

# Recording and Storing Metadata

A relational database refresher...

# Defining Relationships

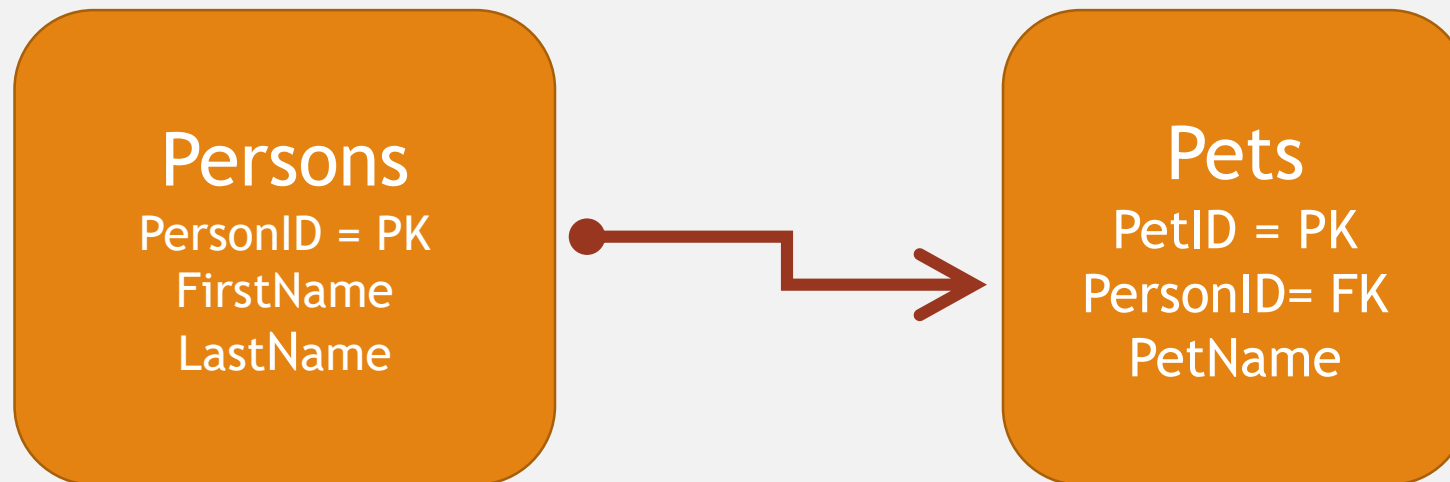
- To draw a relationship, each entity (table) requires a **primary key**
  - **Permanent**
  - **Unique**
  - **Nonsensical**

# Foreign Keys

- When the parent table key is referenced in a child table (which has its own primary key) it is called a foreign key. (As in “from another table.”)
- Since both keys are P.U.N., the bond is immutable.

# Types of Relationships

- A **one-to-many** relationship is used to store multiple child values.



# Types of Relationships

- **Many-to-many** relationships are used when several parent entities are related to several child entities.



# Controlled Vocabulary

- The “Tags” table has a fixed list of tags (categories, subjects, etc.) that can be applied to an Item. Zero-to-infinity.



# Schema Rules

- “The first rule of Schema Club...”
  - A lot of stuff, much of it unseen, happens in the background to maintain the schema’s integrity
  - Set and forget
- Table constraints
- Number and date formats
- Character sets / Languages
- Indexes

# Getting a Date: DATE and DATETIME

- DATE field format is YYYY-MM-DD

1000-01-01

9999-12-31

- DATETIME field format is  
YYYY-MM-DD HH:MM:SS

1000-01-01 00:00:00

9999-12-31 23:59:59



# Triggers are wonderful things

- Code that is run automatically when one executes...
  - Insert
  - Update
  - Delete

```
CREATE TRIGGER `PersonsBeforeInsert` BEFORE INSERT ON `persons`  
FOR EACH ROW  
SET  
  NEW.NickName = 'Bubba';
```

# Auto Capture Metadata I

Four fields for tracking / troubleshooting

CreateDate <Date>

CreatedBy <VarChar(120)>

LastUpdateDate <date>

LastUpdatedBy <VarChar(120)>

# Auto Capture Metadata II

INSERT and UPDATE trigger for the four fields in each table:

```
CREATE TRIGGER `ItemsInsert` BEFORE INSERT ON `Items`  
FOR EACH ROW  
SET  
    NEW.CreateDate = CURRENT_TIMESTAMP(),  
    NEW.CreatedBy = USER();
```

```
CREATE TRIGGER `ItemsUpdate` BEFORE UPDATE ON `Items`  
FOR EACH ROW  
SET  
    NEW.LastUpdateDate = CURRENT_TIMESTAMP(),  
    NEW.LastUpdatedBy = USER();
```

# Auto Capture Metadata III

ItemID	Title	...	CreateDate	CreatedBy	LastUpdateDate	LastUpdateBy
23	Goldberg's Variations	...	02/15/2017	Elmer Fudd	05/25/2019	Emily Entity
43	Shreck	...	08/12/2004	Godwin Akins	05/25.2019	Emily Entity
123	<b>The story of Chinese Zen</b>	...	10/10/2010	Emily Entity	07/15/2017	Gad Hissel
765	Thunder Road	...	06/30/2015	Cliff Missen	12/1/2017	Cliff Missen
1234	Dead Sea Scroll #4	...	12/02/2009	Ringo Starr	12/03/2009	Camille Friday

# Auto Capture Metadata III

ItemID	Title	...	CreateDate	CreatedBy	LastUpdateDate	LastUpdateBy
23	Goldberg's Variations	...	02/15/2017	120	05/25/2019	178
43	Shreck	...	08/12/2004	3040	05/25.2019	178
123	<b>The story of Chinese Zen</b>	...	10/10/2010	178	07/15/2017	1
765	Thunder Road	...	06/30/2015	2468	12/1/2017	2468
1234	Dead Sea Scroll #4	...	12/02/2009	543	12/03/2009	324

# Auto Capture Metadata III

## Editor 120

EditorID	120
First Name	Elmer
LastName	<b>Fudd</b>
AffiliationID	32
Level	JourneyPerson
Started	03/18/1995
Status	Active
CreateDate	03/18/1995
CreatedByID	178
LastUpdateDate	09/07/2011
LastUpdatedByID	178

# Know Your History

CertificateID	EditorID	Certificate	Awarded	...	CreateDate	...
2504	120	ALA Catalog Cert I	1998	...	10/10/2001	...
5432	120	American Alliance of Museums - Cert II	2003	...	08/12/2004	...
2498	120	<b>B.A. Evergreen State</b>	1995	...	10/10/2001	...
7725	120	Ph.D. UNC SILS	2009	...	06/30/2009	...
6492	120	M.A. Boston Univ.	2004	...	12/02/2004	...

# Picking the Latest

```
SELECT Top(1)
FROM Certificates
WHERE EditorID = 120
ORDER BY Awarded DESC;
```

CertificateID	EditorID	Certificate	Awarded	...	CreateDate	...
7725	120	Ph.D. UNC SILS	2009	...	06/30/2009	...



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