# DBMS Lab 7-8

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#### Insertion commands for data

```
INSERT INTO 'book purchase details' ('Book ID', 'Purchase Dt', 'Copies', 'Price', 'Purchase Price', 'Book Value') VALUES
 ('Da001 Sel','2021-09-07', 5, 50 , NULL , NULL);
 INSERT INTO `book_purchase_details`(`Book_ID`, `Purchase_Dt`, `Copies`, `Price`, `Purchase_Price`, `Book_Value`) VALUES
 ('Mi009 Emo', '2021-09-02', 2, 50 , NULL , NULL);
 INSERT INTO 'book purchase details' ('Book ID', 'Purchase Dt', 'Copies', 'Price', 'Purchase Price', 'Book Value') VALUES
 ('Mi009 Soc', '2021-09-01', 2, 50 , NULL , NULL);
INSERT INTO 'book purchase details' ('Book ID', 'Purchase Dt', 'Copies', 'Price', 'Purchase Price', 'Book Value') VALUES
 ('Ra001_Pha','2021-09-02', 3, 50 , NULL , NULL);
INSERT INTO 'book purchase details' ('Book ID', 'Purchase Dt', 'Copies', 'Price', 'Purchase Price', 'Book Value') VALUES
 ('Ro015 Fan', '2021-09-01', 12, 50 , NULL , NULL);
INSERT INTO 'book_purchase_details' ('Book_ID', 'Purchase_Dt', 'Copies', 'Price', 'Purchase_Price', 'Book_Value') VALUES
 ('Ro015 Fan', '2021-09-09', 3, 50 , NULL , NULL);
INSERT INTO 'book purchase details' ('Book ID', 'Purchase Dt', 'Copies', 'Price', 'Purchase Price', 'Book Value') VALUES
('Da001 Sel', '2021-09-07', 3, 50 , NULL , NULL):
```

Author\_Details: Author\_ID Author Name Da\_001 Damasio Mi\_009 Minsky Ra\_001 Ramachandran Ro\_015 Rowling Russel Ru\_021 Safina Sa\_001 Ta\_001 Tagore To\_015 Tolkien Wo\_015 Wodehouse

Book_Details:	Author_ID a 1	Book_ID	Book
	Da_001	Mi_009_Sel	Self Comes to Mind
	Mi_009	Mi009_Emo	Emotion Machine
	Mi_009	Mi009_Soc	Society of Mind
	Ra_001	Ra001_Pha	Phantoms in the Brain
	Ro_015	Ro015_Pri	Prisoner of Azkaban_Harry Potter
	Ro_015	Ro015_Phi	Philosopher's Stone_Harry Potter
	Ro_015	Ro015_Gob	Goblet of Fire_Harry Potter
	Ro_015	Ro015_Fan	Fantastic Beasts and Where to Find Them
	Sa_001	Sa001_Voy	Voyage of the Turtle
	Sa_001	Sa001_Wha	What Animals Think
	To_015	To015_Fel	Fellowship of the Rings_Lord of the Rings
	Wo_015	Wo015_Wod	Wodehouse at the Wicket

### Book\_Purchase\_Deta

ils:		Book_ID	Purchase_Dt	Copies	Price	Purchase_Price	Book_Value
	41	Da001_Sel	2021-09-01	1	50	NULL	NULL
	21	Da001_Sel	2021-09-07	5	50	NULL	NULL
	-	Mi009_Emo	2021-09-02	2	50	NULL	NULL
	100	Mi009_Soc	2021-09-01	2	50	NULL	NULL
	-	Ra001_Pha	2021-09-02	2	50	NULL	NULL
	21	Ro015_Fan	2021-09-01	3	50	NULL	NULL
	21	Ro015_Fan	2021-09-09	12	35	NULL	NULL
	201	Ro015_Gob	2021-09-01	3	50	NULL	NULL
	21	Ro015_Phi	2021-09-01	3	50	NULL	NULL
	21	Ro015_Phi	2021-09-10	20	75	NULL	NULL
	11	Ro015_Pri	2021-09-01	3	50	NULL	NULL
	41	Sa001_Voy	2021-09-02	2	50	NULL	NULL
	4	Sa001_Wha	2021-09-02	2	50	NULL	NULL
	-	To015_Fel	2021-09-01	3	50	NULL	NULL
	41	To015_Fel	2021-09-12	9	55	NULL	NULL
	41	Wo015_Wod	2021-09-05	1	50	NULL	NULL

### Create a view comprising Author\_name, Book\_Name and Copies; Group by Book\_Name

CREATE VIEW parta AS
SELECT A.Author\_Name , B.Book , SUM(P.Copies)
FROM author\_details A ,book\_details B , book\_purchase\_details P
WHERE A.Author\_ID=B.Author\_ID AND B.Book\_ID=P.Book\_ID
GROUP BY B.Book



Author_Name	Book	SUM(P.Copies)
Minsky	Emotion Machine	2
Rowling	Fantastic Beasts and Where to Find Them	15
Tolkien	Fellowship of the Rings_Lord of the Rings	12
Rowling	Goblet of Fire_Harry Potter	3
Ramachandran	Phantoms in the Brain	2
Rowling	Philosopher's Stone_Harry Potter	23
Rowling	Prisoner of Azkaban_Harry Potter	3
Damasio	Self Comes to Mind	6
Minsky	Society of Mind	2
Safina	Voyage of the Turtle	2
Safina	What Animals Think	2
Wodehouse	Wodehouse at the Wicket	1

### Observation through mistake!

During data entry I had entered the book\_id for self comes to mind wrong in Book\_ID table , due to which the view didn't display the book

After discovering the mistake, I corrected the entry and the view was updated automatically.

### c) Can you insert entries into the above view?

d) Can you delete entries from the above view?

we cannot add or delete entries in the view

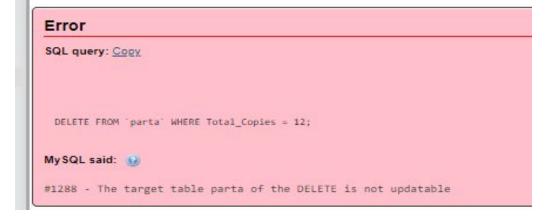
The view we have created here is read only, which is **not updatable** 

Since here the view we have created has where and group by clause, hence we cannot insert/delete from view

```
SQL query: Copy

INSERT INTO 'parta' ('Author_Name', 'Book', 'Total_Copies') VALUES ('Ri_007', 'Nam_003',6);

MySQL said: 
#1471 - The target table parta of the INSERT is not insertable-into
```



# Test the difference in retrieval time of the data in (a) post execution of the SQL and that from the created view. Note any observations made.

```
MySQL returned an empty result set (i.e. zero rows). (Query took 0.0132 seconds.)
CREATE VIEW parta AS SELECT A.Author Name , B.Book , SUM(P.Copies) as Total Copies FROM author details A ,book details B , book purchase details P WHERE
A.Author ID=B.Author ID AND B.Book ID=P.Book ID GROUP BY B.Book;
       Showing rows 0 - 11 (12 total, Query took 0.0015 seconds.)
SELECT * FROM parta;
Showing rows 0 - 11 (12 total, Query took 0.0035 seconds.)
SELECT A.Author_Name , B.Book , SUM(P.Copies) FROM author_details A ,book_details B , book_purchase_details P WHERE A.Author_ID=B.Author_ID AND B.Book_ID=P.Book_ID GROUP BY B.Book;
```

The select query takes significantly lesser time than VIEW creation+view retrieval, however as observed, VIEWS can get updated on their own so for multiple updates views can be better for execution

If we need only temporary results for few times then simple select query should be used but for long run , once a view is made , its retrieval time is less than simple select as it acts like cache

#### What happens to the view if you insert or delete tuples from the main database?

On inserting or deleting tuples from main database the view gets updated accordingly if the updated tuples match the view criteria

#### As shown:

· Options		
Author_Name	Book	Total_Copies
Minsky	Emotion Machine	2
Rowling	Fantastic Beasts and Where to Find Them	15
Tolkien	Fellowship of the Rings_Lord of the Rings	12
Rowling	Goblet of Fire_Harry Potter	3
Ramachandran	Phantoms in the Brain	2
Rowling	Philosopher's Stone_Harry Potter	23
Rowling	Prisoner of Azkaban_Harry Potter	3
Damasio	Self Comes to Mind (new inserted)	6
Minsky	Society of Mind	2
Safina	Voyage of the Turtle	2
Safina	What Animals Think	2
Wodehouse	Wodehouse at the Wicket	1

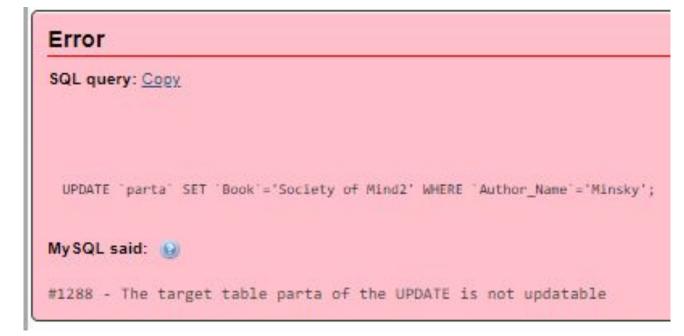
Author_Name	Book	Total_Copies v 1
Rowling	Philosopher's Stone_Harry Potter	23
Rowling	Fantastic Beasts and Where to Find Them	15
Tolkien	Fellowship of the Rings_Lord of the Rings	12
Rowling	Prisoner of Azkaban_Harry Potter	3
Rowling	Goblet of Fire_Harry Potter	3
Safina	What Animals Think	2
Safina	Voyage of the Turtle	2
Minsky	Society of Mind	2
Ramachandran	Phantoms in the Brain	2
Minsky	Emotion Machine	2
Wodehouse	Wodehouse at the Wicket	1

View updated after self comes to mind was deleted from book\_details

View updated after inserting self comes to mind (new insertion) to book\_details

### Can you update the view?

As mentioned earlier, the given view we have created is not updatable



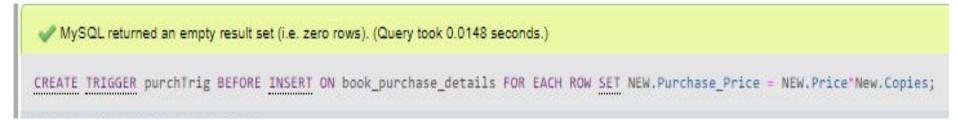
# However if we create a different view from a single table with no group by or where conditions then we can update it as shown

#### Book ID Ro015\_Hal is not in base table but is inserted into view2 View

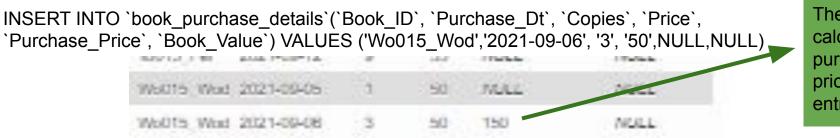


### Create a trigger to calculate the Purchase\_Price of the books on the date of purchase

CREATE TRIGGER purchTrig BEFORE INSERT ON book\_purchase\_details
FOR EACH ROW
SET NEW.Purchase\_Price = NEW.Price\*New.Copies;



#### Now on new insertion:



The trigger calculates purchase price of new entry

### View is updated automatically too

Tolkien	Fellowship of the Rings_Lord of the Rings	12
Damasio	Self Comes to Mind (new inserted)	6
Wodehouse	Wodehouse at the Wicket	4
Rowling	Prisoner of Azkaban_Harry Potter	3

h) Is the above an example of a DDL or a DML trigger

Since the data of table is being manipulated here or we can say that data is being updated after INSERT ( a DML command ) ,instead of change in table structure , hence the above is an example of DML trigger

i) Can we create triggers on views? If yes, frame an example using the given scenario, if not justify your answer



Yes, triggers on views can be created using INSTEAD OF keyword in dbms

However, MySQL doesn't have INSTEAD OF and it doesn't support triggers on views

As mentioned in the documentation: MySQL:: MySQL 8.0 Reference Manual:: 25.3 Using Triggers

j) What are DDL triggers?

DDL triggers - Data Definition Language Triggers are fired when there is a change in data definition of the table/database, like a CREATE or DROP command

### k) Can you think of examples of DDL triggers for the given scenario?

Example:

In case we want to keep the field constraints fixed, that is, the data fields' constraints shouldn't be changed, then we can use DDL triggers

For example , if someone tries to set Purchase\_Price to NOT NULL constraint , we can create a DDL trigger which fires on ALTER command on Book\_Purchase\_Details table and restricts the alter as well as displays a warning message : Table alteration is not allowed

```
ON BOOK_Purchase_Details

FOR ALTER_TABLE AS

BEGIN

PRINT 'Table alteration is not allowed'

ROLLBACK TRANSACTION

END
```

I) Create a view/trigger comprising Author\_name, Book\_Name, Book\_Value, where Book\_Value derives from the Purchase\_Price as on Purchase\_Dt and Copies purchased

### **Assumption made by me for Calculating book**

**value**: Here I am considering that the book is being rented for 10% profit on purchase price (which is itself calculated from a trigger) and hence 10% of Purchase Price is added

CREATE TRIGGER bookValTrig BEFORE INSERT ON book\_purchase\_details
FOR EACH ROW
SET new.Book\_Value = new.Purchase\_Price + 0.1\*(new.Purchase\_Price)

Book Value added on insert due to trigger



e Wo015\_Wod 2021-09-12

3

60

66

## m) Calculate the total money the library has spent for purchasing all books using triggers. What type of trigger are you going to use for this?

We create a table total\_all\_table with only one column and one row - total, which will keep on adding purchase values on trigger. We use after trigger here too

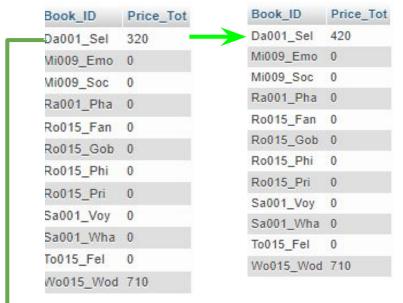


### n) Calculate the total money the library has spent for purchasing each book using triggers. What type of trigger are you going to use for this?

Similar to previous, we create a table and update the book wise prices
We use AFTER trigger here

[ Edit inline ] [ Edit ] [ Create PHP code ]

```
DELIMITER #
CREATE TRIGGER bookPriceTrig
AFTER INSERT ON book_purchase_details
FOR EACH ROW
BEGIN
UPDATE purchase_values_by_books_table
SET Price_Tot = Price_Tot + New.Purchase_Price
WHERE purchase_values_by_books_table.Book_ID =
New.Book_ID;
END#
```



Trigger updates new table with insertion

```
1 row inserted. (Query took 0.0066 seconds.)

INSERT INTO `book_purchase_details`(`Book_ID`, `Purchase_Dt`, `Copies`, `Price`, `Purchase_Price`, `Book_Value`) VALUES ('Da001_Sel','2021-10-2','4','25',0,0);
```

o) Can you use both 'After' and 'Before' triggers together? Show with the help of an example derived from the given scenario.

Yes, both after and before triggers can be used

we have already done this in the previous parts
We calculated purchase price and book value
using **before triggers** and applied **after trigger**on same values for calculating total prices