



TIME TRAVELLING DATA:

SQL SERVER TEMPORAL TABLES

TEXTCONTROL



umbraco
The Friendly CMS



devIT:>_

CODE

Who is Chad Green

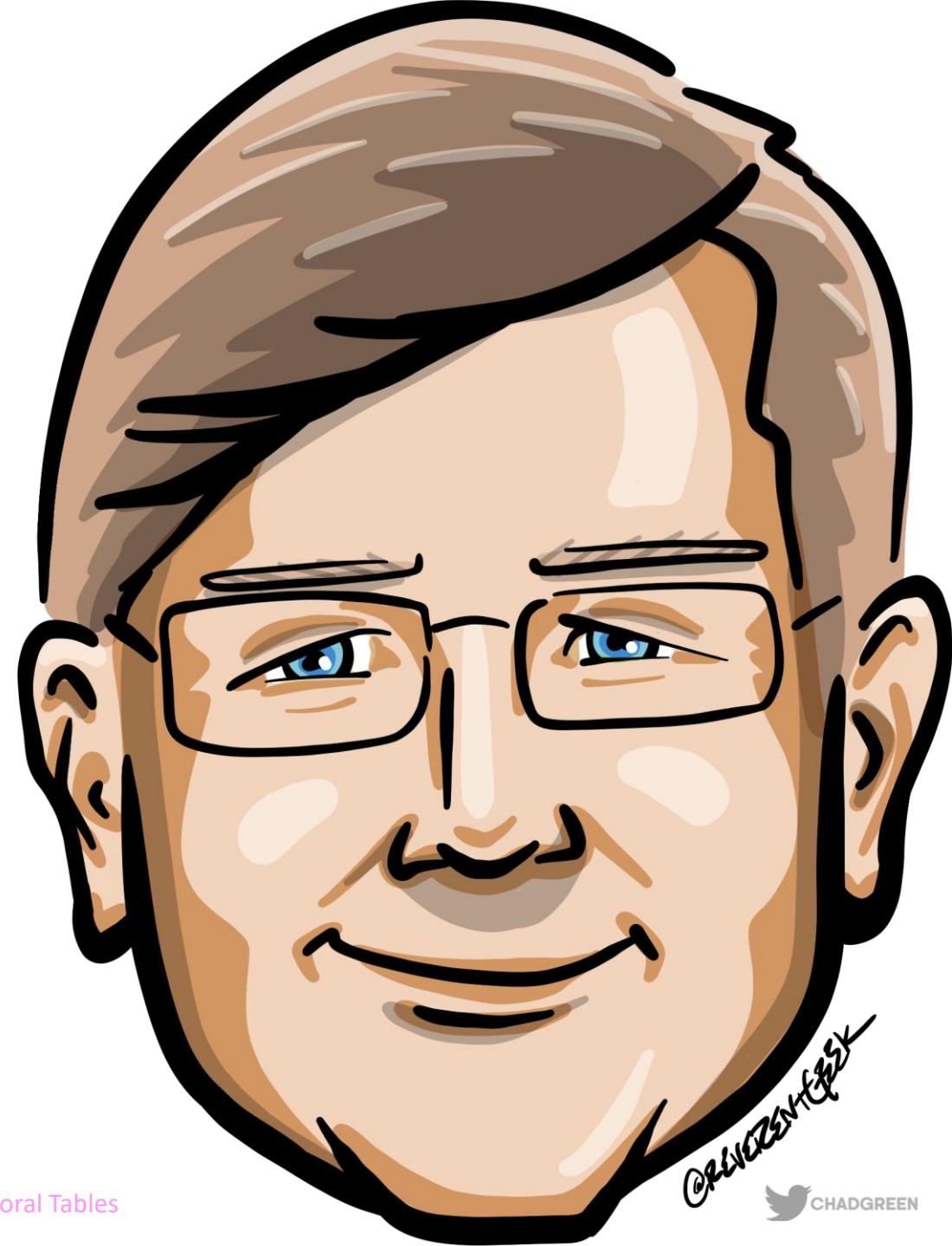
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What are system-versioned temporal tables?

Time Travelling Data: SQL Server Temporal Tables

Track Changes

What are system-versioned temporal tables?



System-Versioned

What are system-versioned temporal tables?



Rule of Two

What are system-versioned temporal tables?



Availability

What are system-versioned temporal tables?



Why use temporal tables?

Time Travelling Data: SQL Server Temporal Tables

Why use temporal tables?

Immutable History

**Built-In Time-Travelling
Query Support**

**Better DML
Performance**

**Minimal Maintenance
Costs**

Auditing

Common Uses Cases



Reconstructing State

Common Uses Cases



Calculating Trends

Common Uses Cases



Slowly Changing Dimensions

Common Uses Cases



Accidental Recovery



Common Uses Cases





How do temporal tables work?

Time Travelling Data: SQL Server Temporal Tables

How do temporal tables work?



Database Table	
PrimaryKeyId	
Name	
ForeignKeyId	

How do temporal tables work?

Temporal Table (Current)	
PrimaryKeyId	
Name	
ForeignKeyId	
ValidFrom	
ValidTo	

History Table	
PrimaryKeyId	
Name	
ForeignKeyId	
ValidFrom	
ValidTo	

How do temporal tables work?

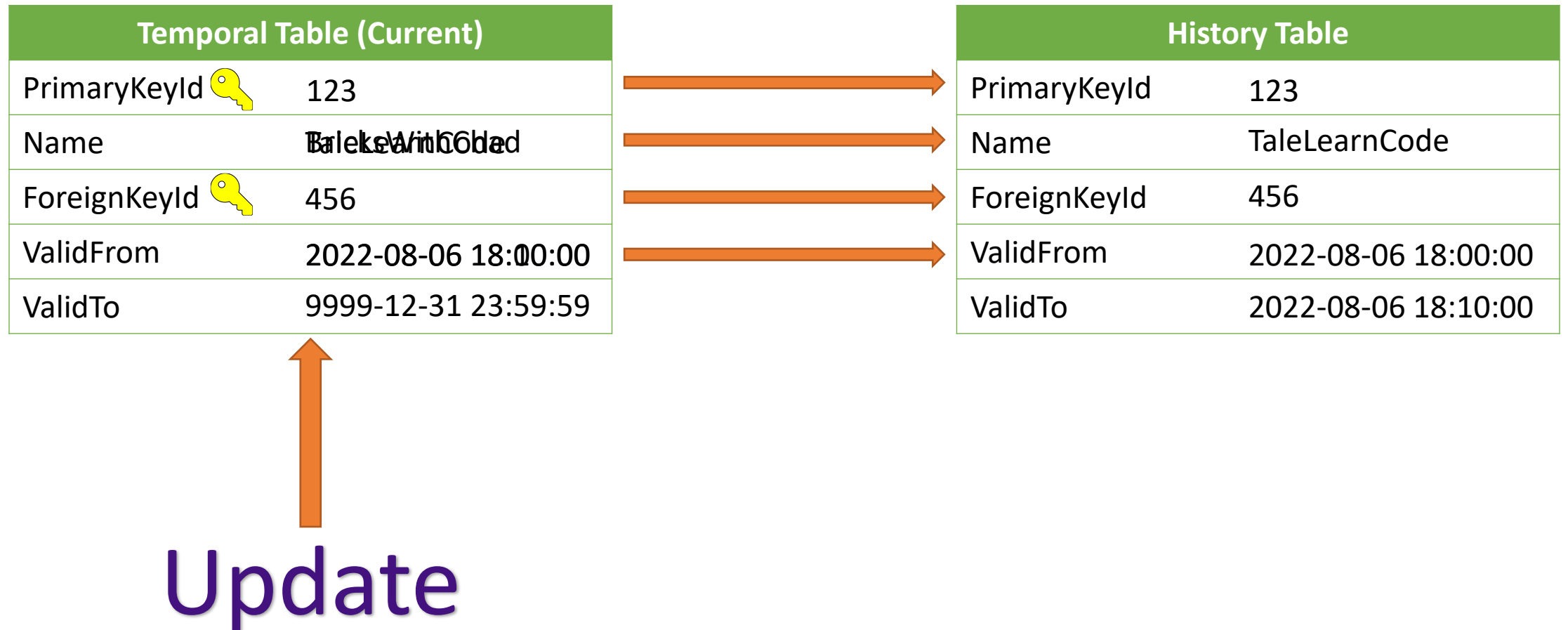
Temporal Table (Current)	
PrimaryKeyId 	123
Name	TaleLearnCode
ForeignKeyId 	456
ValidFrom	2022-08-06 18:00:00
ValidTo	9999-12-31 23:59:59



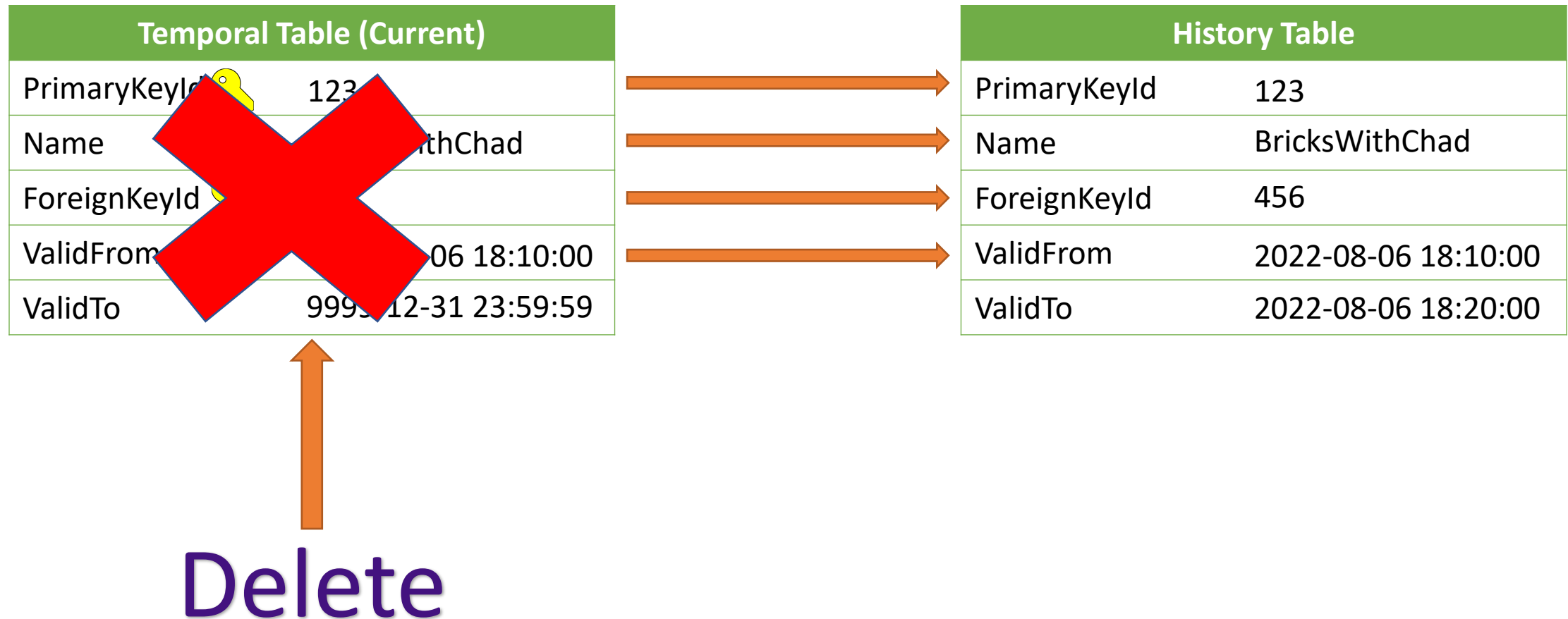
Insert

History Table	
PrimaryKeyId	
Name	
ForeignKeyId	
ValidFrom	
ValidTo	

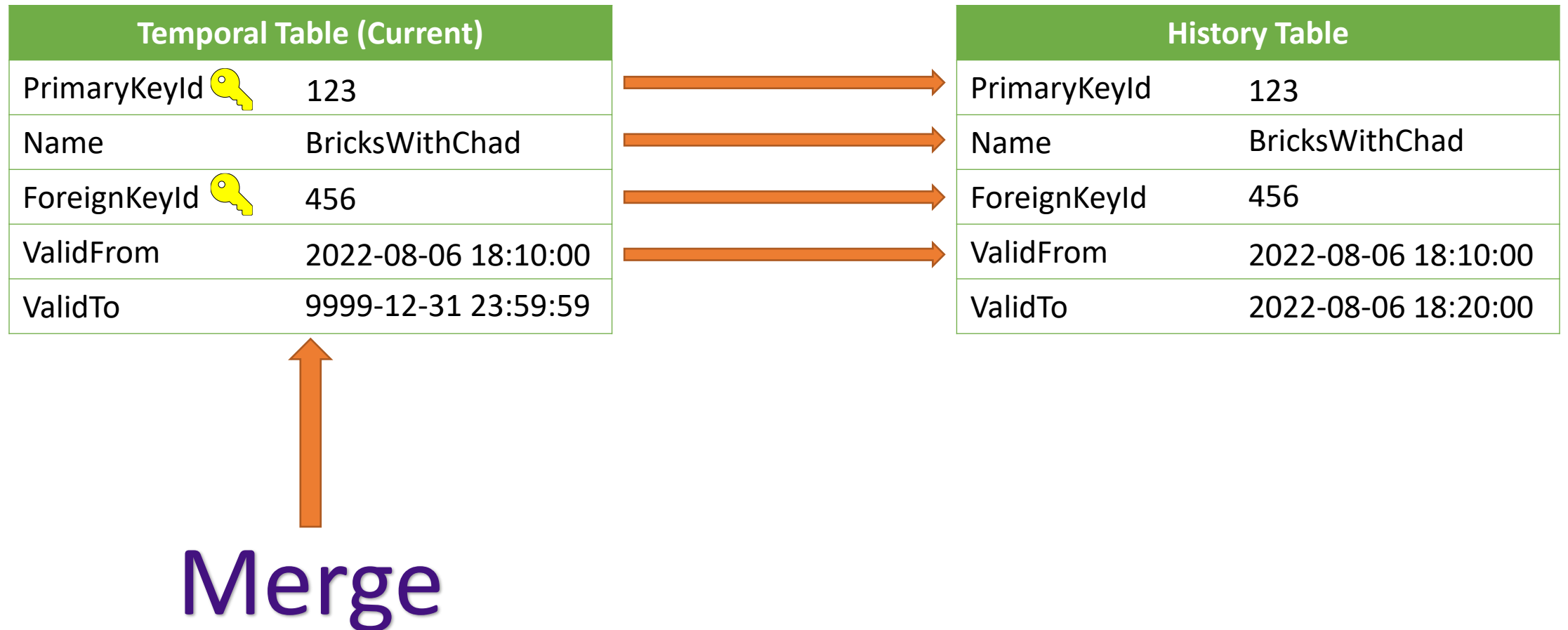
How do temporal tables work?





How do temporal tables work?



How do temporal tables work?



How do temporal tables work?

Temporal Table (Current)	
PrimaryKeyId 	123
Name	BricksWithChad
ForeignKeyId 	456
ValidFrom	2022-08-06 18:10:00
ValidTo	9999-12-31 23:59:59

History Table	
PrimaryKeyId	123
Name	TaleLearnCode
ForeignKeyId	456
ValidFrom	2022-08-06 18:00:00
ValidTo	2022-08-06 18:10:00

Regular queries
(current data)

Include historical version

Query

FOR SYSTEM_TIME
ALL, AS OF, BETWEEN..AND, FROM..TO, CONTAINED IN

How do temporal tables work?

```
SELECT * FROM DemoTable
FOR SYSTEM_TIME
BETWEEN '2022-08-05 00:00:00' AND '2022-08-06 23:59:59'
WHERE Id = 123
ORDER BY ValidFrom
```

PrimaryKeyId	Name	ForiegnKeyId	ValidFrom	ValidTo
123	BricskWithChad	456	2022-08-06 18:10:00	9999-12-31 23:59:59
123	TaleLearnCode	456	2022-08-06 18:00:00	2022-08-06 18:10:00



Query

FOR SYSTEM_TIME
ALL, AS OF, BETWEEN..ADN, FROM..TO, CONTAINED IN

How do temporal tables work?

```
SELECT * FROM DemoTable
FOR SYSTEM_TIME
AS OF '2022-08-06 18:05:00'
WHERE Id = 123
```

PrimaryKeyId	Name	ForiegnKeyId	ValidFrom	ValidTo
123	TaleLearnCode	456	2022-08-06 18:00:00	2022-08-06 18:10:00



Query

FOR SYSTEM_TIME
ALL, AS OF, BETWEEN..ADN, FROM..TO, CONTAINED IN

Include historical version

Temporal Query Expressions

AS OF `date_time`

Temporal Query Expressions

AS OF *date_time*

**FROM *start_date_time* TO
*end_date_time***

Temporal Query Expressions

AS OF *date_time*

**FROM *start_date_time* TO
*end_date_time***

**BETWEEN *start_date_time* AND
*end_date_time***

Temporal Query Expressions

AS OF *date_time*

**FROM *start_date_time* TO
*end_date_time***

**BETWEEN *start_date_time* AND
*end_date_time***

**CONTAINED IN (*start_date_time*,
end_date_time)**

Temporal Query Expressions

AS OF *date_time*

**FROM *start_date_time* TO
*end_date_time***

**BETWEEN *start_date_time* AND
*end_date_time***

**CONTAINED IN (*start_date_time*,
end_date_time)**

ALL

What are common use cases for using temporal tables?

Time Travelling Data: SQL Server Temporal Tables

Time to

ENGAGE

Time to Engage

- Let's create some temporal tables
- INSERTs, UPDATEs, and DELETEs, oh my
- Roads? Where we are going we don't need roads

Temporal Tables in Entity Framework

Time Travelling Data

Temporal Tables in Entity Framework

Support added in EF Core 6.0



Temporal Tables in Entity Framework



shivajiraot commented on Mar 3, 2016 • edited by divega ▾



Does EF Core support code first approach for Temporal tables?
Looking to find a way to use Temporal tables with EF Core code first approach. Please guide me to the article if any existing already.
Thank you.



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Temporal Tables in Entity Framework

- Creation of temporal tables using EF Core migrations
- Transformations of existing tables into temporal tables
- Querying historical data
- Restoring data from some point in the past

LINQ Extension Methods

TemporalAll

TemporalAsOf

TemporalFromTo

TemporalBetween

TemporalContainedIn

Thank You!

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