

## Practical 1 (Question 2)

### Aim

To populate the previously created Authors and Books tables with meaningful data using Data Manipulation Language (DML) commands, while adhering to the foreign key constraint.

### Objective

- To insert at least three sample records into the Authors table.
- To insert at least three sample records into the Books table.
- To ensure that the author\_id in the Books table references a valid author\_id that exists in the Authors table.

### Theory

Data Manipulation Language (DML) commands are used to manage data within database objects. The INSERT INTO command is used to add new records to a table. When inserting data into a table with a foreign key, it is crucial to ensure that the value being inserted into the foreign key column already exists in the referenced primary key column of the parent table. This is known as **referential integrity**, a core principle of relational databases.

### Procedure

1. **Ensure** the Authors and Books tables have been successfully created.
2. **Execute** the following DML commands to insert records into the Authors table:  
`INSERT INTO Authors (author_id, name, country) VALUES (1, 'Ashish', 'India');`  
`INSERT INTO Authors (author_id, name, country) VALUES (2, 'Smaran', 'USA');`  
`INSERT INTO Authors (author_id, name, country) VALUES (3, 'Vaibhav', 'UK');`
3. **Execute** the following DML commands to insert records into the Books table, referencing the author\_ids from the Authors table:  
`INSERT INTO Books (book_id, title, author_id) VALUES (101, 'Data Science Basics', 1);`  
`INSERT INTO Books (book_id, title, author_id) VALUES (102, 'AI in Education', 2);`  
`INSERT INTO Books (book_id, title, author_id) VALUES (103, 'SQL Simplified', 1);`

4. **Verify** the data insertion by performing a `SELECT * FROM` query on both tables.

## Result

The screenshot displays a web-based SQL practice environment. On the left is a navigation sidebar with options like Dashboard, Feedback Requests, Reports, Student Reports, Learning, AI Mentor (Beta), Courses, Classes, Editor, Lab, Assessment, Nimbus, and Nimbus Submissions. The main area is divided into three sections: 'Sample Input' (Input tables Authors and Books), 'Sample Output' (Authors Table and Books Table), and 'Sample Test Cases'. The 'Authors Table' contains three rows: (1, Ashish, India), (2, Smaran, USA), and (3, Vaibhav, UK). The 'Books Table' contains three rows: (101, Data Science Basics, 1), (102, AI in Education, 2), and (103, SQL Simplified, 1). The 'Sample Test Cases' section shows a table with one row: 'Test Case 1' with a 'Passed' status. On the right, a SQL editor shows the following code: 

```
1 insert into Authors(author_id,name,country)
2 values
3 (1,'Ashish','India'),
4 (2,'Smaran','USA'),
5 (3,'Vaibhav','UK');
6
7 insert into Books(book_id,title,author_id)
8 values
9 (101,'Data Science Basics',1),
10 (102,'AI in Education',2),
11 (103,'SQL Simplified',1);
12 select * from Authors;
13 select * from Books;
```

 Below the editor is a 'Test & Results' section with a 'Submit' button and a table showing 'Test Case 1' as 'Passed'. The bottom of the screen shows a Windows taskbar with the date 26-07-2025 and time 15:53.

Home

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• Use valid foreign keys.

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Sample Input:  
Input tables Authors and Books

Sample Output:

Authors Table:

author_id	name	country
1	Ashish	India
2	Smaran	USA
3	Vaibhav	UK

Books Table

book_id	title	author_id
101	Data Science Basics	1
102	AI in Education	2
103	SQL Simplified	1

Sample Test Cases

SQL

```
1 insert into Authors(author_id,name,country)
2 values
3 (1,'Ashish','India'),
4 (2,'Smaran','USA'),
5 (3,'Vaibhav','UK');
6
7 insert into Books(book_id,title,author_id)
8 values
9 (101,'Data Science Basics',1),
10 (102,'AI in Education',2),
11 (103,'SQL Simplified',1);
12 select * from Authors;
13 select * from Books;
```

Test & Results

Submit

Custom Input

Test Cases

Test Case	Status	Test Case Info
Test Case 1	Passed	

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## Learning Outcomes

1. **DML Commands:** The ability to use `INSERT INTO` to add data to a database.
2. **Data Integrity:** A practical understanding of how to respect and enforce referential integrity rules.
3. **Data Population: Experience in populating a database with sample data for testing and analysis.**