER tr\_PreventDatabaseCreation

ON ALL SERVER

FOR CREATE\_DATABASE

AS

BEGIN

RAISERROR('Database creation is not allowed on this server.', 16, 1)

ROLLBACK TRANSACTION

END

**Example 3.** *DDL\_DATABASE\_LEVEL\_EVENTS*

CREATE TRIGGER tr\_AuditSchemaChanges

ON ALL SERVER

FOR DDL\_DATABASE\_LEVEL\_EVENTS

AS

BEGIN

DECLARE @msg NVARCHAR(MAX)

SET @msg = EVENTDATA().value('(/EVENT\_INSTANCE/TSQLCommand/CommandText)[1]', 'nvarchar(max)')

INSERT INTO dbo.SchemaChangesLog (LogMessage, LogDate)

VALUES (@msg, GETDATE())

END

***events***

* **CREATE\_TABLE**
* **DROP\_TABLE**
* **ALTER\_TABLE**
* **CREATE\_VIEW**
* **DROP\_VIEW**
* **ALTER\_VIEW**
* **CREATE\_PROCEDURE**
* **DROP\_PROCEDURE**
* **ALTER\_PROCEDURE**
* **CREATE\_FUNCTION**
* **DROP\_FUNCTION**
* **ALTER\_FUNCTION**
* **CREATE\_TRIGGER**
* **DROP\_TRIGGER**
* **ALTER\_TRIGGER**

**Example 3.** *Drop\_Index*

CREATE TRIGGER tr\_PreventIndexDeletion

ON ALL SERVER

FOR DROP\_INDEX

AS

BEGIN

RAISERROR('Index deletion is not allowed on this server.', 16, 1)

ROLLBACK TRANSACTION

END

**Example 5.** *Logon to Trigger*

Trigger for Auditing Logins: The following DDL trigger logs all successful and failed login attempts to the "LoginAudit" table:

CREATE TABLE LoginAudit (

LoginAuditID INT PRIMARY KEY IDENTITY(1,1),

EventType NVARCHAR(128),

LoginName NVARCHAR(128) ,

HostName NVARCHAR(128),

ApplicationName NVARCHAR(128),

LogonTime DATETIME

);

drop table LoginAudit

CREATE TRIGGER AuditLogins

ON ALL SERVER

FOR LOGON

AS

BEGIN

DECLARE @EventData xml

SET @EventData = EVENTDATA()

INSERT INTO LoginAudit (EventType, LoginName, HostName, ApplicationName, LogonTime)

VALUES (

@EventData.value('(/EVENT\_INSTANCE/EventType)[1]', 'nvarchar(128)'),

@EventData.value('(/EVENT\_INSTANCE/LoginName)[1]', 'nvarchar(128)'),

@EventData.value('(/EVENT\_INSTANCE/HostName)[1]', 'nvarchar(128)'),

@EventData.value('(/EVENT\_INSTANCE/ApplicationName)[1]', 'nvarchar(128)'),

GETDATE()

)

END;

GO

select \* from LoginAudit

use master

go

select \* from sys.server\_triggers order by create\_date desc

--\_\_\_\_\_\_\_\_ Disable Trigger \_\_\_\_\_\_\_\_\_\_\_

disable trigger [AuditLogins] on all server

--\_\_\_\_\_\_\_\_ Disable Trigger \_\_\_\_\_\_\_\_\_\_\_

enable trigger [AuditLogins] on all server

--\_\_\_\_\_\_\_\_ Drop Trigger \_\_\_\_\_\_\_\_\_\_\_

DROP TRIGGER AuditLogins ON ALL SERVER

--\_\_\_\_\_\_\_\_\_\_\_ check UserName \_\_\_\_\_\_\_\_\_\_

SELECT SUSER\_SNAME()