PHP and Database

Passing an Id to Display a record

Many sites pass values from page to page in the URL same as a forms GET method.

Amazon, craigslist etc.

Format: *url/filename?variable=value&variable=value&etc.*

Ex:
https://www.uvm.edu/coursedirectory/search.php?subject=CS&number=148&action=Search

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PHP and Database

Passing an Id to Display a record

Many sites are now using a different approach they are just passing the value in as the last parameter of URL. It is the same concept just looks different.

Ex: https://vtfishandwildlife.com/node/579. Beaver
https://vtfishandwildlife.com/node/589. Black Bear

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PHP and Database

Passing an Id to Display a record

First step pull the value out of the url and of course sanitize it.
A short version of an if statement called Ternary Operator
works well to initialize or sanitize all at the same time.

Ex:
```php
$critterId = (isset($_GET['cid'])) ? (int) htmlspecialchars($_GET['cid']) : 0;
```

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PHP and Database

Passing an Id to Display a record

Second step is to use our variable in our sql statement

```php
$sql  = 'SELECT  fldCommonName FROM tblWildlife WHERE pmkWildlifeId = ? ';
$data = array($critterId);
$animals =  $thisDatabaseReader->select($sql, $data);
```

How many records would we have in our array ?
How many records would we have if the id is zero ?
What happens if the id does not match any records ?
What is the effect on a foreach loop ?

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Database

Primary key

Uniquely identifies a record

Can be a combination of fields (if less than 30 bytes)

Can be auto increment which is called a surrogate key

Can be used as a foreign key which links two tables together

course

● course_id	dept_code	title	credit_hrs
50	ENG	English Composition	3
51	HIST	African History	3
52	COMP	Data Structures	4

class

● class_id	○ course_id	section	time	room
1001	50	1	MWF 8:00am	AMR 200
1002	50	2	TTh 9:00am	AMR 210
1003	51	1	TTh 10:00am	GBL 101

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Naming Conventions

Helps to self document
useCamelCase

Object	Prefix	Example
Table	tbl	tblTeacher
Primary Key	pmk	pmkNetId
Foreign key that is also a pmk in this table	fnk pfk	fnkNetid pfkNetId
field	fld	fldFirstName
Relationship table. Combine both table names	tbl	tblTeacherClass

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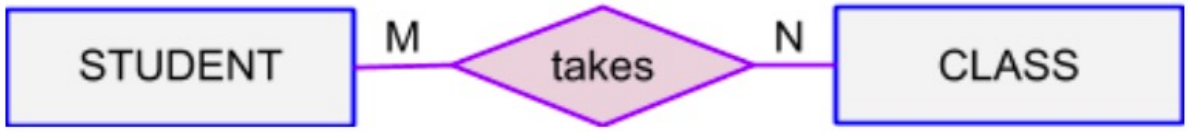
E-R Model ERD

graphical representation.

1. **Rectangle** - identify entities, think nouns (person, place, thing).
   1. Identify attributes in the table rectangle
   2. Underline - primary key
2. **Diamond** - represents a relationship type of how these tables are related
   1. Relation Type is identified by 1, M, N



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LAB ERD

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Relationships defined:

One-to-one relationship

Each table may have no more than one record in the other table.

- Often used for Notes (large text fields)
- Sometimes used because Less than half the records will have data, ie an optional field, less NULL values this way.
- The main table is called the **S**ubject.
- The other table is called the **T**arget.
- The primary key from **S** becomes the foreign primary key in **T**

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Relationships defined:

One-to-many relationship

One of the tables (table **S**ubject) allows the other table (table **T**arget) to have any number of related records, but table **T** restricts its records to be related to no more than one record in table **S**.

- 1:M is the basis for the relational model
- The 'One' table is the the **S**ubject.
- The 'Many' table is called the **T**arget.
- The primary key from **S** becomes the foreign primary key in **T**

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Relationships defined:

Many-to-many relationship

Each table may have any number of related records in the other table.

- Most common relationship type
- A new Relationship table is created to connect the two tables together.
- Choose the "main" table to be the **S**ubject.
- The other table becomes the **T**arget.
- Create the relationship table **R** with the naming convention of tblSubjectTarget

Continued ...

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Relationships defined:

Many-to-many relationship (cont..)

- The primary key tor table **S** becomes a foreign key in table **R**
- The primary key tor table **T** becomes a foreign key in table **R**
- Many times the combination of the two foreign keys becomes the primary key for table **R**
- Table R may have more fields than just foreign keys.

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LAB ERD

Wildlife
- Type
- Common Name
- Description
- Habitat
- Reproduction
- Diet
- Management
- Status
- Main Image

adopts

Donation Amount

Adopter
- Adopter Email
- First Name
- Last Name
- Agreed To Terms
- Receive Communication

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Database Tables after the ERD conversion

tblAdopter

Column
pmkAdopterEmail *(Primary)*
fldFirstName
fldLastName
fldAgreedToTerms
fldRecieveCommunication

tblAdopterWildlife

Column
pmkDonationId *(Primary)*
fpkAdopterEmail
fpkWildlifeId
fldDonationAmount

#	Name
1	pmkWildlifeId
2	fldType
3	fldCommonName
4	fldDescription
5	fldHabitat
6	fldReproduction
7	fldDiet
8	fldManagement
9	fldStatus
10	fldMainImage

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Joining tables

- ERD is a road map for your joins
- SELECT all fields, *[add tablename. fieldname if duplicate]*
  FROM main table *[usually the table with the most fields in the select]*
  JOIN other table ON primary key = foreign key
  [repeat join as often as needed]
- WHERE clause
- ORDER BY clause

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Inserting Records

Both will insert the record

```
$sql  = 'INSERT INTO tblAdopterWildlife ';
$sql .= '(fldDonationAmount, fpkAdopterEmail, fpkWildlifeId) ';
$sql .= 'VALUES (?, ?, ?)';
```

```
$sql  = 'INSERT INTO tblAdopterWildlife SET ';
$sql .= 'fldDonationAmount = ?, ';
$sql .= 'fpkAdopterEmail = ?, ';
$sql .= 'fpkWildlifeId = ?';
```

<- We use this method

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Updating Records

Similar to the Insert Set

```
$sql  = 'UPDATE tblAdopterWildlife SET ';
$sql .= 'fldDonationAmount = ?, ';
$sql .= 'fpkAdopterEmail = ?, ';
$sql .= 'fpkWildlifeId = ? ';
$sql .= 'WHERE pmkDonationId = ?';
```

Forget WHERE clause and you update every record

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One to Many

```
$sql2  = 'INSERT INTO tblAdopter SET ';
$sql2 .= 'pmkAdopterEmail = ?, ';
$sql2 .= 'fldFirstName = ?, ';
$sql2 .= 'fldLastName = ?, ';
$sql2 .= 'fldAgreedToTerms = ?, ';
$sql2 .= 'fldRecieveCommunication = ? ';
```

Can a person adopt more than one Critter?

What will happen if you try to insert a new record to table adopter ?

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The solution

Notice I do not update the primary key.

```
$sql2  = 'INSERT INTO tblAdopter SET ';
$sql2 .= 'pmkAdopterEmail = ?, ';
$sql2 .= 'fldFirstName = ?, ';
$sql2 .= 'fldLastName = ?, ';
$sql2 .= 'fldAgreedToTerms = ?, ';
$sql2 .= 'fldRecieveCommunication = ? ';

$sql2 .= 'ON DUPLICATE KEY UPDATE ';
$sql2 .= 'fldFirstName = ?, ';
$sql2 .= 'fldLastName = ?, ';
$sql2 .= 'fldAgreedToTerms = ?, ';
$sql2 .= 'fldRecieveCommunication = ?';
```

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Other items

- Group by: having instead of where
- Functions
- Lots of items that you would just expect from a programming language.
- Should you use slq or php?

```
SELECT CONCAT(fldFirstName, ' ', fldLastName) as fldFullName
print $person['fldFullName'];
```

```
print $person['fldFirstName'] . ' ' .  $person['fldLastName'];
```

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