Write an example for INSTEAD OF (Before)TRIGGERS for each category (INSERT, UPDATE, DELETE)

A trigger is a set of actions that are run automatically when a specified change operation (SQL INSERT, UPDATE, or DELETE statement) is performed on a specified table.
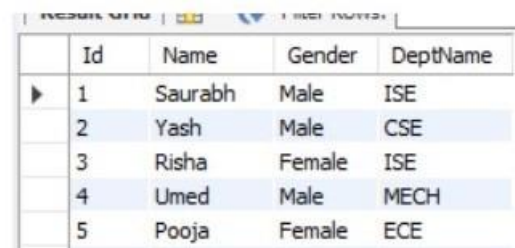
1. **Instead of Insert Trigger:**
   In general, INSTEAD OF triggers are usually used to correctly update views that are based on multiple tables. Syntax:

```
CREATE TABLE student
(
        Id int Primary Key,
        Name varchar(30),
        Gender varchar(10),
        DepartmentId int
);
CREATE TABLE Department
(
        DeptId int Primary Key,
        DeptName varchar(20)
);

Insert into Department values (1,'ISE');
Insert into Department values (2,'CSE');
Insert into Department values (3,'MECH');
Insert into Department values (4,'ECE');
Insert into student values (1,'Saurabh', 'Male', 1);
Insert into student values (2,'Yash', 'Male', 2);
Insert into student values (3,'Risha', 'Female', 1);
Insert into student values (4,'Umed', 'Male', 3);
Insert into student values (5,'Pooja', 'Female', 4);

Create view vWStudentDetails
as
Select Id, Name, Gender, DeptName
from student
join Department
on student.DepartmentId = Department.DeptId;
```

Id	Name	Gender	DeptName
1	Saurabh	Male	ISE
2	Yash	Male	CSE
3	Risha	Female	ISE
4	Umed	Male	MECH
5	Pooja	Female	ECE

```
Created View
```

Now if we insert a value into the view it will give an error. Inserting a row into a view that is based on multipe tables, raises an error by default.

```
Create trigger tr_InsteadOfInsert

on vWStudentDetails

Instead Of Insert

as

Begin

 Declare @DeptId int

 Select @DeptId = DeptId

 from Department

 join inserted

 on inserted.DeptName = Department.DeptName

 if(@DeptId is null)

 Begin

  Raiserror('Invalid Department Name. Statement
terminated', 16, 1)

   return

 End

 Insert into Student(Id, Name, Gender, DepartmentId)

 Select Id, Name, Gender, @DeptId

 from inserted

End
```

Code for the trigger

The above code inserts the value in their respective base table instead of inserting in the view.Therefore the insert statement doesn't give any errors.

2. **Instead of Update Trigger:**
   Similar to the insert trigger we can also use update trigger in case of update query.

Syntax:

```
Create Trigger tr_InsteadOfUpdate
on ViewStudentDetails1
instead of update
as
Begin

//logic of update
//similar to insert

End
```

3. **Instead of Delete Trigger:**

Delete trigger means that sql will fire this trigger before the delete operation is executed.

Syntax:

```
Create Trigger tr_InsteadOfDelete
on ViewStudentDetails1
instead of delete
as
Begin

//logic of delete
//similar to insert

End
```