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Micro Project Proposal

TRIGGERS

1. Aims/Benefits of the Micro-Project:

- Produce additional checking during insert, update or delete operations on the affected table.
- They allow us to encode complex default values that cannot be handled by default constraints.
- Implement referential integrity across databases. You can read more about this in this tip: [SQL Server Referential Integrity Across Databases Using Triggers.](#)
- They allow us to control what actually happens when one performs an insert, update, or delete on a view that accesses multiple tables.
- You can calculate aggregated columns in a table using triggers

2. Course Outcome Addressed:

- CO-1: Create and Manage Database using SQL Commands.
- CO-2: Apply triggers on database and also create the procedure.
- CO-3: Create function according to condition.

3. Proposed Methodology:

A trigger is a stored procedure in database which automatically invokes whenever a special event in the database occurs. For example, a trigger can be invoked when a row is inserted into a specified table or when certain table columns are being updated.

4. Action Plan:

Sr. No.	Details of Activity	Planned Start date	Planned Finish date	Name of Responsible Team Members
1	Search the information of database	14-09-2022 3:30 – 5:30 PM	16-09-2022 3:30 – 5:30 PM	Akshay Dashrath Gitte
2	Collect the information of trigger	19-09-2022 3:30 – 5:30 PM	23-09-2022 3:30 – 5:30 PM	
3	Analysis of different information	26-09-2022 3:30 – 5:30 PM	29-09-2022 3:30 – 5:30 PM	
4	Analysis of information	03-10-2022 3:30 – 5:30 PM	06-10-2022 3:30 – 5:30 PM	Harsh Moreshwar Kale
5	Compression of Database	10-10-2022 3:30 – 5:30 PM	13-10-2022 3:30 – 5:30 PM	
6	Features of Database	20-10-2022 3:30 – 5:30 PM	01-11-2022 3:30 – 5:30 PM	
7	Advantages and drawback of trigger	03-11-2022 3:30 – 5:30 PM	07-11-2022 3:30 – 5:30 PM	Sujit Sudhakar Sukane
8	Final report of project	14-11-2022 3:30 – 5:30 PM	17-11-2022 3:30 – 5:30 PM	

5. Resources Required:

Sr. No.	Name of resource / material	Specification	Quantity	Remarks
1	Computer	WINDOWS 11,8GB RAM	1	
2	Operating System	WINDOWS 11	1	
3	Software	Oracle Database 10G	1	
4	Browser	Google Chrome	1	

Names of Team Members with Roll No.'s:

Sr. No.	Enrollment No.	Name of Team Member	Roll No.
1	2110950049	Akshay Dashrath Gitte	01
2	2110950051	Harsh Moreshwar Kale	03
3	2110950159	Sujit Sudhakar Sukane	60

Mr. Lokre A. P.**Name and Signature of the Teacher**

Micro-Project Report

TRIGGERS

1. Rationale:

The main purpose of triggers is to automate execution of code when an event occurs. In other words, if you need a certain piece of code to always be executed in response to an event, the best option is to use triggers. Mostly because they guarantee that the code will be executed or the event that fired the trigger will fail.

2. Aims/Benefits of the Micro-Project:

- Produce additional checking during insert, update or delete operations on the affected table.
- They allow us to encode complex default values that cannot be handled by default constraints.
- Implement referential integrity across databases. You can read more about this in this tip: [SQL Server Referential Integrity Across Databases Using Triggers.](#)
- They allow us to control what actually happens when one performs an insert, update, or delete on a view that accesses multiple tables.
- You can calculate aggregated columns in a table using triggers

3. Course Outcomes Achieved:

- CO-1: Create and Manage Database using SQL Commands.
- CO-2: Apply triggers on database and also create the procedure.
- CO-3: Create function according to condition.

4. Literature Review:

Triggers are stored programs, which are automatically executed or fired when some events occur. Triggers are in fact written to be executed in response to any of the following events

- Create trigger before update

5.Actual Methodology followed

5.1 Syntax:

- **Create trigger before update:-**

```
CREATE [ OR REPLACE ] TRIGGER trigger_name
BEFORE UPDATE
ON table_name
[ FOR EACH ROW ]
DECLARE
-- variable declarations
BEGIN
-- trigger code
EXCEPTION
WHEN ...
-- exception handling
END;
```

5.2Source Code:

- **Create trigger before update:-**

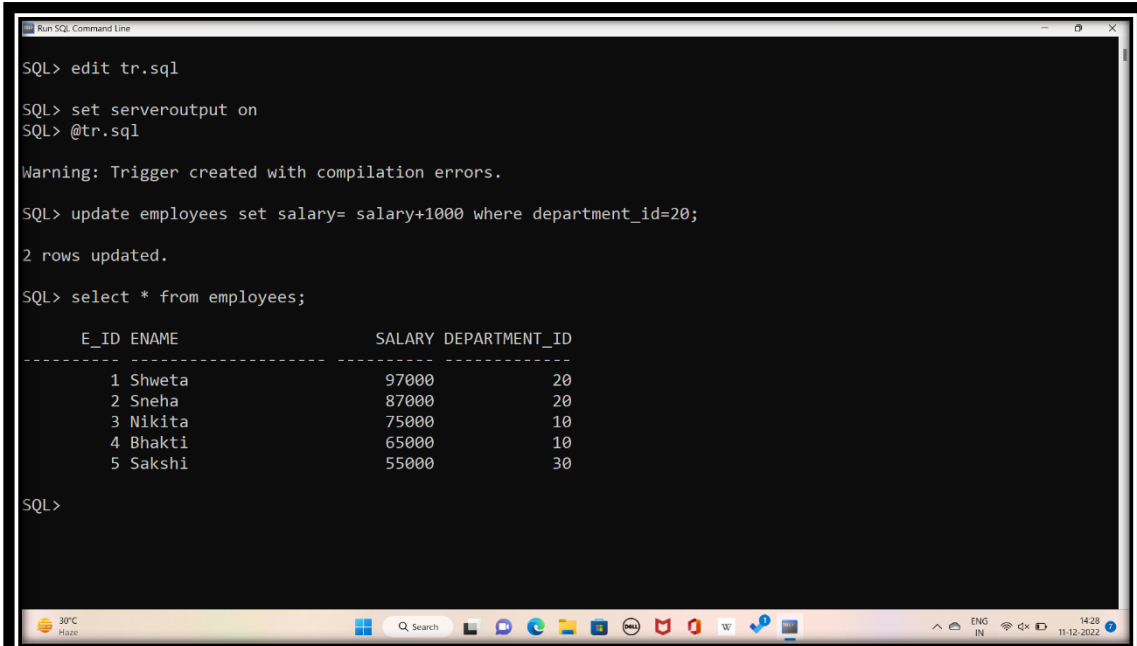
```
create or replace trigger first
before update on Emp_t
for each row
begin
insert into Emp_A
values(:old.E_id;:old.Ename;:old.salary);
end;
/

UPDATE employees
SET salary = salary + 1000.0
WHERE Department_id = 20;
```

6. Actual Resources Used:

Sr. No.	Name of resource / material	Specification	Quantity	Remarks
1	Computer	WINDOWS 11,8 GB RAM	1	
2	Operating System	WINDOWS 11	1	
3	Software	Oracle Database 10G	1	
4	Browser	Google Chrome	1	

7. Outputs of Micro-Projects:



```
Run SQL Command Line

SQL> edit tr.sql

SQL> set serveroutput on
SQL> @tr.sql

Warning: Trigger created with compilation errors.

SQL> update employees set salary= salary+1000 where department_id=20;

2 rows updated.

SQL> select * from employees;

  E_ID ENAME          SALARY DEPARTMENT_ID
-----
1 Shweta             97000             20
2 Sneha              87000             20
3 Nikita             75000             10
4 Bhakti             65000             10
5 Sakshi             55000             30

SQL>
```

The screenshot shows a Windows desktop environment with a taskbar at the bottom. The taskbar includes the Start button, a search bar, and several application icons. The system tray on the right shows the date and time as 14:28 on 11-12-2022. The main window is titled 'Run SQL Command Line' and displays a series of SQL commands and their outputs. The commands include editing a file, setting server output, executing a trigger, updating salaries for employees in department 20, and querying the employees table. The output shows a warning about compilation errors for the trigger and the results of the update and select queries.

8. Skill developed / Learning out of this Micro-Project:

- You can call stored procedures and functions from inside a trigger.
- You can use external code as a trigger by using CLR triggers. This type of trigger specifies the method of an assembly written in .NET to bind with the trigger.
- You can use triggers to implement referential integrity across databases.

Unfortunately, SQL Server doesn't allow the creation of constraints between objects on different databases, but by using triggers you can simulate the behavior of constraints.

9. Applications of this Micro-Project:

By using a trigger you can keep track of the changes on a given table by writing a log record with information about the user that made the change and what was changed.