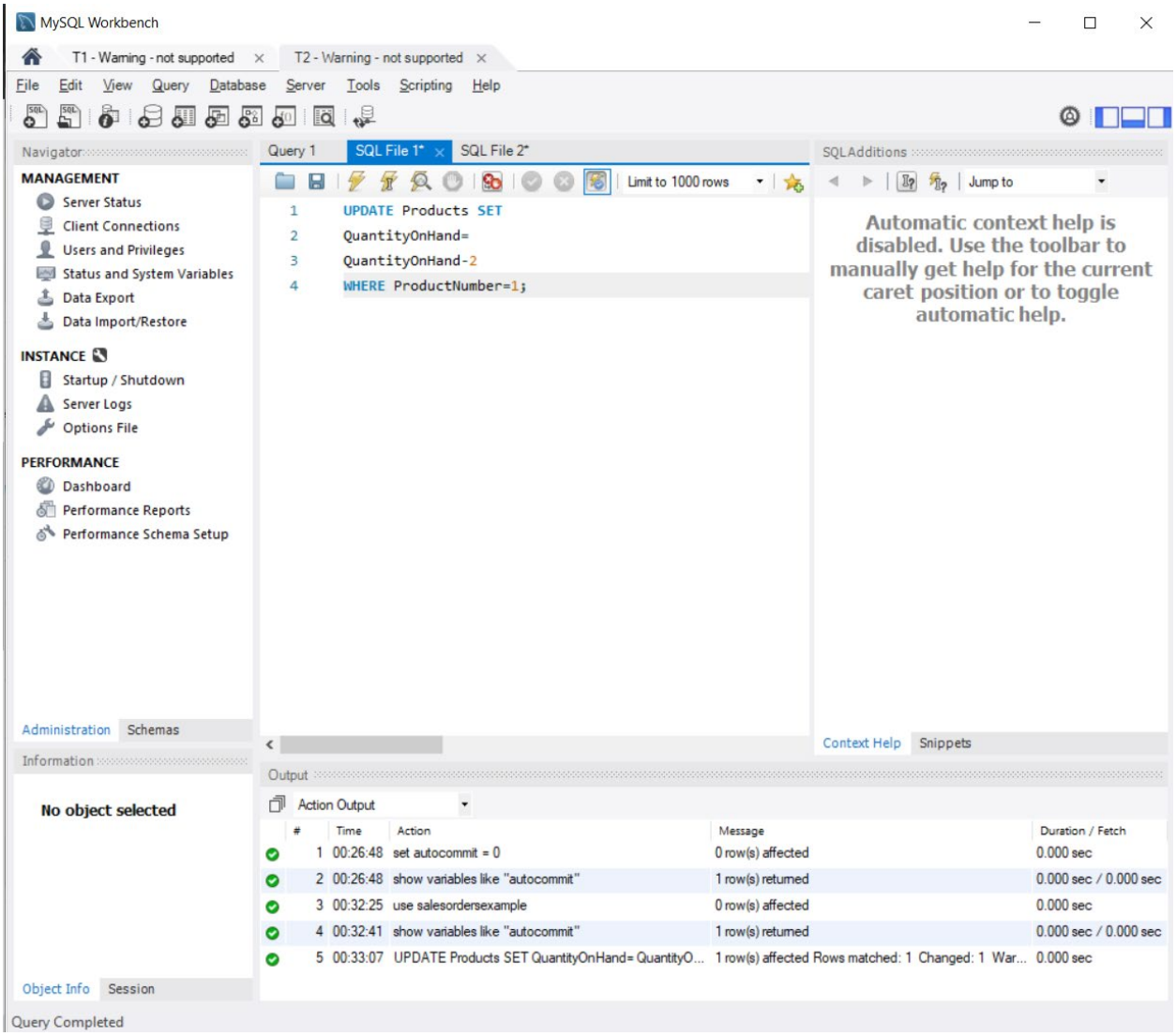
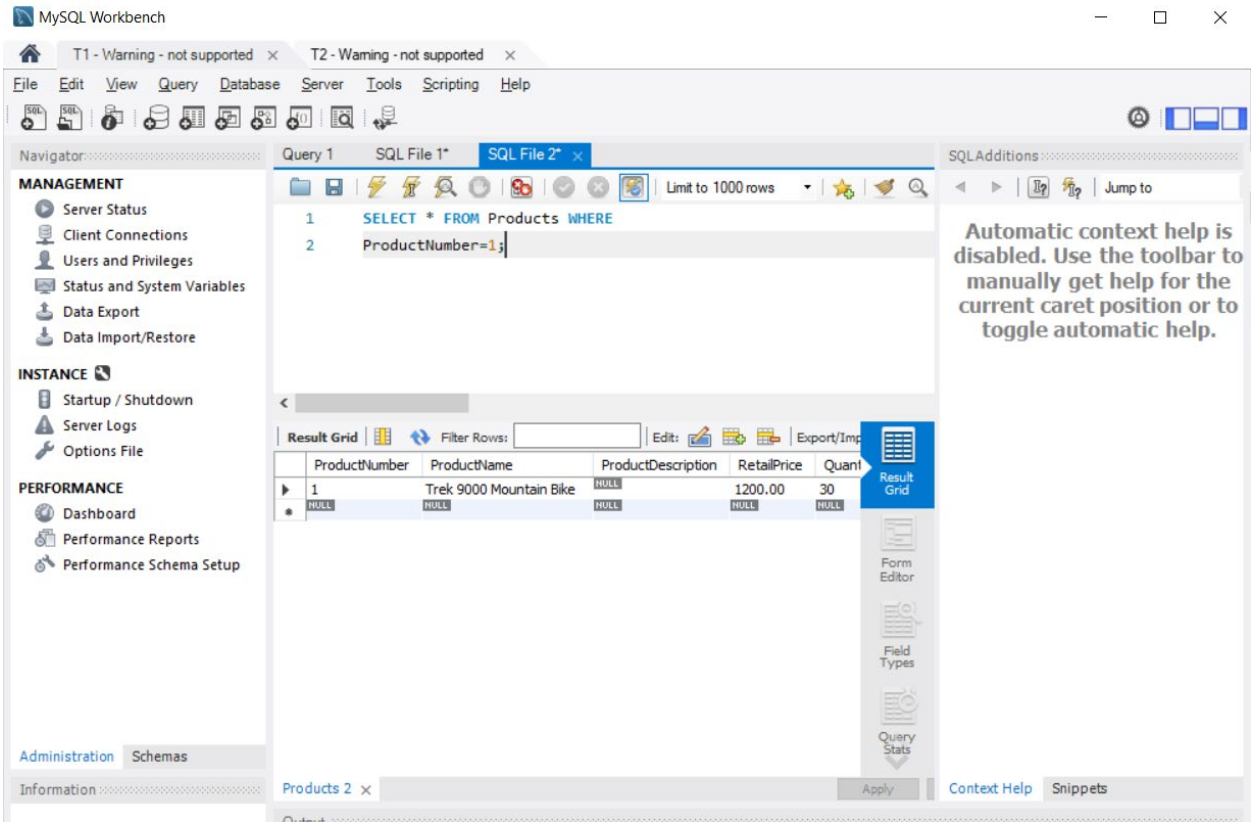
Task C9.2.1

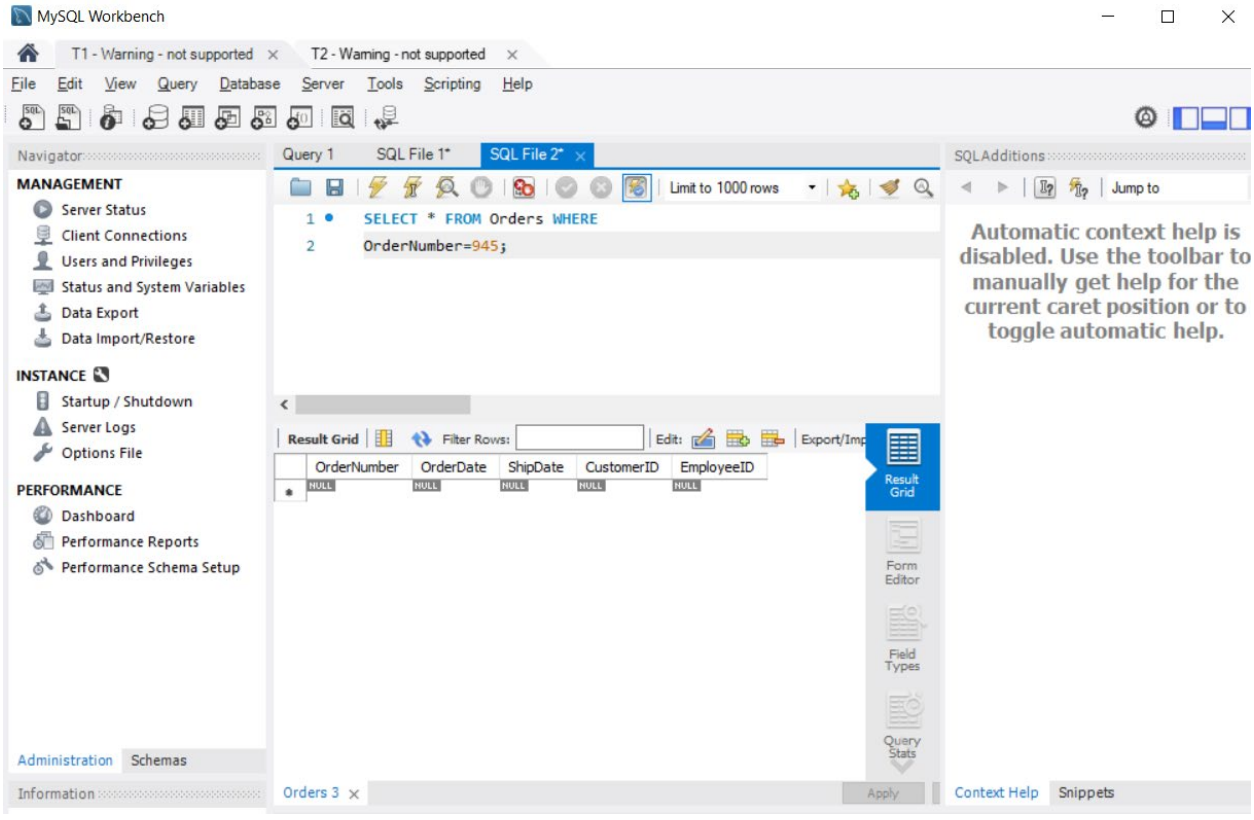
Scenario 1:

Run first statement of T2:



This makes changes to the Quantity on hand and reduce it by 2 for products table where ProductNumber is 1. But, as we are not executing commit command, changes made by this statement will only affect T2 and not T1 as seen in pictures bellow.

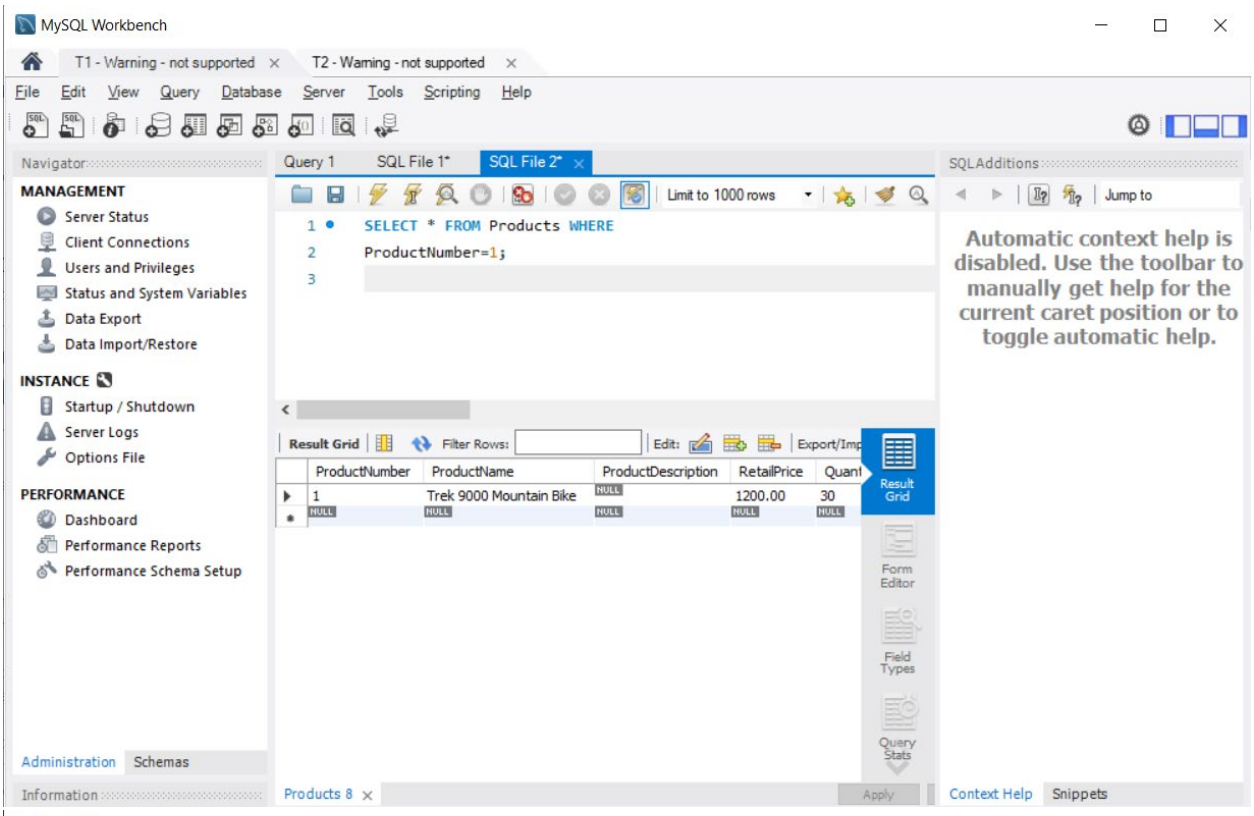

MySQL Workbench
T1 - Warning - not supported
T2 - Warning - not supported
File Edit View Query Database Server Tools Scripting Help
Navigator
MANAGEMENT
Server Status
Client Connections
Users and Privileges
Status and System Variables
Data Export
Data Import/Restore
INSTANCE
Startup / Shutdown
Server Logs
Options File
PERFORMANCE
Dashboard
Performance Reports
Performance Schema Setup
Administration Schemas
Information
Query 1 SQL File 1* SQL File 2*
Limit to 1000 rows
1 SELECT * FROM Products WHERE
2 ProductNumber=1;
Result Grid Filter Rows: Edit: Export/Imp
ProductNumber ProductName ProductDescription RetailPrice Quant
1 Trek 9000 Mountain Bike NULL 1200.00 30
NULL NULL NULL NULL NULL
Result Grid
Form Editor
Field Types
Query Stats
Products 2
Apply
SQLAdditions
Jump to
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Context Help Snippets

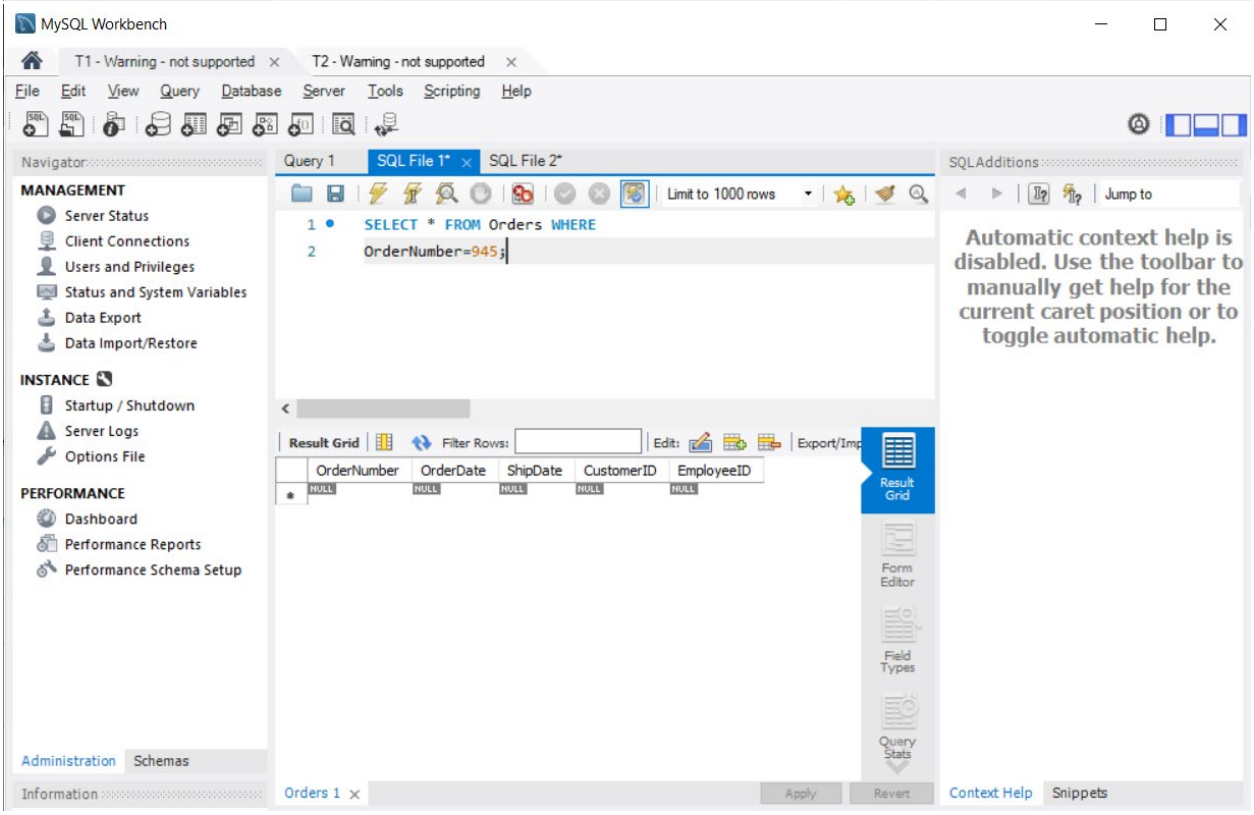

MySQL Workbench
T1 - Warning - not supported
T2 - Warning - not supported
File Edit View Query Database Server Tools Scripting Help
Navigator
MANAGEMENT
Server Status
Client Connections
Users and Privileges
Status and System Variables
Data Export
Data Import/Restore
INSTANCE
Startup / Shutdown
Server Logs
Options File
PERFORMANCE
Dashboard
Performance Reports
Performance Schema Setup
Administration Schemas
Information
Query 1 SQL File 1* SQL File 2*
Limit to 1000 rows
1 SELECT * FROM Orders WHERE
2 OrderNumber=945;
Result Grid Filter Rows: Edit: Export/Imp
OrderNumber OrderDate ShipDate CustomerID EmployeeID
NULL NULL NULL NULL NULL
Result Grid
Form Editor
Field Types
Query Stats
Orders 3
Apply
SQLAdditions
Jump to
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Context Help Snippets

And currently we only have executed first command for T2 there are no records for OrderNumber 945 so table becomes empty.

Scenario 2:

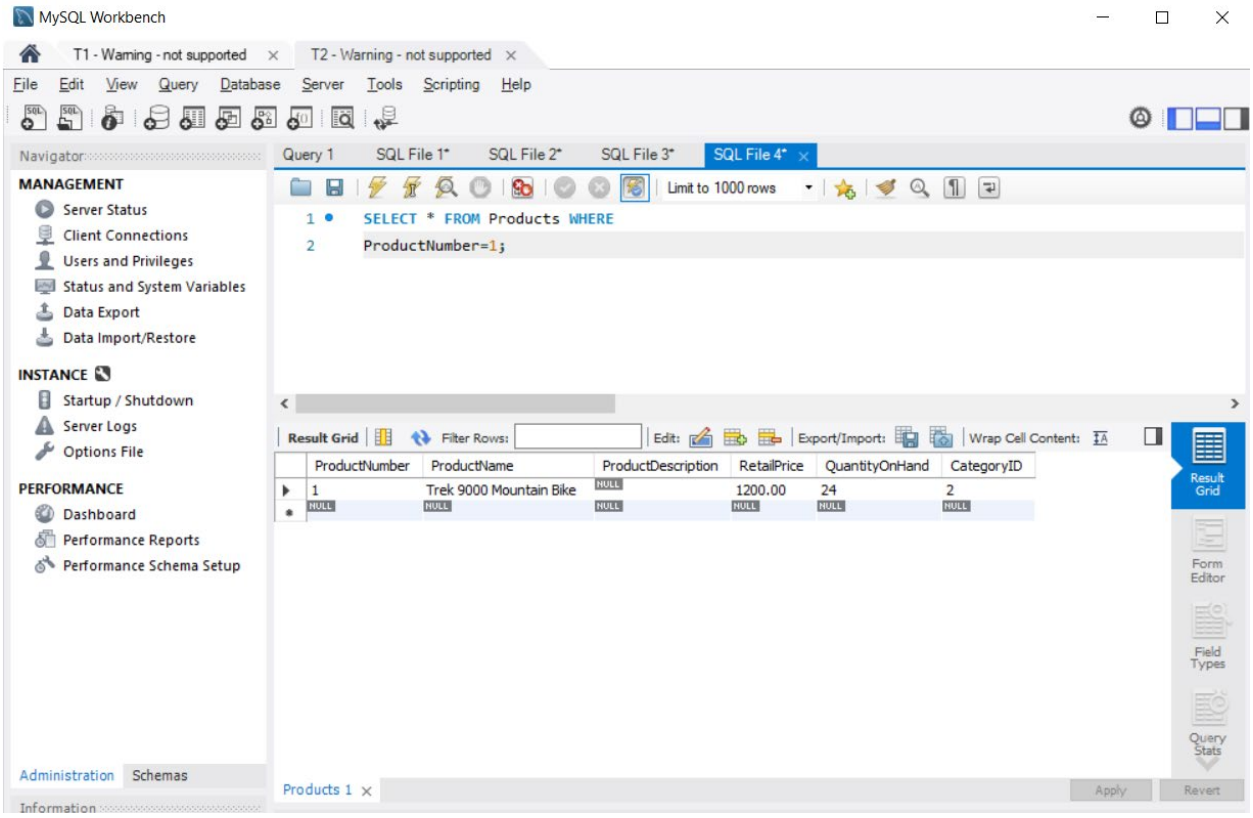
After executing remaining commands in T2 and checking results in T1, results are still same as there are no change in tables as we haven't committed those changes in T2. Shown in picture bellow.

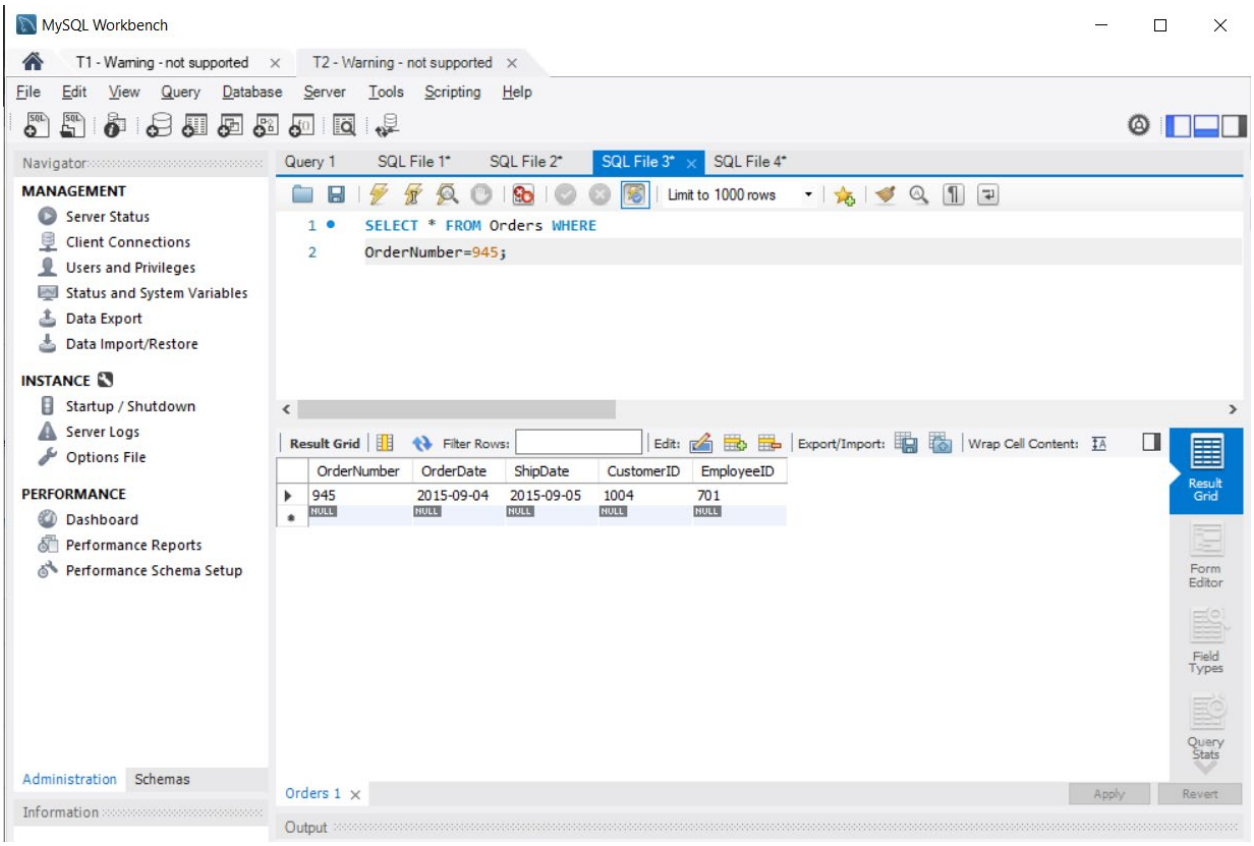

MySQL Workbench
T1 - Warning - not supported
T2 - Warning - not supported
File Edit View Query Database Server Tools Scripting Help
Navigator
MANAGEMENT
Server Status
Client Connections
Users and Privileges
Status and System Variables
Data Export
Data Import/Restore
INSTANCE
Startup / Shutdown
Server Logs
Options File
PERFORMANCE
Dashboard
Performance Reports
Performance Schema Setup
Administration Schemas
Information
Query 1 SQL File 1* SQL File 2*
Limit to 1000 rows
1 SELECT * FROM Products WHERE
2 ProductNumber=1;
3
Result Grid Filter Rows: Edit: Export/Imp
ProductNumber ProductName ProductDescription RetailPrice Quant
1 Trek 9000 Mountain Bike NULL 1200.00 30
NULL NULL NULL NULL NULL
Result Grid
Form Editor
Field Types
Query Stats
Products 8
Apply
SQLAdditions
Jump to
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Context Help Snippets

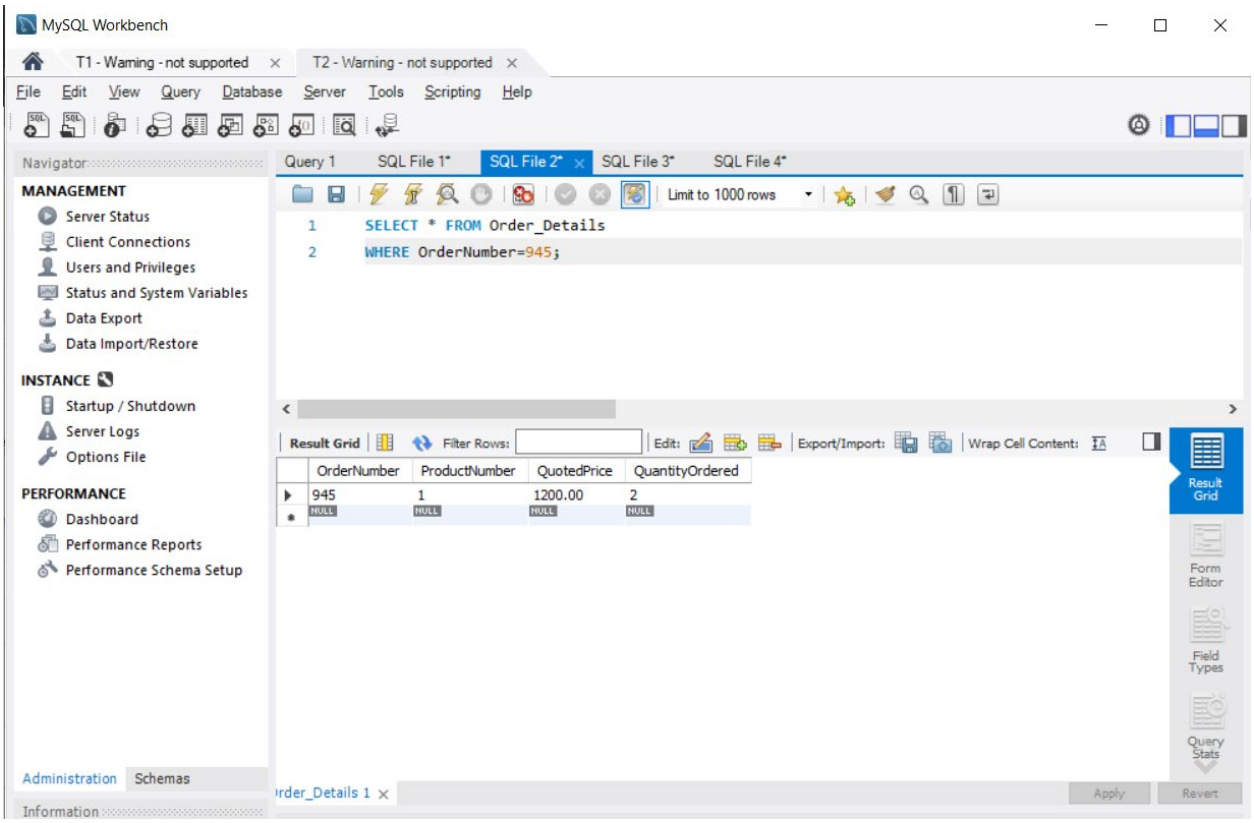

MySQL Workbench
T1 - Warning - not supported
T2 - Warning - not supported
File Edit View Query Database Server Tools Scripting Help
Navigator
MANAGEMENT
Server Status
Client Connections
Users and Privileges
Status and System Variables
Data Export
Data Import/Restore
INSTANCE
Startup / Shutdown
Server Logs
Options File
PERFORMANCE
Dashboard
Performance Reports
Performance Schema Setup
Administration Schemas
Information
Query 1 SQL File 1* SQL File 2*
Limit to 1000 rows
1 SELECT * FROM Orders WHERE
2 OrderNumber=945;
Result Grid Filter Rows: Edit: Export/Imp
OrderNumber OrderDate ShipDate CustomerID EmployeeID
NULL NULL NULL NULL NULL
Result Grid
Form Editor
Field Types
Query Stats
Orders 1
Apply
Revert
SQLAdditions
Jump to
Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.
Context Help Snippets

Scenario 3:

Copying all the statements of T1 into T2:


MySQL Workbench
T1 - Warning - not supported
T2 - Warning - not supported
File Edit View Query Database Server Tools Scripting Help
Navigator
MANAGEMENT
Server Status
Client Connections
Users and Privileges
Status and System Variables
Data Export
Data Import/Restore
INSTANCE
Startup / Shutdown
Server Logs
Options File
PERFORMANCE
Dashboard
Performance Reports
Performance Schema Setup
Administration Schemas
Information
Query 1 SQL File 1* SQL File 2* SQL File 3* SQL File 4*
Limit to 1000 rows
1 SELECT * FROM Products WHERE
2 ProductNumber=1;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
ProductNumber ProductName ProductDescription RetailPrice QuantityOnHand CategoryID
1 Trek 9000 Mountain Bike NULL 1200.00 24 2
Result Grid
Form Editor
Field Types
Query Stats
Products 1
Apply Revert


MySQL Workbench
T1 - Warning - not supported
T2 - Warning - not supported
File Edit View Query Database Server Tools Scripting Help
Navigator
MANAGEMENT
Server Status
Client Connections
Users and Privileges
Status and System Variables
Data Export
Data Import/Restore
INSTANCE
Startup / Shutdown
Server Logs
Options File
PERFORMANCE
Dashboard
Performance Reports
Performance Schema Setup
Administration Schemas
Information
Query 1 SQL File 1* SQL File 2* SQL File 3* SQL File 4*
Limit to 1000 rows
1 SELECT * FROM Orders WHERE
2 OrderNumber=945;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
OrderNumber OrderDate ShipDate CustomerID EmployeeID
945 2015-09-04 2015-09-05 1004 701
Result Grid
Form Editor
Field Types
Query Stats
Orders 1
Apply Revert
Output



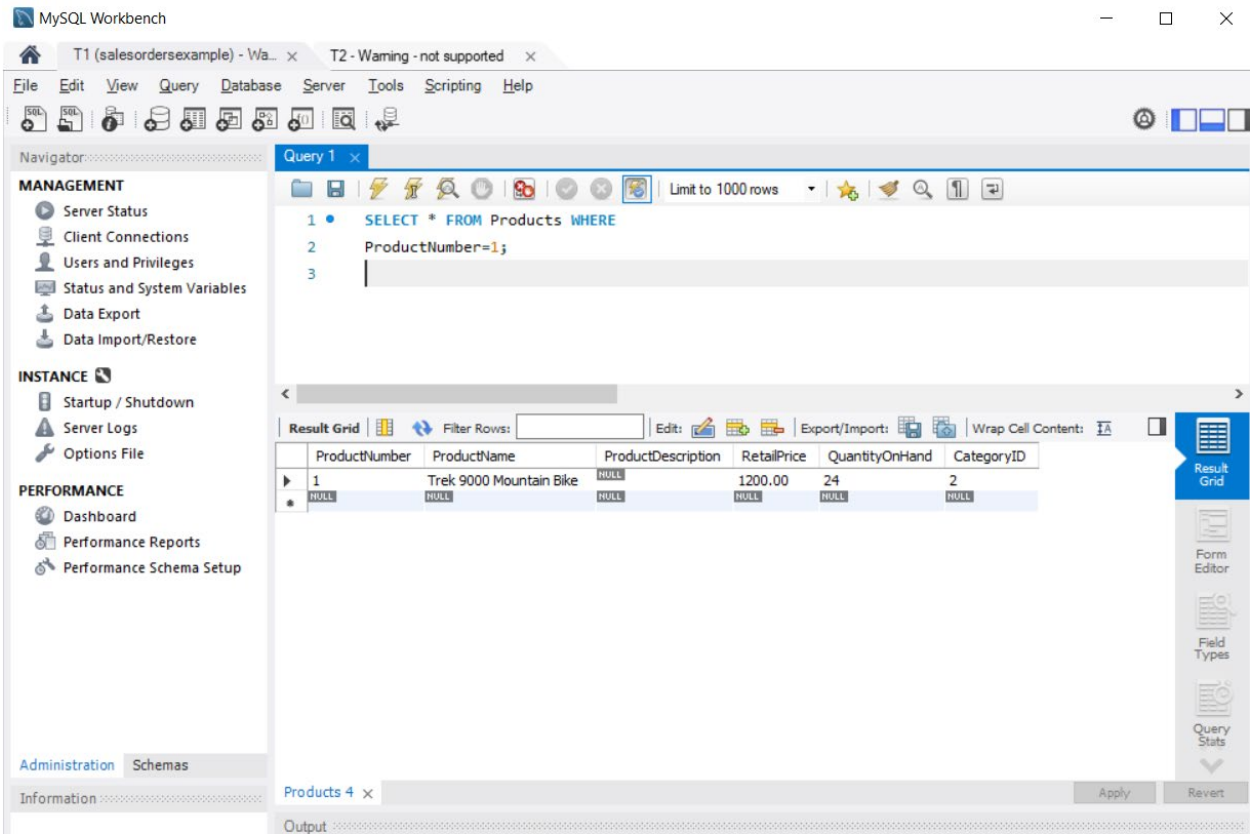
From these pictures we can see that changes made by previous UPDATE and INSERT statements are clearly visible in SELECT statements as changes are visible locally in that particular transection T2 even if not committed to database.

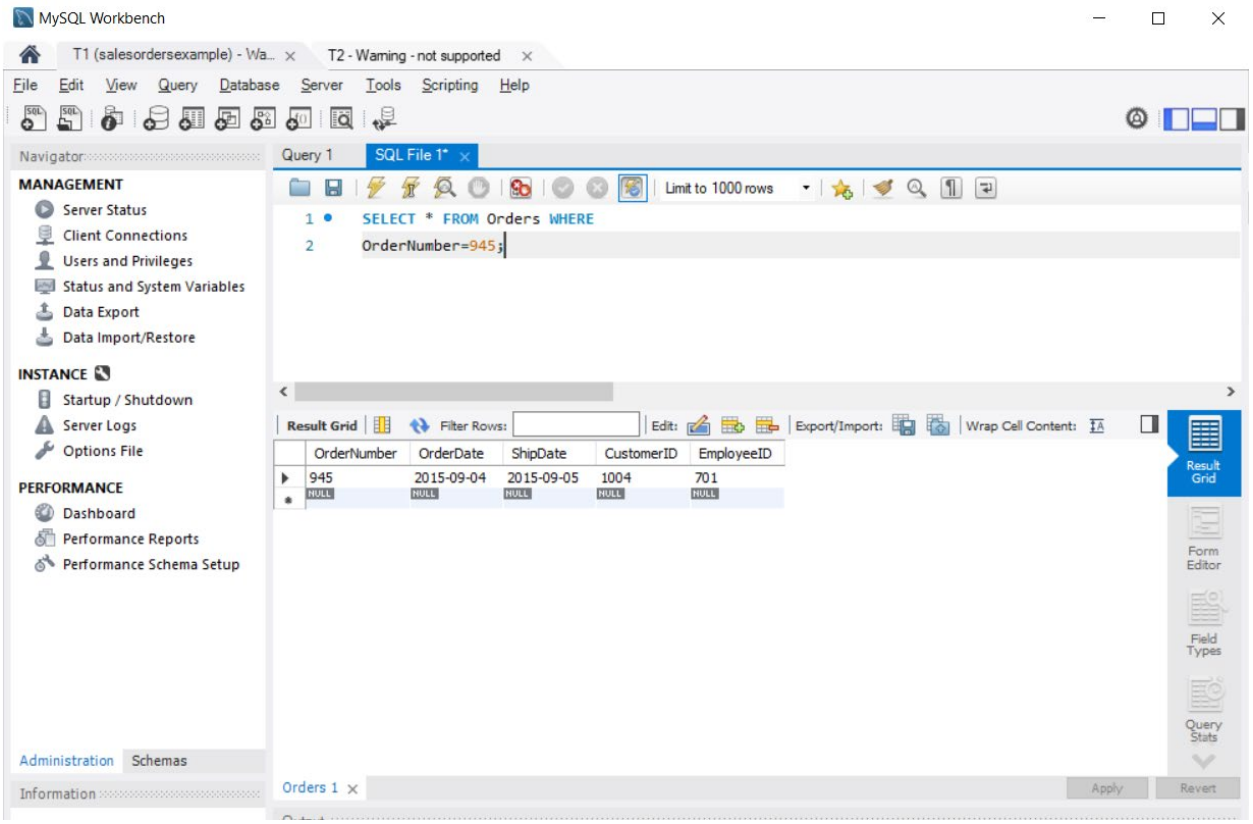
Scenario 4:

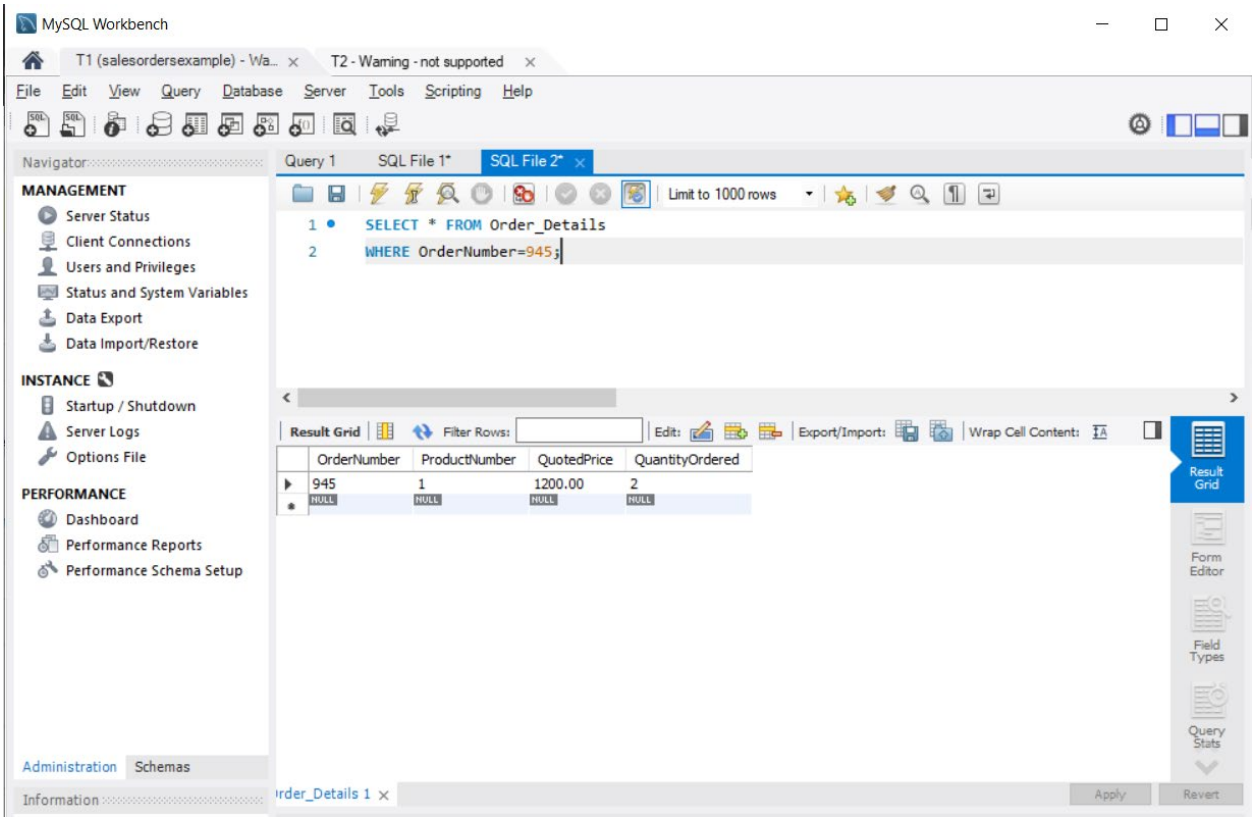
After committing T2 if we run commands in T1 again we cannot see any changes as we are currently in repeated-read isolation level.

Scenario 5:

After executing COMMIT statement into T1 we are now able to see changes made by T2 into T1.


MySQL Workbench
T1 (salesordersexample) - Wa...
T2 - Warning - not supported
File Edit View Query Database Server Tools Scripting Help
Navigator:
MANAGEMENT
Server Status
Client Connections
Users and Privileges
Status and System Variables
Data Export
Data Import/Restore
INSTANCE
Startup / Shutdown
Server Logs
Options File
PERFORMANCE
Dashboard
Performance Reports
Performance Schema Setup
Administration Schemas
Information
Query 1
Limit to 1000 rows
1 SELECT * FROM Products WHERE
2 ProductNumber=1;
3
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
ProductNumber ProductName ProductDescription RetailPrice QuantityOnHand CategoryID
1 Trek 9000 Mountain Bike NULL 1200.00 24 2
NULL NULL NULL NULL NULL NULL
Result Grid
Form Editor
Field Types
Query Stats
Products 4
Apply
Revert
Output


MySQL Workbench
T1 (salesordersexample) - Wa...
T2 - Warning - not supported
File Edit View Query Database Server Tools Scripting Help
Navigator:
MANAGEMENT
Server Status
Client Connections
Users and Privileges
Status and System Variables
Data Export
Data Import/Restore
INSTANCE
Startup / Shutdown
Server Logs
Options File
PERFORMANCE
Dashboard
Performance Reports
Performance Schema Setup
Administration Schemas
Information
Query 1
SQL File 1*
Limit to 1000 rows
1 SELECT * FROM Orders WHERE
2 OrderNumber=945;
Result Grid Filter Rows: Edit: Export/Import: Wrap Cell Content:
OrderNumber OrderDate ShipDate CustomerID EmployeeID
945 2015-09-04 2015-09-05 1004 701
NULL NULL NULL NULL NULL
Result Grid
Form Editor
Field Types
Query Stats
Orders 1
Apply
Revert



What isolation level are you working at?

```
MariaDB [test]> show variables like "tx_isolation";
+---------------+-----------------+
| Variable_name | Value           |
+---------------+-----------------+
| tx_isolation  | REPEATABLE-READ |
+---------------+-----------------+
1 row in set (0.001 sec)
```

When does a transaction see the changes made?

Transection only see changes when COMMIT command gets executed in the transection making changes. Otherwise changes can only be visible for that single particular transection not for all other transections.

Why can't T1 see the changes of T2 when T2 commits?

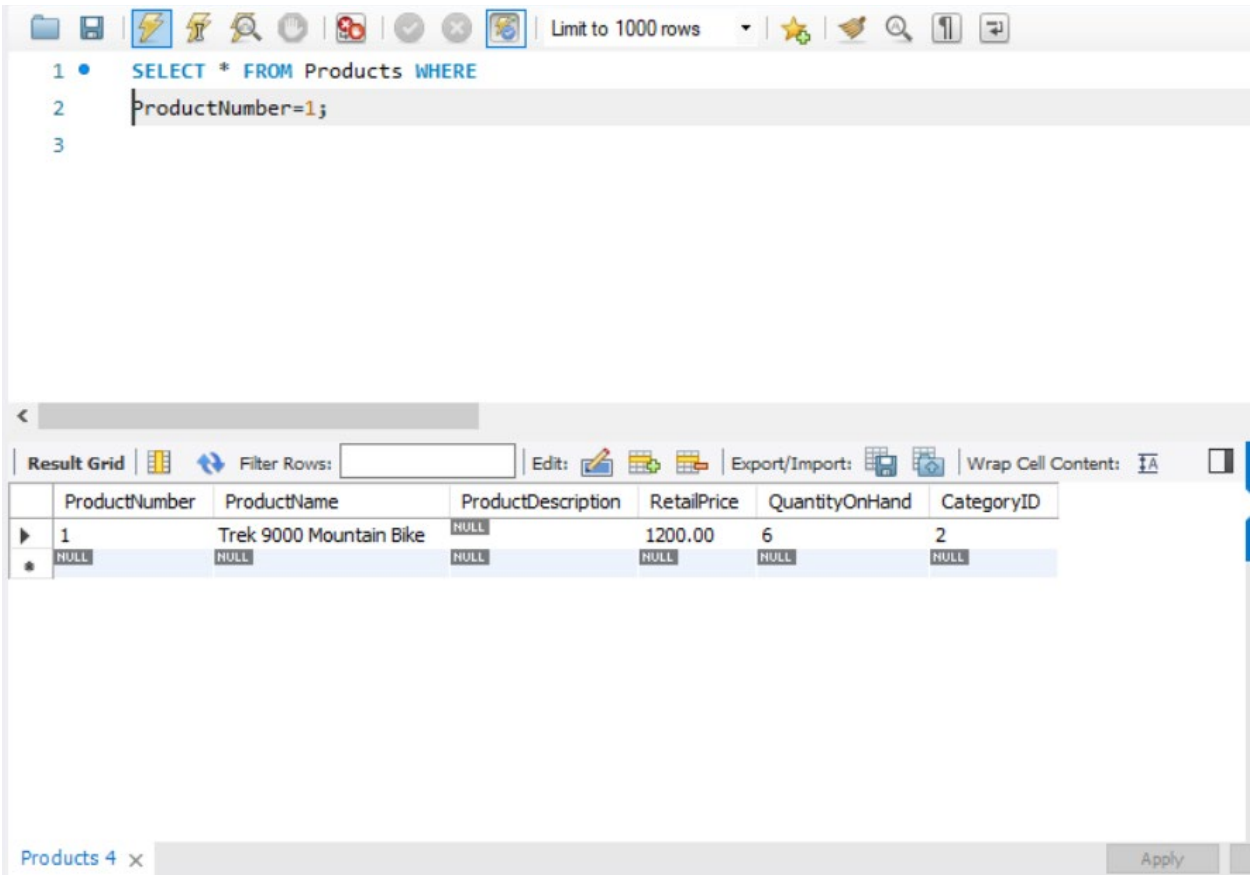
In Repeatable-read isolation level changes made in one instance of database or transection will only be visible in other transection if commit statement gets executed in Transaction making changes.

What do we mean by 'repeatable read' and do we have phantoms here in MySQL?

Repeatable read is type of isolation level that locks rows for specific transection until transection gets finished and no other than current transection can make changes to those rows.

What does the SQL standard say about phantoms and Repeatable Read Isolation level?

Phantoms mans when two identical queries to same database gives different set of rows in result this results in dirty reads to database and data inconsistency. Repeatable read can also have phantoms just like other isolation levels such as Read Committed, Read Uncommitted and non-repeatable read. Only Serializable isolation avoids Phantoms.


Limit to 1000 rows
1 SELECT * FROM Products WHERE
2 ProductNumber=1;
3
Result Grid
Filter Rows:
Edit:
Export/Import:
Wrap Cell Content:
ProductNumber
ProductName
ProductDescription
RetailPrice
QuantityOnHand
CategoryID
1
Trek 9000 Mountain Bike
NULL
1200.00
6
2
NULL
NULL
NULL
NULL
NULL
NULL
Products 4
Apply