

# Links

Wednesday, July 24, 2024 10:39 AM

This Notebook: <https://1drv.ms/o/s!AknT1SrRpCz-xvJQXWnhOEQjO7vKwA?e=Vz65A7>

GitHub: [vivekduttamishra/202407-g7cr-sqlserver \(github.com\)](https://github.com/vivekduttamishra/202407-g7cr-sqlserver)

# DBMS

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# Creating Table

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The screenshot shows the SQL Server Enterprise Manager interface. On the left, the Object Explorer displays the 'new\_db2' database under 'Databases'. The 'Tables' folder is expanded, showing 'dbo.Books'. On the right, the SQL Query window shows the following SQL command:

```
CREATE TABLE new_db2.dbo.Books(  
    TITLE VARCHAR(100)  
);
```

Below the query window, the Messages pane shows the command completed successfully.

Completion time: 2024-07-24T14:34:56.8582139+05:30

## Schema

- Groups related items together.
- It groups similar items
- The default schema is dbo
- Can group
  - Table
  - View
  - StoredProc-

## Creating Table With Fields

```
CREATE TABLE books(  
    TITLE VARCHAR(200) NOT NULL,  
    AUTHOR VARCHAR(200) NOT NULL,  
    PRICE DECIMAL NOT NULL CHECK(PRICE>=0),  
    RATING DECIMAL CHECK(RATING>=1 AND RATING<=5),  
    COVER VARCHAR(512) DEFAULT(' /unknown.png')  
);
```

## Column Names

- Represents Object Properties

## Data types associated with the field

- Includes data types and precessions

## Constraints (additional validation properties)

- NOT NULL
- CHECK for conditions

# Azure Studio Notebook

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- A Jupyter style notebook for SqlSever
  - Jupyter is quite popular with Python developers
- Allows us to record
  - Notes
  - Codes
  - Code Output

The screenshot displays the Azure Studio Notebook interface. At the top, there's a header bar with 'Notebook-1', a 'Welcome' tab, and a 'SQLQuery\_1 - disconnected' tab. Below this is a toolbar with a '+ Cell' button, a 'Run all' button, a 'Kernel' dropdown set to 'SQL', and an 'Attach to' dropdown set to 'localhost\SQLEXPRESS, <def'. The main content area is titled 'Creating a New Database' and contains a bullet point: 'We can create a database using **CREATE DATABASE** command'. Below this is a code cell with the SQL command: `[1] 1 CREATE DATABASE books_db_g7cr_202407;`. To the right of the code cell is a label 'SQL Code'. Below the code cell is an output box containing the text: 'Commands completed successfully.' and 'Total execution time: 00:00:00.133'. To the right of the output box is a label 'Output of the command is also recorded'. A blue arrow points from the title 'Creating a New Database' to the 'Notes' label on the right. An orange arrow points from the SQL code to the 'SQL Code' label. A green arrow points from the output text to the 'Output of the command is also recorded' label.

Notebook-1 • Welcome SQLQuery\_1 - disconnected X

+ Cell ▾ ▶ Run all Kernel SQL ▾ Attach to localhost\SQLEXPRESS, <def ▾

## Creating a New Database

- We can create a database using **CREATE DATABASE** command

```
[1] 1 CREATE DATABASE books_db_g7cr_202407;
```

SQL Code

Commands completed successfully.

Total execution time: 00:00:00.133

Output of the command is also recorded

Notes

## Insert

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### Approach #1 Provide Column Name And values

- Values must be provided in the same order as column name

```
[4] 1  INSERT
    2  INTO BOOKS(TITLE,AUTHOR,PRICE,RATING,COVER)
    3  VALUES ('The Accursed God','Vivek Dutta Mishra',299, 4.7, 'tag.png');
```

SQL

(1 row affected)

Success

### Approach #2 Provide Only Values

```
[5] 1  INSERT
    2  INTO BOOKS
    3  VALUES ('Manas','Vivek Dutta Mishra',199, 4.6, 'manas.png');
```

(1 row affected)

- Column Name will be in the same order as Create Table definition

```
CREATE TABLE books(
  TITLE VARCHAR(200) NOT NULL,
  AUTHOR VARCHAR(200) NOT NULL,
  PRICE DECIMAL NOT NULL CHECK(PRICE>=0),
  RATING DECIMAL CHECK(RATING>=1 AND RATING<=5),
  COVER VARCHAR(512) DEFAULT('/unknown.png')
);
```

### Insert with constraint failure results in error

```
[19] 1  INSERT
    2  INTO BOOKS(TITLE,PRICE,RATING)
    3  VALUES ('Rashmirathi',299, 4.7);
```

SQL

Msg 515, Level 16, State 2, Line 1  
Cannot insert the value NULL into column 'AUTHOR' table 'books\_db\_g7cr\_202407.dbo.books'; column does not allow nulls. INSERT fails.

The statement has been terminated.

Total execution time: 00:00:00.003

```
+ ↓ ↑ ☐ ☒ ...
1  INSERT
2  INTO BOOKS(TITLE,AUTHOR,PRICE,RATING)
3  VALUES ('Rashmirathi','Ramdhari Singh Dinkar',299, 10);
```

SQL

Msg 547, Level 16, State 0, Line 1  
The INSERT statement conflicted with the CHECK constraint "CK\_books\_RATING\_5165187F". The conflict occurred in database "books\_db\_g7cr\_202407", table "dbo.books", column 'RATING'.

The statement has been terminated.

-----  
"dbo.books", column 'RATING'.  
-----

The statement has been terminated.

Total execution time: 00:00:00.004

# Group By Query

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- Group By Splits The Given Table into multiple Sub Tables based on a Unique Key
- For Example
  - We can group our Books By Author
  - Now our table will logically split into multiple tables one for each author
- Now We return result that will have
  - 1 row information for each group.

	TITLE	AUTHOR	PRICE	RATING	COVER
1	The Count of Monte Cristo	Alexandre Dumas	499.00	4.80	cristo.jpg
2	The man in the Iron Mask	Alexandre Dumas	299.00	3.80	iron.jpg
3	Ajaya	Anant Neelkanthan	299.00	3.10	ajaya.jpg
4	Asura	Anant Neelkanthan	199.00	2.80	asura.jpg
5	Harry Potter and the Philosophers Stone	JK Rowling	299.00	4.50	hp01.jpg
6	Harry Potter and the and the Chamber of Secrets	JK Rowling	199.00	4.40	hp02.jpg
7	Harry Potter and the Prisoner of Askaban	JK Rowling	499.00	4.20	hp03.jpg
8	Harry Potter and the Goblet of Fire	JK Rowling	599.00	4.20	hp04.jpg
9	Harry Potter and the Order of Phoenix	JK Rowling	399.00	4.70	hp05.jpg
10	Harry Potter and the Half-blood Prince	JK Rowling	599.00	4.50	hp06.jpg
11	Harry Potter and the Deathly Hollows	JK Rowling	499.00	4.70	hp07.jpg
12	The Accursed Gild	JK Rowling	399.00	4.10	tac.jpg
13	Rashmirathi	Ramdhari Singh Dinkar	299.00	4.70	/unknown.png
14	Kurukshetra	Ramdhari Singh Dinkar	99.00	4.50	kurukshetra.jpg
15	The Accursed God	Vivek Dutta Mishra	299.00	4.70	tag.png
16	Manas	Vivek Dutta Mishra	199.00	4.60	manas.png

## Group By Author

- There will be one group of rows per distinct author
- The Query will return a result where each group will be represented by a single row
  - Irrespective of the number of rows present in the group

What Can I Represent in a single Row about a Group of Rows

Alexandre Dumas						
Anant Neelkanthan						
JK Rowling						
Ramdhari Singh Dinkar						
Vivek Dutta Mishra						

- We can't add anything which has multiple values
  - Example
    - Title
      - Each group has more than 1 title. We can't include in a single row
    - Same goes for
      - Price, Cover, Rating
- We can Include Author (Group Key)
  - All Rows have same Author.

- Returns rows in a given group and not in entire Books table

```

1  SELECT
2     AUTHOR,
3     COUNT(*) AS BOOKS_WRITTEN,
4     AVG(RATING) AS AVG_RATING
5  FROM
6     BOOKS
7  GROUP BY
8     AUTHOR
    
```

Operates on the rows Within the group and not on the entire table

# Assignment 01.01

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