

SQL Server Tutorial

Part 74 - Phantom reads example in SQL Server

Venkat

PRAGIM Technologies

kudvenkat@gmail.com

<http://csharp-video-tutorials.blogspot.com>

PRAGIM Technologies | 9900113931 | www.pragimtech.com | www.facebook.com/pragimtech

In this session we will learn

- Phantom read concurrency problem

Link to Dot Net Basics, ASP.NET, C#, ADO.NET and SQL Server video series

<http://www.youtube.com/user/kudvenkat/playlists>

Suggested Videos

Part 71 - SQL Server dirty read example

Part 72 - SQL Server lost update problem

Part 73 - Non repeatable read example in SQL Server

Phantom reads example in SQL Server

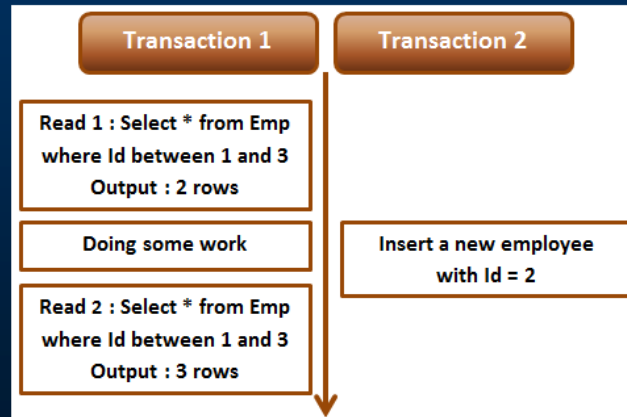
If you are in need of the DVD with all the videos and PPT's, please visit

<http://pragimtech.com/order.aspx>

Phantom read happens when one transaction executes a query twice and it gets a different number of rows in the result set each time. This happens when a second transaction inserts a new row that matches the WHERE clause of the query executed by the first transaction.

Employees Table

Id	Name
1	Mark
3	Sara
100	Mary



Phantom reads example in SQL Server

```
-- Transaction 1
Begin Transaction

Select * from tblEmployees where Id between 1 and 3

-- Do Some work
waitfor delay '00:00:10'

Select * from tblEmployees where Id between 1 and 3
Commit Transaction
```

```
-- Transaction 2
Insert into tblEmployees
values (2, 'Marcus')
```

To fix the phantom read problem, set transaction isolation level of Transaction 1 to **serializable**. This will place a range lock on the rows between 1 and 3, which prevents any other transaction from inserting new rows with in that range.

Isolation Level	Dirty Reads	Lost Update	Nonrepeatable Reads	Phantom Reads
Read Uncommitted	Yes	Yes	Yes	Yes
Read Committed	No	Yes	Yes	Yes
Repeatable Read	No	No	No	Yes
Snapshot	No	No	No	No
Serializable	No	No	No	No

Repeatable Read v/s Serializable

Repeatable read prevents only non-repeatable read. Repeatable read isolation level ensures that the data that one transaction has read, will be prevented from being updated or deleted by any other transaction, but it does not prevent new rows from being inserted by other transactions resulting in phantom read concurrency problem.

Serializable prevents both non-repeatable read and phantom read problems. Serializable isolation level ensures that the data that one transaction has read, will be prevented from being updated or deleted by any other transaction. It also prevents new rows from being inserted by other transactions, so this isolation level prevents both non-repeatable read and phantom read problems.

Additional Resources

PRAGIM Home Page:

www.PragimTech.com

Resources:

C#, ADO.NET, ASP.NET, SQL Server & MVC youtube Playlists

<http://www.youtube.com/user/kudvenkat/playlists>

Code samples and text version of all the videos on my blog

<http://www.csharp-video-tutorials.blogspot.com>

To receive email alerts when new videos are uploaded, please subscribe to my YOUTUBE channel

www.YouTube.com/kudvenkat