Building Discovery Tools with SQL and PHP

by Kevin Cretsos

University of Dayton

Content for Today

Part 1

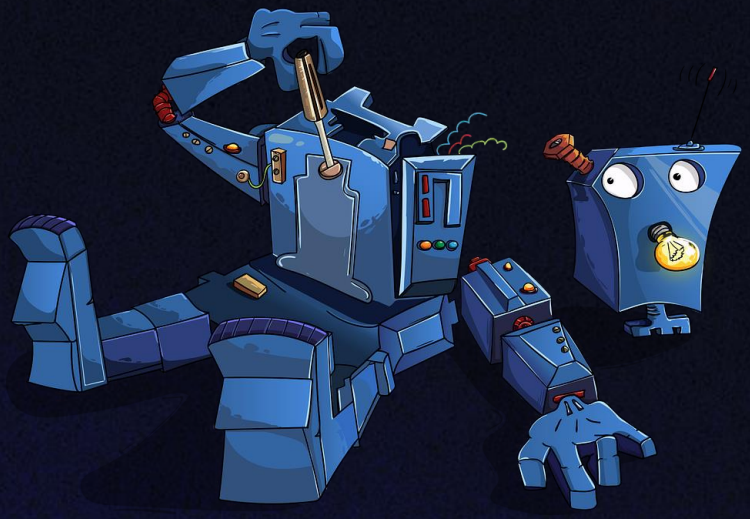
- New releases web menu
- Limitations of project
- SQL Access and SierraDNA
- Writing SQL queries
- Printing results on a webpage with PHP

Part 2

- Webpage structure for this project
- Code walkthrough

Disclaimer

- This is a work in progress project
- My knowledge with SQL and PHP is limited
- You may want to check with an IT colleague before implementing
- Also…



Be aware of security vulnerabilities

- SQL injection
  - https://www.w3schools.com/sql/sql_injection.asp
- Exposing patron data

Part 1

Shift from Print to Electronic

"Academic and research libraries have seen dramatic declines in their new acquisitions of print materials and expend the vast majority of their collection funds on subscriptions to electronic scholarly and professional journals, aggregated databases, or other electronic resources."

"Today, most large academic libraries devote most of their collection funds to subscriptions to electronic content products. But they needed new tools to manage these collections beyond the capabilities of their ILSs."

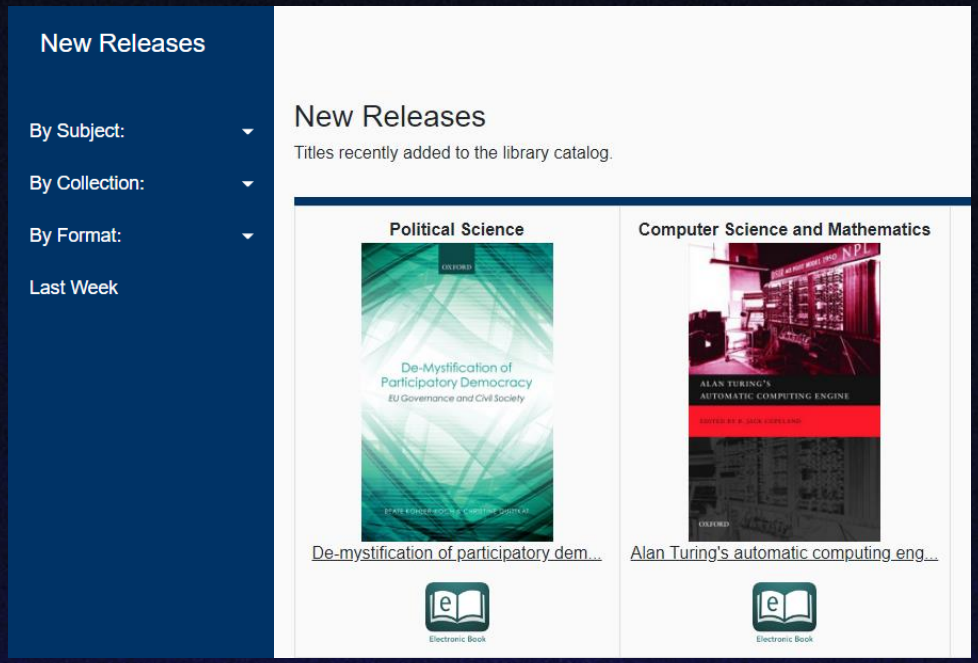
Breeding, Marshall. (2018). ERM Strategies in Academic Libraries: Historical Evolution and Current Context. *Computers in Libraries*, 38(3), 17–21.

Problems with Discovery

- Unable to browse new Ebooks and other hidden collections
- Lack of book jackets in ILS
- Large quantities of Ebooks added each week
- ILS does not display call number for Ebooks
- Unable to browse by academic discipline

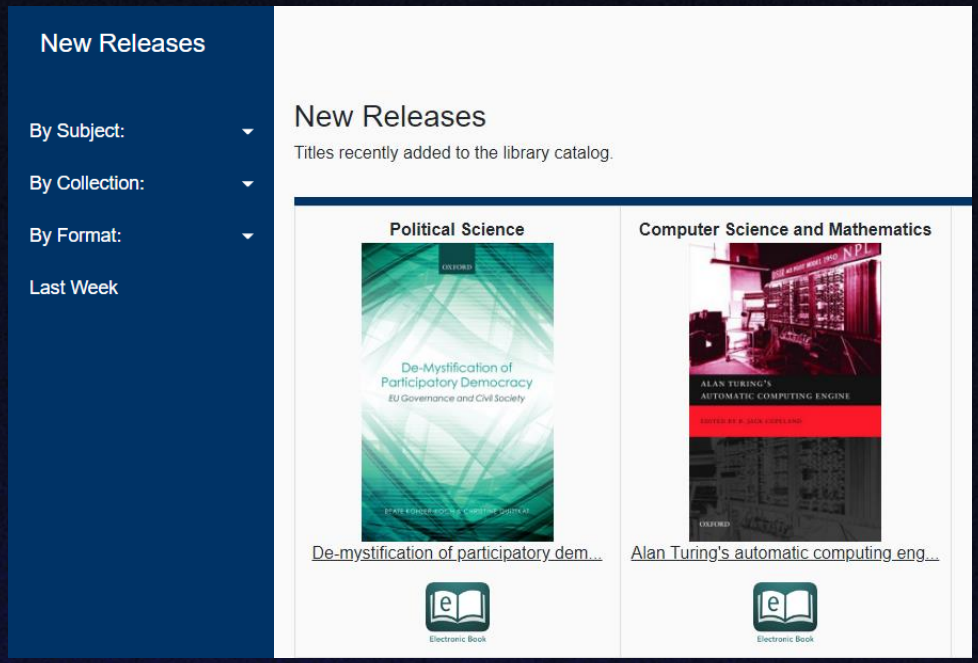
New Releases Web Menu

https://library2.udayton.edu/releases/home.php



Features

- Homepage loads random titles
- Sidebar menu for browsing by subject, collection, and format
- Displays book jacket (if found)
- Translates LC call number prefixes into subjects
- Newest additions on top
- Pagination
- Mobile-friendly views



How it works

- Call out SQL queries to retrieve records in Sierra
- Retrieves book jackets through Content Café using ISBN
- Display results on webpage with PHP

Limitations

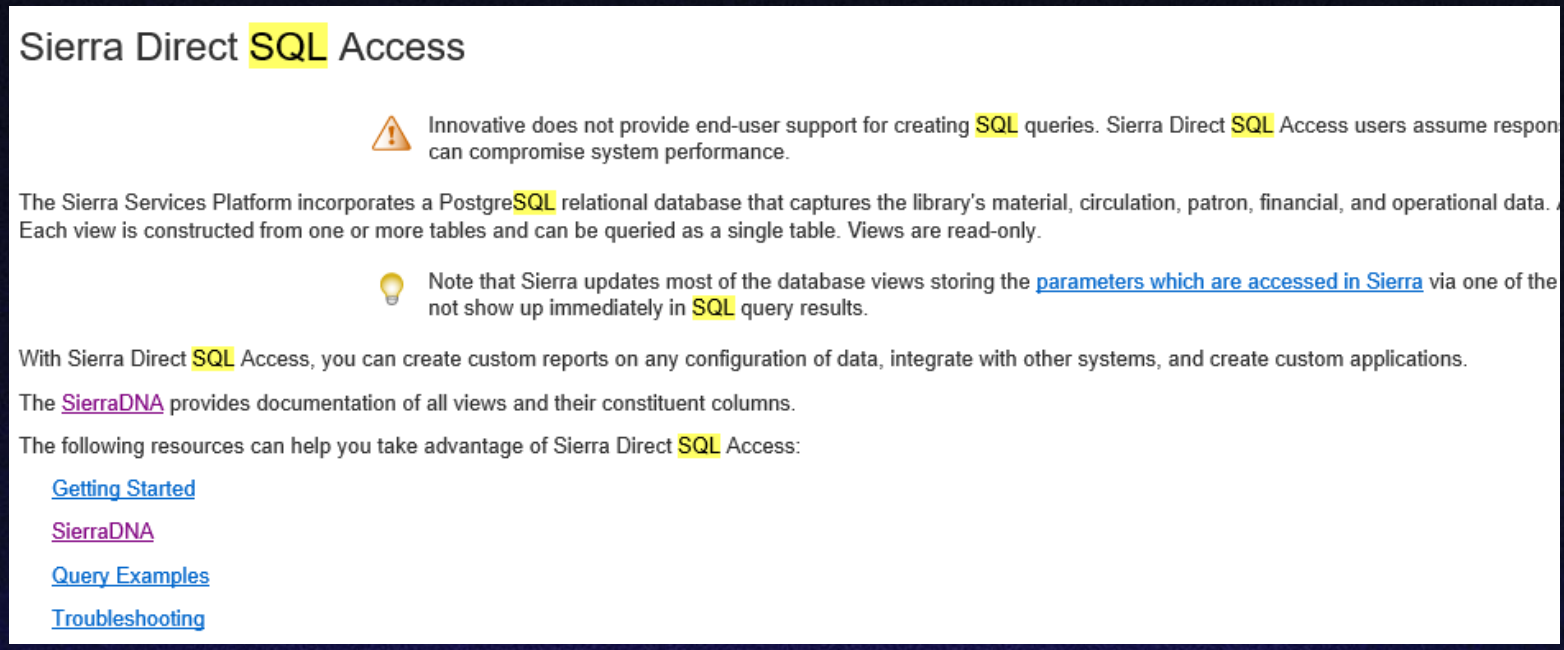
- Not all titles have book covers or ISBNs
- To use Content Café, you need a license
- Call number prefixes not always reliable
- Excluded certain item locations, statuses, etc., to make work

Getting started

- Create a Sierra username (SQL Access)
- Get to know SierraDNA documentation
- Create a Database connection (ie. pgAdmin)
- Test run your SQL queries
- Install WAMP
- Test run your PHP scripts

What is SQL?

- Structured Query Language
  - Call queries to update and retrieve data in a relational database



Sierra Direct SQL Access

Innovative does not provide end-user support for creating SQL queries. Sierra Direct SQL Access users assume respon
can compromise system performance.

The Sierra Services Platform incorporates a PostgreSQL relational database that captures the library's material, circulation, patron, financial, and operational data.
Each view is constructed from one or more tables and can be queried as a single table. Views are read-only.

Note that Sierra updates most of the database views storing the parameters which are accessed in Sierra via one of the
not show up immediately in SQL query results.

With Sierra Direct SQL Access, you can create custom reports on any configuration of data, integrate with other systems, and create custom applications.

The SierraDNA provides documentation of all views and their constituent columns.

The following resources can help you take advantage of Sierra Direct SQL Access:

Getting Started

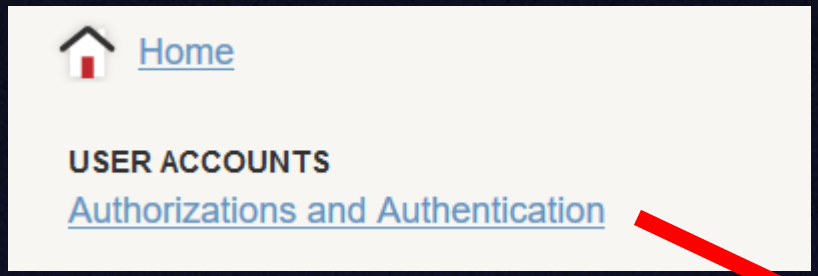
SierraDNA

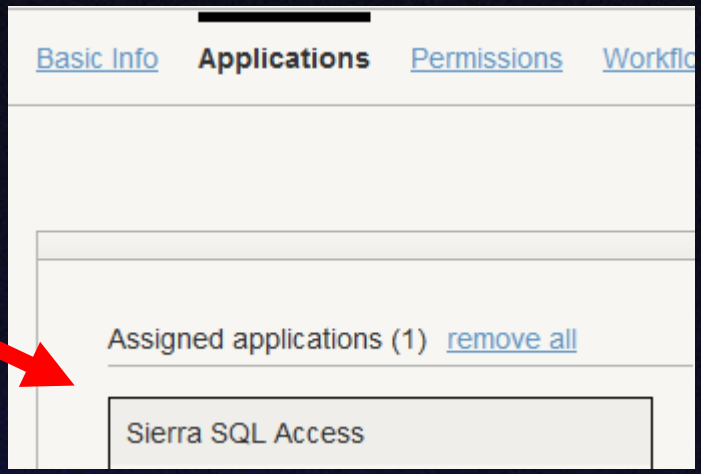
Query Examples

Troubleshooting

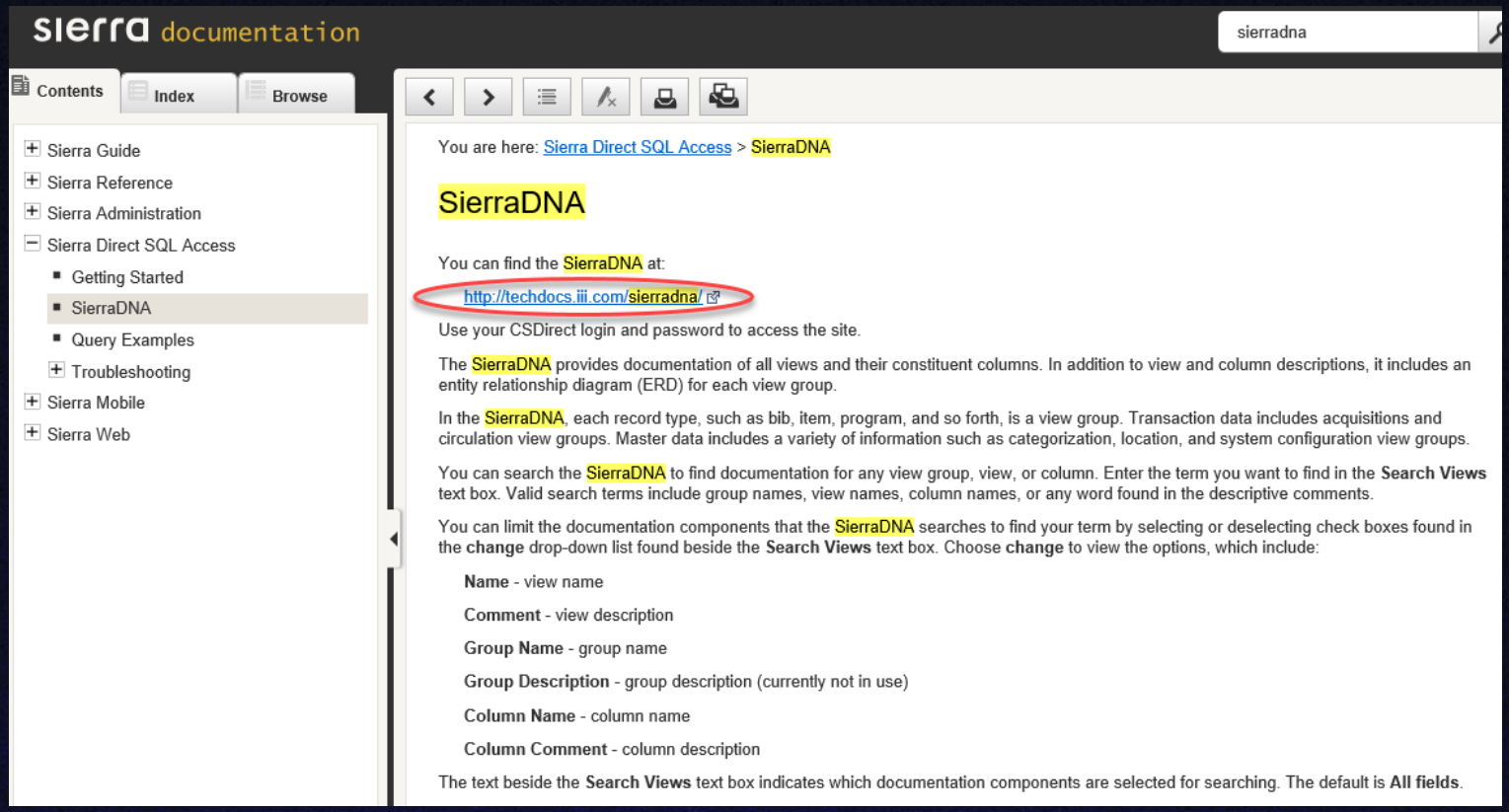
SQL Access

- Create a Sierra username with Sierra SQL Access





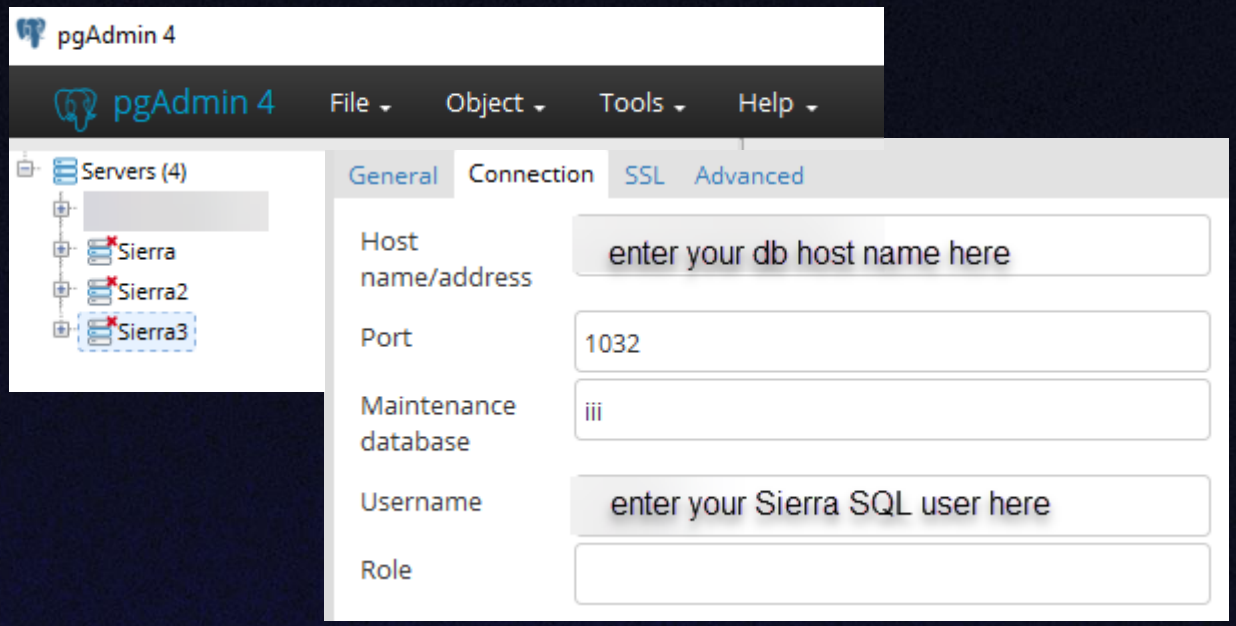
SierraDNA



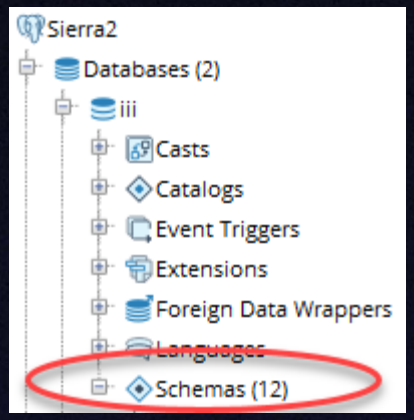
- http://techdocs.iii.com/sierradna

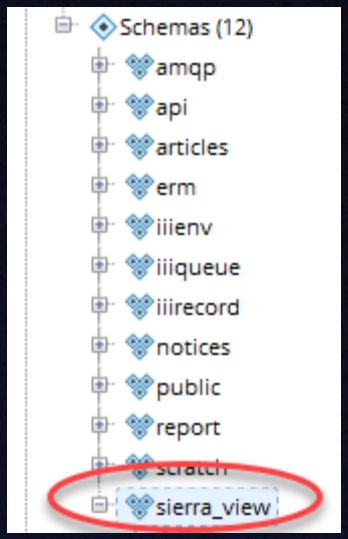
Setting up a connection

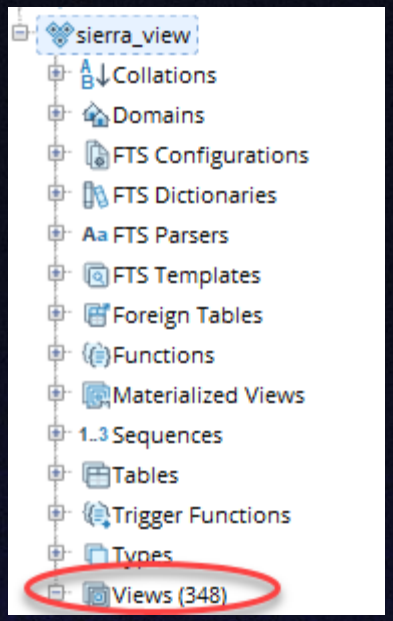
- Install pgAdmin or alternative software
- Create a database connection

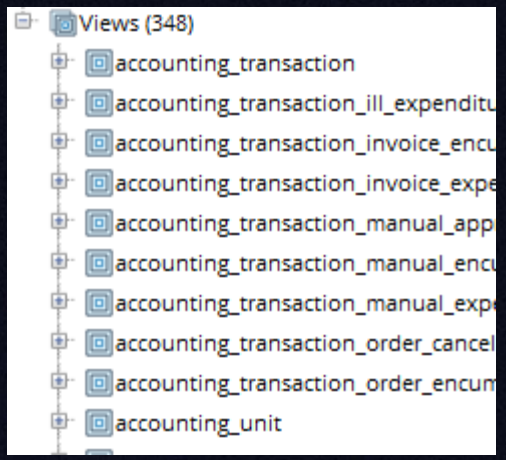


Getting to SierraDNA tables









SQL structure

- SELECT [your column(s)]
- FROM [your table]
- JOIN [column from another table]
  - Primary Key to Foreign Key
- WHERE [set conditions for filters]
- ORDER [by your column(s)]
- LIMIT [number of results]

```
SELECT
brp.best_title AS title,
''||b.cataloging_date_gmt::DATE AS catalog_date,
i.location_code
FROM
sierra_view.bib_view AS b
JOIN
sierra_view.bib_record_item_record_link AS l
ON b.id = l.bib_record_id
JOIN
sierra_view.item_view AS i
ON l.item_record_id = i.id
JOIN
sierra_view.bib_record_property AS brp
ON l.bib_record_id = brp.bib_record_id
WHERE
(
    b.cataloging_date_gmt <= NOW() AND
    b.cataloging_date_gmt >= NOW() - '1 week'::INTERVAL
)
ORDER BY
catalog_date DESC
LIMIT 15;
```

http://www.postgresqltutorial.com/

Joining columns from other tables

Joining columns from other tables

```
SELECT
brp.best_title as title,
brp.id as brp_id,
brp.bib_record_id as brp_bib_record_id,
b.id as b_id,
l.id as l_id,
l.bib_record_id as l_bib_record_id,
l.item_record_id as l_item_record_id,
i.location_code,
i.id as i_id
FROM
sierra_view.bib_view AS b
JOIN
sierra_view.bib_record_item_record_link AS l
ON b.id = l.bib_record_id
JOIN
sierra_view.item_view AS i
ON l.item_record_id = i.id
JOIN
sierra_view.bib_record_property as brp
ON l.bib_record_id = brp.bib_record_id
```

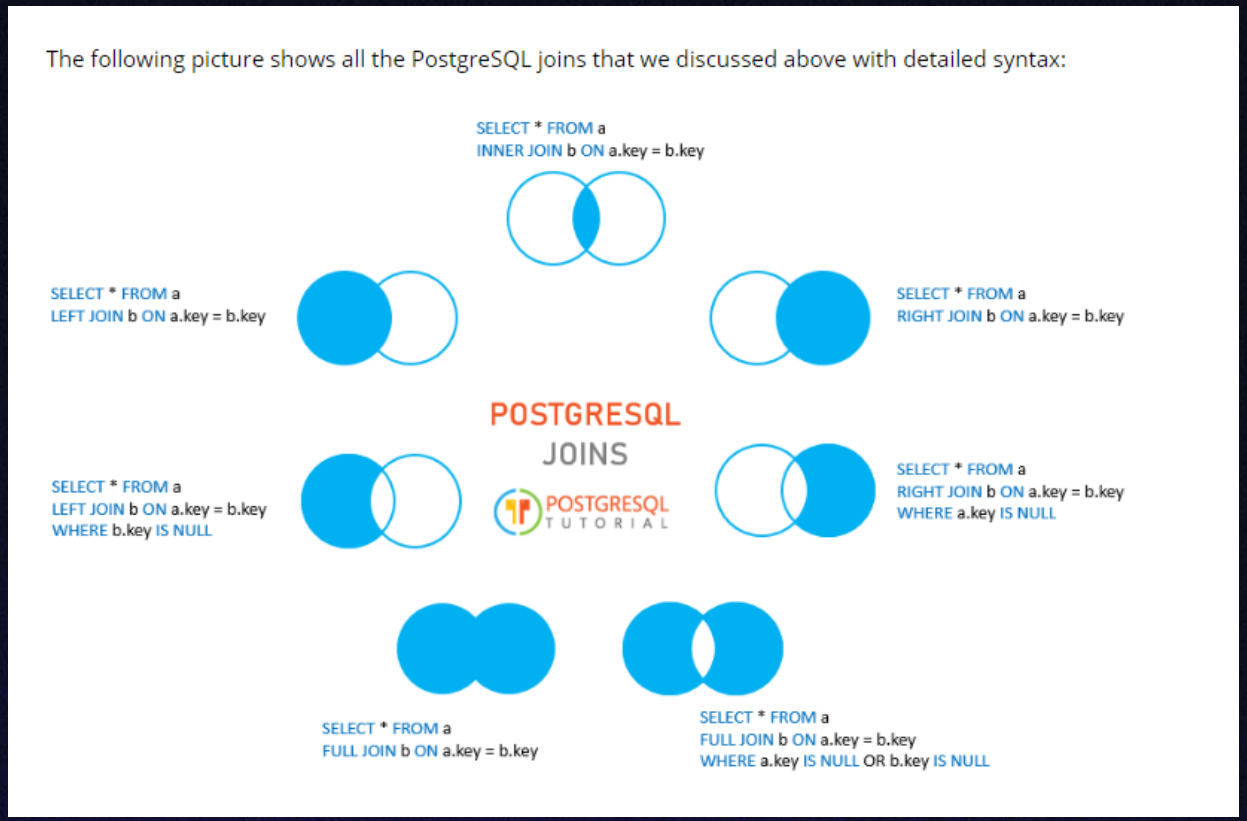
Bib Record Property “bib_record_id” matches on Bib Record Item Record Link “bib_record_id”

This gives access to columns in tables that share a link

title character varying (1000)	brp_id integer	brp_bib_record_id bigint	b_id bigint	l_id bigint	l_bib_record_id bigint	l_item_record_id bigint
Globalization, modernity, a...	2600091	420911229159	11229159	1244099	420911229159	450974607882
History of illustration	2585289	420911215600	11215600	1244101	420911215600	450974607884
United States reconstructio...	2595562	420911225595	11225595	1244100	420911225595	450974607883
Round trip to Hades in the ...	2595573	420911225606	11225606	1244098	420911225606	450974607881
Les modèles dans l'art du M...	2581394	420911211871	11211871	1244089	420911211871	450974607877
W zjednoczeniu z Niepokala...	2600083	420911229158	11229158	1244086	420911229158	450974607876

Types of Joins

- Left
- Right
- Inner
- Outer
- Full



http://www.postgresqltutorial.com/postgresql-joins/

SQL results

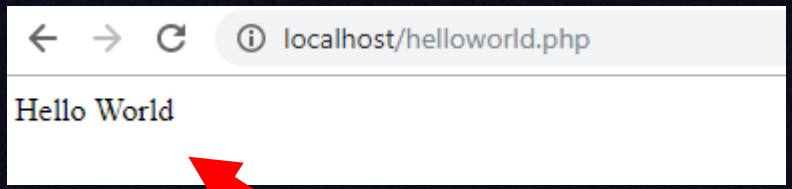
```
SELECT
brp.best_title AS title,
''||b.cataloging_date_gmt::DATE AS catalog_date,
i.location_code
FROM
sierra_view.bib_view AS b
JOIN
sierra_view.bib_record_item_record_link AS l
ON b.id = l.bib_record_id
JOIN
sierra_view.item_view AS i
ON l.item_record_id = i.id
JOIN
sierra_view.bib_record_property AS brp
ON l.bib_record_id = brp.bib_record_id
WHERE
(
    b.cataloging_date_gmt <= NOW() AND
    b.cataloging_date_gmt >= NOW() - '1 week'::INTERVAL
)
ORDER BY
catalog_date DESC
LIMIT 15;
```

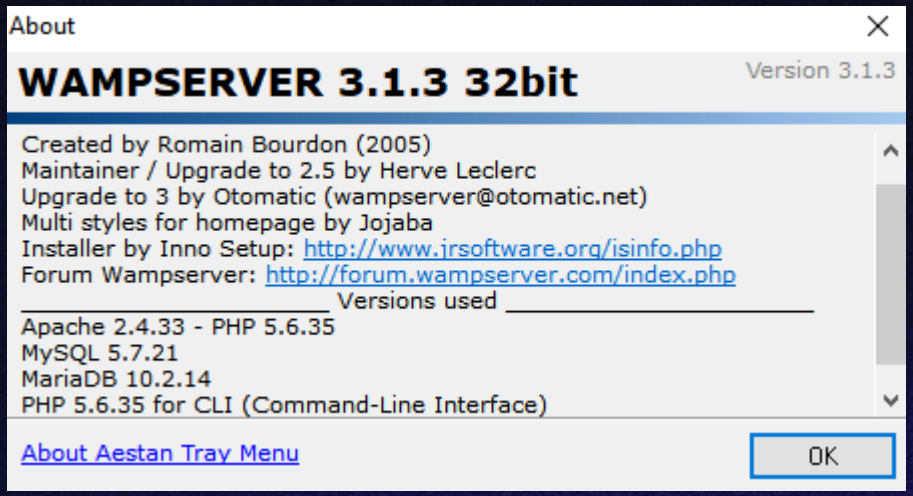
Data Output | Explain | Messages | Query History

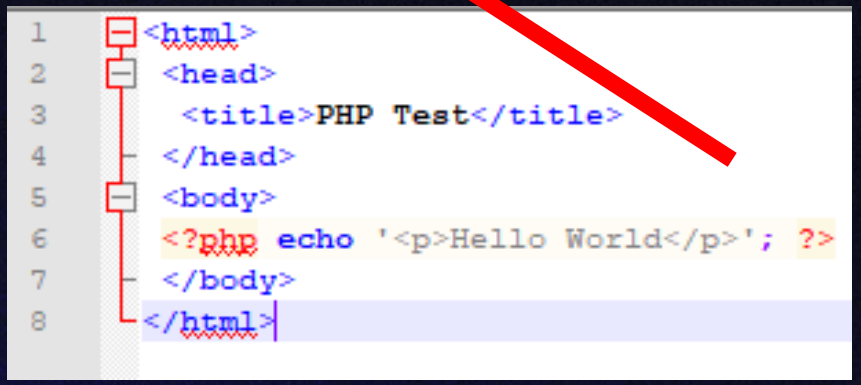
	title character varying (1000)	catalog_date text	location_code character varying (5)
1	Miracle Creek	2019-07-29	mn1
2	On Earth we're briefly gorgeous : a novel	2019-07-29	mn1
3	Le paradis des dames chretiennes.	2019-07-26	mea
4	Manuscritos sobre la Virgen de Linarejos y s...	2019-07-26	mcs
5	The many faces of the Madonna : 25 years ...	2019-07-26	rau
6	O paraíso no "fim do mundo" : o culto de N...	2019-07-26	mcs
7	She shall bring forth a son	2019-07-26	mcs
8	Rockonomics : a backstage tour of what the...	2019-07-26	rc6
9	The first Christmas : a Christmas pop-up.	2019-07-26	mcj
10	Las bajadas de la imagen de la Virgen del Pi...	2019-07-26	mcs
11	Old Saint Mary's : a challenging church in a ...	2019-07-26	ruc
12	The many faces of the Madonna : 25 years ...	2019-07-26	mcs
13	Catholic Minnesota : historic places and tou...	2019-07-26	ruc
14	Old Saint Mary's : a challenging church in a ...	2019-07-26	mcpc
15	Salutaris hominis Christiani exercitatio : ex ...	2019-07-26	ree

Getting started with PHP

- Install WampServer
- Allows testing php code on local computer.
- https://www.w3schools.com/php/







Test query with PHP

Printing query results with PHP

- Query file
  - query.sql
- Database file
  - db.php
- Results file
  - results.php

query.sql

```
SELECT
brp.best_title as title,
'https://flyers.udayton.edu/record=b'||b.record_num||'a' AS catalog_URL

FROM
sierra_view.bib_view as b

JOIN
sierra_view.bib_record_property as brp
ON b.id = brp.bib_record_id

WHERE
(
   b.cataloging_date_gmt <= NOW() AND
   b.cataloging_date_gmt >= NOW() - '1 day'::INTERVAL
)

LIMIT 5
```

query.sql

	title character varying (1000)	catalog_url text
1	The methods of science and religion : epistemologies ...	https://flyers.udayton.edu/record=b4430595a
2	Escaping the digital unease = Raus aus dem digitalen ...	https://flyers.udayton.edu/record=b4390291a
3	The enduring legacy of Weimar : graphic design & ne...	https://flyers.udayton.edu/record=b4430575a
4	The age of consequences	https://flyers.udayton.edu/record=b4430600a
5	Wildnis : wilderness	https://flyers.udayton.edu/record=b4430577a

db.php

Enter your login credentials in this file

```php
<?php
//Database login
$database='';
$user='';
$host='';
$password='';
$port='1032';
?>
```

results.php

1. INCLUDE FILES

```
require('includes/db.php');
$sql = "includes/query.sql";
```

2. CONNECT TO DATABASE

```
$connection = pg_connect("host=$host dbname=$database port=$port user=$user
password=$password")
        or die("Failed to create connection to database: ".pg_last_error(). "<br/>");
```

3. READ QUERY AND PRINT RESULTS

```
$query = readQuery($sql);
$results = pg_query($query);
$collection = pg_fetch_all($results);
printResults($collection);
```

4. CLOSE DATABASE

```
pg_close($connection);
```

results.php

```
<html>
    <head>
    </head>
    <body>
        <?php
            //MAIN
            //1. include files
            require('includes/db.php');
            $sql = "includes/query.sql";

            //2. connect to database
            $connection = pg_connect("host=$host dbname=$database port=$port user=$user password=$password")
                or die("Failed to create connection to database: ". pg_last_error(). "<br/>");

            //3. run query and print results
            $query = readQuery($sql); //--> calls function
            $results = pg_query($query);
            $collection = pg_fetch_all($results);
            printResults($collection); //--> calls function

            //4. close database
            pg_close($connection);

            //FUNCTIONS
            function readQuery($filename) {
                $fcommand = fopen($filename, "r");
                $query = fread($fcommand, filesize($filename));
                return $query;
            }

            function printResults($collection)  {
                $i = 0;
                while ($i < count($collection)) {
                    echo '<a href='.$collection[$i]['catalog_url'].'>'.$collection[$i]['title'].'</a>';
                    echo '<br>';
                    $i++;
                }
            }
        ?>
    </body>
</html>
```

results.php with WAMP

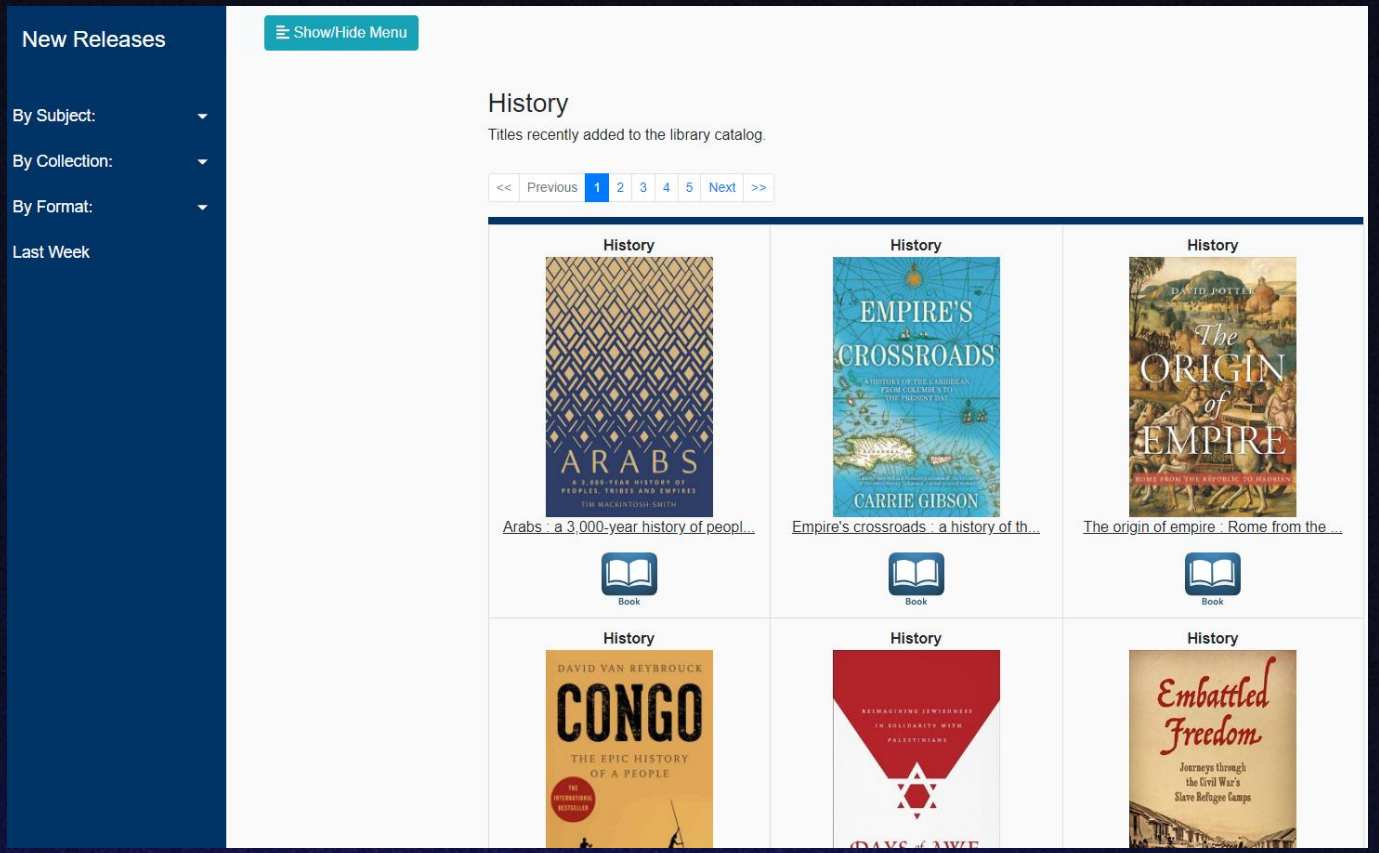
Part 2

Webpage structure

- Homepage (home.php)
- Results by Classification file (class.php)
- Results with Headings file (headings.php)
- Styling file (styling.php)
- Includes:
  - Database file (db.php)
  - Query file (query.sql)
  - Sidebar menu (sidebar_1.php)
  - Menu parameters (arrays.php)
  - Functions (functions.php)

Results by Classification (class.php)

- Displays newest titles by LC Classification
- 15 results per page
- Retrieves images from Content Café
- Links to library catalog



Database file (db.php)

- Enter the database login credentials in this file
- Links to class.php

```php
<?php
//Database login
$database='';
$user='';
$host='';
$password='';
$port='';

//Content Cafe Username and Password
$alias=''; //username
$secret=''; //password
?>
```

Query file (class_query.sql)

- Fields for query:
  - Title (brp)
  - Bib Record Number (m)
  - Material Type (brp)
  - Call Number Prefix (cn)
  - ISBN* (included in subquery)
  - Cataloging Date (b)
  - Bib Record Location (brl)

```
FROM
sierra_view.record_metadata as m

LEFT OUTER JOIN
sierra_view.bib_record_property as brp
ON m.id = brp.bib_record_id

LEFT OUTER JOIN
sierra_view.bib_record_call_number_prefix AS cn
ON brp.bib_record_id = cn.bib_record_id

LEFT OUTER JOIN
sierra_view.bib_view as b
ON brp.bib_record_id = b.id

LEFT OUTER JOIN
sierra_view.bib_record_location as brl
ON m.id = brl.bib_record_id
```

http://www.postgresqltutorial.com/

Query file (class_query.sql)

- Translating call numbers:
  - Use a CASE conditional expression.
  - http://www.postgresqltutorial.com/postgresql-case/

```
CASE
WHEN UPPER( cn.call_number_prefix ) LIKE 'A%' THEN 'Humanities and Library Science'
WHEN UPPER( cn.call_number_prefix ) = 'B' THEN 'Philosophy'
WHEN UPPER( cn.call_number_prefix ) LIKE 'BC%' THEN 'Philosophy'
WHEN UPPER( cn.call_number_prefix ) LIKE 'BD%' THEN 'Philosophy'
WHEN UPPER( cn.call_number_prefix ) LIKE 'BF%' THEN 'Psychology'
WHEN UPPER( cn.call_number_prefix ) LIKE 'BH%' THEN 'Philosophy'
WHEN UPPER( cn.call_number_prefix ) LIKE 'BJ%' THEN 'Philosophy'
WHEN UPPER( cn.call_number_prefix ) LIKE 'BL%' THEN 'Religion'
WHEN UPPER( cn.call_number_prefix ) LIKE 'BM%' THEN 'Religion'
WHEN UPPER( cn.call_number_prefix ) LIKE 'BP%' THEN 'Religion'
WHEN UPPER( cn.call_number_prefix ) LIKE 'BQ%' THEN 'Religion'
WHEN UPPER( cn.call_number_prefix ) LIKE 'BR%' THEN 'Religion'
WHEN UPPER( cn.call_number_prefix ) LIKE 'BS%' THEN 'Religion'
WHEN UPPER( cn.call_number_prefix ) LIKE 'BT%' THEN 'Religion'
WHEN UPPER( cn.call_number_prefix ) LIKE 'BV%' THEN 'Religion'
WHEN UPPER( cn.call_number_prefix ) LIKE 'BX%' THEN 'Religion'
```

Query file (class_query.sql)

- Getting an ISBN:
  - Add a subquery (http://www.postgresqltutorial.com/postgresql-subquery/)
  - Regexp replace all letters (except 'x') and pipes (http://www.postgresqltutorial.com/regexp_replace/)
  - Filter bib record index 'i' , with MARC tag 020, starting with subfield 'a'
  - Order the subquery by longest ISBN
  - Limit 1 result

```
(
    SELECT
    split_part(regexp_replace(v.field_content, '[a-wyzA-WYZ.:();-]', '| ', 'ig'), '|', 3)
    FROM
    sierra_view.varfield as v
    WHERE
    (
        v.record_id = m.id
        AND v.varfield_type_code = 'i'
        AND v.marc_tag = '020'
        AND v.field_content LIKE '|a%'
        AND v.field_content IS NOT NULL
    )
    ORDER BY length(v.field_content) DESC
    LIMIT 1
)
AS isbn
```

Sidebar menu (sidebar_1.php)

- Included at the top of the class.php file
- Contains drop down menu of hyperlinks to browse by Subject, Collection, or Format
- Each class.php file will call different SQL conditions (based on class_arrays.php)
- Uses Bootstrap and Javascript to collapse menu options

```
<body>
   <!-- Sidebar -->
   <nav id="sidebar">
      <div class="sidebar-header">
         <h6>
         <a href="home.php">
            <h4>New Releases</h4>
         </a>
      </div>
      <ul class="list-unstyled components">
         <li>
            <h6><a href="#classSubmenu" data-toggle="collapse" aria-expanded="false" clas
            <ul class="collapse list-unstyled" id="classSubmenu">
               <li><a href="agriculture.php">Agriculture</a></li>
               <li><a href="anthropology.php">Anthropology and Archaeology</a></li>
               <li><a href="art.php">Art</a></li>
               <li><a href="astronomy.php">Astronomy</a></li>
               <li><a href="biology.php">Biology</a></li>
               <li><a href="business.php">Business and Management</a></li>
               <li><a href="chemistry.php">Chemistry</a></li>
               <li><a href="computer.php">Computer Science and Mathematics</a></li>
               <li><a href="earth.php">Earth and Environmental Sciences</a></li>
               <li><a href="economics.php">Economics</a></li>
```

Sidebar menu (sidebar_1.php)

New Releases

By Subject:

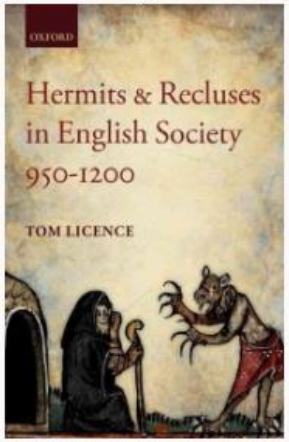
- Agriculture
- Anthropology and Archaeology
- Art
- Astronomy
- Biology
- Business and Management
- Chemistry
- Computer Science and Mathematics
- Earth and Environmental Sciences

Show/Hide Menu

New Releases

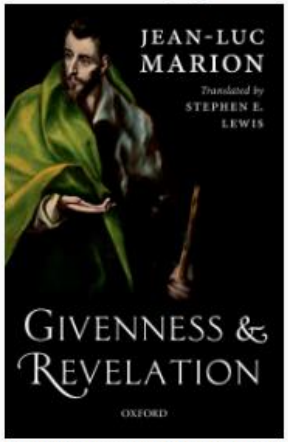
Titles recently added to the library catalog.

Religion



Hermits and recluses in English socie...

Philosophy



Givenness and revelation

Menu parameters (class_arrays.php)

- Create parallel arrays to set WHERE conditions for SQL query based on subject index selected:
  - Subject labels
  - Call number conditions (class_query.sql)
  - Cataloging date conditions (class_query.sql)

```
'2 year'::INTERVAL)  ", // Agriculture
'2 year'::INTERVAL)  ", // Anthropology, Archaeology
'1 year'::INTERVAL) ", //Art
'2 year'::INTERVAL) ", // Astronomy
'1 year'::INTERVAL) ", // Biology
'2 month'::INTERVAL) ", // Business/Management
'1 year'::INTERVAL) ", // Chemistry
'2 month'::INTERVAL) ", //Computer Science and Mathematics
'1 year'::INTERVAL)  ", // Earth and Environmental Sciences
'5 month'::INTERVAL) ", // Economics
'1 year'::INTERVAL) ", //Education
'2 month'::INTERVAL) ", // Engineering
'2 year'::INTERVAL) ", // Food and Home Economics
'6 month'::INTERVAL) ", // History
'1 year'::INTERVAL) ", // Humanities and Library Science
'4 month'::INTERVAL) ", //Language and Literature
'5 month'::INTERVAL) ", // Law
'3 month'::INTERVAL) ", // Medicine
'1 year'::INTERVAL) ", // Military Science
'1 year'::INTERVAL) ", // Music
'9 month'::INTERVAL) ", // Philosophy
'6 month'::INTERVAL) ", //Photography
'9 month'::INTERVAL) ", // Physics
'6 month'::INTERVAL) ", // Political Science
'1 year'::INTERVAL) ", //Psychology
'1 year'::INTERVAL) ", // Recreation/Leisure
'9 month'::INTERVAL) ", // Religion
'6 month'::INTERVAL) ", // Science/Technology
'4 month'::INTERVAL) " // Social Sciences
```

Menu parameters (class_arrays.php)

```
//Catatloging Date Filter
$date_scope = array(
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '2 year'::INTERVAL)  ", // Agriculture
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '2 year'::INTERVAL)  ", // Anthropology, Archaeology
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '1 year'::INTERVAL) ", //Art
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '2 year'::INTERVAL) ", // Astronomy
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '1 year'::INTERVAL) ", // Biology
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '2 month'::INTERVAL) ", // Business/Management
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '1 year'::INTERVAL) ", // Chemistry
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '2 month'::INTERVAL) ", //Computer Science and Mathematics
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '1 year'::INTERVAL)  ", // Earth and Environmental Sciences
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '5 month'::INTERVAL) ", // Economics
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '1 year'::INTERVAL) ", //Education
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '2 month'::INTERVAL) ", // Engineering
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '2 year'::INTERVAL) ", // Food and Home Economics
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '6 month'::INTERVAL) ", // History
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '1 year'::INTERVAL) ", // Humanities and Library Science
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '4 month'::INTERVAL) ", //Language and Literature
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '5 month'::INTERVAL) ", // Law
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '3 month'::INTERVAL) ", // Medicine
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '1 year'::INTERVAL) ", // Military Science
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '1 year'::INTERVAL) ", // Music
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '9 month'::INTERVAL) ", // Philosophy
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '6 month'::INTERVAL) ", //Photography
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '9 month'::INTERVAL) ", // Physics
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '6 month'::INTERVAL) ", // Political Science
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '1 year'::INTERVAL) ", //Psychology
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '1 year'::INTERVAL) ", // Recreation/Leisure
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '9 month'::INTERVAL) ", // Religion
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '6 month'::INTERVAL) ", // Science/Technology
                " AND (b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '4 month'::INTERVAL) " // Social Sciences
    );
```

class.php

class.php summary

- Part A
  - Include SQL and PHP files
  - Set the subject index value based on values in class_arrays.php
  - Pass SQL filter conditions from arrays in class_arrays.php
- Part B
  - Open SQL connection
  - Set URL and get page
  - Set results per page and create offsets for the query
  - Read your query filters, offsets, and limits
  - Fetch SQL results
  - Print each result
  - Close SQL connection

1. Include SQL and PHP files

```php
<?php
    //1. INCLUDE FILES
    require('includes/db.php'); //Database Credentials
    $sql = "includes/class_query.sql"; //SQL file for Subject/Classification
    require('includes/class_arrays.php'); //Subject/Classification Array Filters
    require('includes/class_functions.php'); //Subject/Classification Functions
```

2. Set subject index and pass array filters

```php
//2. SET SUBJECT INDEX AND PASS FILTERS
$index = 4;
$subject = $subject_labels[$index];
$url = $subject_URL[$index];
$call_num = $call_num_scope[$index];
$date = $date_scope[$index];
$format = $format_scope[$index];
$groupBy = $groupBy_scope[$index];
$orderBy = $orderBy_scope[$index];
//Subject Index menu
    // 0 // Agriculture
    // 1 // Anthropology, Archaeology
    // 2 //Art
    // 3 // Astronomy
```

class_arrays.php

```php
'2 year'::INTERVAL)  ", // Agriculture
'2 year'::INTERVAL)  ", // Anthropology, Archaeology
'1 year'::INTERVAL) ", //Art
'2 year'::INTERVAL) ", // Astronomy
'1 year'::INTERVAL) ", // Biology
'2 month'::INTERVAL) ", // Business/Management
'1 year'::INTERVAL) ", // Chemistry
'2 month'::INTERVAL) ", //Computer Science and Mathematics
'1 year'::INTERVAL)  ", // Earth and Environmental Sciences
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'9 month'::INTERVAL) ", // Philosophy
'6 month'::INTERVAL) ", //Photography
'9 month'::INTERVAL) ", // Physics
'6 month'::INTERVAL) ", // Political Science
'1 year'::INTERVAL) ", //Psychology
'1 year'::INTERVAL) ", // Recreation/Leisure
'9 month'::INTERVAL) ", // Religion
'6 month'::INTERVAL) ", // Science/Technology
'4 month'::INTERVAL) " // Social Sciences
```

3. Get page and offset values

```php
//3. GET PAGE AND OFFSET
$perPage = 15;

if (isset($_GET['p'])) {
    $page = $_GET['p'];
}
else {
    $page = 1;
}

// Create offset depending on page and results perPage
$offset = ($page-1) * $perPage;
if ($offset < 0) {
    $offset = 0;
}
```

3. Get page and offset values

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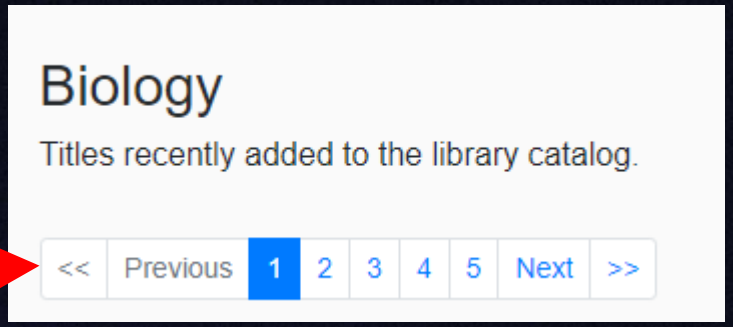
//3. GET PAGE AND OFFSET
$perPage = 15;

if (isset($_GET['p'])) {
    $page = $_GET['p'];
}
else {
    $page = 1;
}

// Create offset depending on page and results perPage
$offset = ($page-1) * $perPage;
if ($offset < 0) {
    $offset = 0;
}
```



Page 1 = Offset 0
Page 2 = Offset 15
Page 3 = Offset 30

4. Create a clean URL for each page

```
//4. Get Clean URL
$url = clean(getPage($url));
```

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$url = clean(getPage($url));
```

```php
function getPage($u) {
    $u = $u.".php?&p=";
    return $u;
}
```

class_functions.php

```php
function clean($string) {
    $string = str_replace(' ', '-', $string); // Replaces all spaces with hyphens.
    return preg_replace('/[^A-Za-z0-9?.=&\-]/', '', $string); // Removes special chars.
}
```

5. Open a database connection

```php
//5. OPEN DATABASE CONNECTION
$connection = pg_connect("host=$host dbname=$database port=$port user=$user password=$password")
    or die("Failed to create connection to database: ". pg_last_error(). "<br/>");
```

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```

db.php

```php
<?php
//Database login
$database='';
$user='';
$host='';
$password='';
$port='';

//Content Cafe Username and Password
$alias=''; //username
$secret=''; //password
?>
```

6. Read your query

```php
//6. FILTER QUERY: read the query with filters
$query = filterQuery($sql, $call_num, $date, $format, $groupBy, $orderBy);

 $results = pg_query($query);

 if (!$results) {
     echo "An error occurred.\n";
     exit;
 }

 $collection = pg_fetch_all($results);
```

```php
<?php
    //1. INCLUDE FILES
    require('includes/db.php'); //Database Credentials
    $sql = "includes/class_query.sql"; //SQL file for
    require('includes/class_arrays.php'); //Subject/Cl
    require('includes/class_functions.php'); //Subject
    ini_set('memory_limit', '1024M'); //increase memo

    //2. SET SUBJECT INDEX AND PASS FILTERS
    $index = 4;
    $subject = $subject_labels[$index];
    $url = $subject_URL[$index];
    $call_num = $call_num_scope[$index];
    $date = $date_scope[$index];
    $format = $format_scope[$index];
    $groupBy = $groupBy_scope[$index];
    $orderBy = $orderBy_scope[$index];
    //Subject Index menu
        // 0 // Agriculture
        // 1 // Anthropology, Archaeology
        // 2 //Art
        // 3 // Astronomy
        // 4 // Biology
        // 5 // Business/Management
```

6. Read your query

```php
//6. FILTER QUERY: read the query with filters
$query = filterQuery($sql, $call_num, $date, $format, $groupBy, $orderBy);

 $results = pg_query($query);

 if (!$results) {
     echo "An error occurred.\n";
     exit;
 }

 $collection = pg_fetch_all($results);
```

class_functions.php

```php
function filterQuery($filename, $call_num, $date, $format, $groupBy, $orderBy) {
    // Read the SQL file
    $fcommand = fopen($filename, "r");
    $query = fread($fcommand, filesize($filename));
    // Add  WHERE criteria to SQL file query
    $query .= $call_num;
    $query .= $date;
    $query .= $format;
    $query .= $groupBy;
    $query .= $orderBy;
    return $query;
    }
```

```php
<?php
    //1. INCLUDE FILES
    require('includes/db.php'); //Database Credentials
    $sql = "includes/class_query.sql"; //SQL file for
    require('includes/class_arrays.php'); //Subject/Cl
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    $call_num = $call_num_scope[$index];
    $date = $date_scope[$index];
    $format = $format_scope[$index];
    $groupBy = $groupBy_scope[$index];
    $orderBy = $orderBy_scope[$index];
    //Subject Index menu
        // 0 // Agriculture
        // 1 // Anthropology, Archaeology
        // 2 //Art
        // 3 // Astronomy
        // 4 // Biology
        // 5 // Business/Management
```

7. Get the total number of results

```
//7. GET TOTAL ROWS: without offset limits added
$total_rows = getTotalRows($collection); //for counting total results
```

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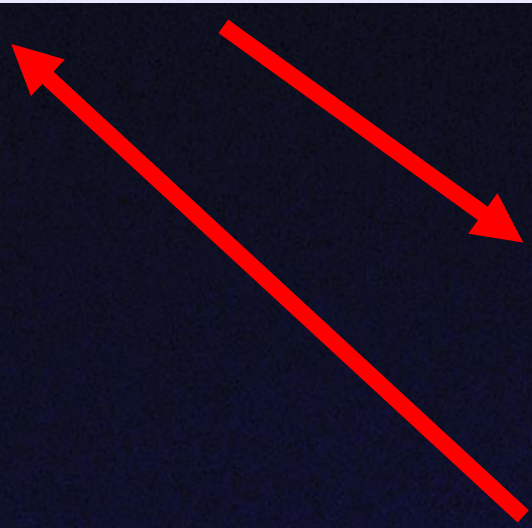

class_functions.php

```php
function getTotalRows($collection) {
    $i = 0;

    if(empty($collection)) {
        return null;
    }

    while ($i < (count($collection))) {
        $i++;
        }
        return $i;
}
```

8. Add limit and offset to your query

```php
//8. LIMIT QUERY: add perPage and offset limits
$query = limitQuery($query, $perPage, $offset);
```

```php
//3. GET PAGE AND OFFSET
$perPage = 15;

if (isset($_GET['p'])) {
    $page = $_GET['p'];
}
else {
    $page = 1;
}

// Create offset depending on page
$offset = ($page-1) * $perPage;
if ($offset < 0) {
    $offset = 0;
}
```

8. Add limit and offset to your query

```php
//8. LIMIT QUERY: add perPage and offset limits
$query = limitQuery($query, $perPage, $offset);
```

class_functions.php

```php
function limitQuery($query, $perPage, $offset) {
    // q = query
    // Add limit to SQL query
    $limit = " LIMIT ".$perPage." OFFSET ".$offset." ";
    $query .= $limit;
    return $query;
}
```

```php
//3. GET PAGE AND OFFSET
$perPage = 15;

if (isset($_GET['p'])) {
    $page = $_GET['p'];
}
else {
    $page = 1;
}

// Create offset depending on page
$offset = ($page-1) * $perPage;
if ($offset < 0) {
    $offset = 0;
}
```

9. Fetch query results per page

```php
//6. FILTER QUERY: read the query with filters
$query = filterQuery($sql, $call_num, $date, $format, $groupBy, $orderBy);
```

```php
//8. LIMIT QUERY: add perPage and offset limits
$query = limitQuery($query, $perPage, $offset);
```

```php
// 9. GET RESULTS again with new limits
$results = pg_query($query);

if (!$results) {
    echo "An error occurred.\n";
    exit;
}
$collection = pg_fetch_all($results);
```

10. Check for results to print

```
//10 PRINT OR DON'T PRINT
// If total results = 0, DO NOT PRINT
if (is_null($total_rows)) {
    echo "<br>";
    echo "0 results found.<br>";
}

// If total results > 0, PRINT
else if (!is_null($total_rows)) {
    echo "<br>";
```

11. Get total pages

```
// If total results > 0, PRINT
else if (!is_null($total_rows)) {
    echo "<br>";

    //11. GET TOTAL PAGES
    $total_pages = ceil($total_rows/$perPage);

    // Exit program for unwanted URL manipulation
    if ($page > $total_pages) {
        exit;
    }
```

12. Get start and end ranges for pages

```php
//12. GET PAGE RANGE for pagination function
$adjacents = 2;
if ($total_pages <= (1 +($adjacents*2))) {
    $start = 1;
    $end = $total_pages;
}

else {
    if (($page - $adjacents) > 1) {
        if (($page + $adjacents) < $total_pages) {
            $start = ($page - $adjacents);
            $end = ($page + $adjacents);
        }
        else {
            $start = ($total_pages - (1+($adjacents*2)));
            $end = $total_pages;
        }
    }

    else {
        $start = 1;
        $end = (1+($adjacents*2));
    }
}
```

13. Create pagination nav menu

```php
//13. PAGINATE
// Call paginate function for navigation menu
paginate($total_pages, $page, $url, $start, $end);
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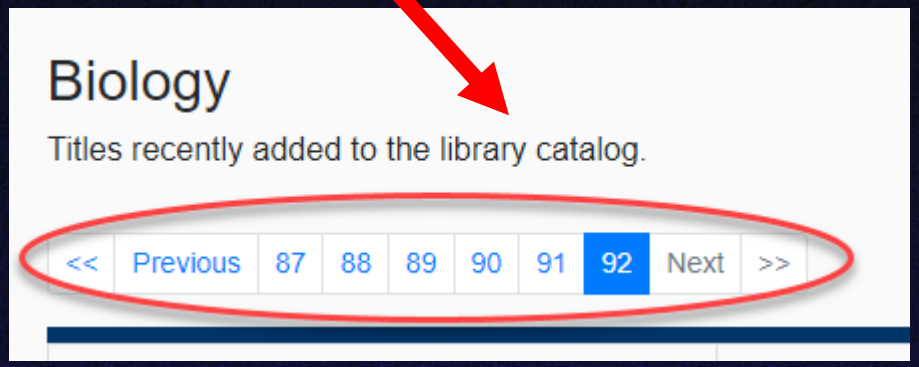

13. Create pagination nav menu

```php
// Create pagination navigation menu
function paginate($tp, $p, $u, $s, $e) {
    // tp = total pages, p = pages, u = url, s = start, e = end
?>
<!--Start header pagination menu-->
    <?php if($tp > 1) { ?>
        <ul class="pagination pagination-sm justify-content-left">
            <!-- Link of the first page -->
            <?php //echo ' '.' '.' '.' '; ?>
            <li class='page-item <?php ($p <= 1 ? print 'disabled' : '')?>'>
                <a class='page-link' href='<?php echo $u?>1'><<<</a>
            </li>
            <!-- Link of the first page -->
            <li class='page-item <?php ($p <= 1 ? print 'disabled' : '')?>'>
                <a class='page-link' href='<?php echo $u?><?php ($p>1 ? print($p-1) : print 1)?>'>Previous</a>
            </li>
            <!-- Links of the pages with page number -->
            <?php for($i=$s; $i<=$e; $i++) { ?>
                <li class='page-item <?php ($i == $p ? print 'active' : '')?>'>
                    <a class='page-link' href='<?php echo $u?><?php echo $i;?>'><?php echo $i;?></a>
                </li>
            <?php } ?>
            <!-- Link of the next page -->
            <li class='page-item <?php ($p >= $tp ? print 'disabled' : '')?>'>
                <a class='page-link' href='<?php echo $u?><?php ($p < $tp ? print($p+1) : print $tp)?>'>Next</a>
            </li>
            <!-- Link of the last page -->
            <li class='page-item <?php ($p >= $tp ? print 'disabled' : '')?>'>
                <a class='page-link' href='<?php echo $u?><?php echo $tp;?>'>>>
                </a>
            </li>
        </ul>
            <!--End header pagination menu-->
        <?php }
    }
```

14.1 Print table and loop through results

```php
//14. PRINT TABLE AND RESULTS
// Print table headers
tableHeaders();

// Print table and send alias and secret to get image from Content Cafe
printTable($collection, $offset, $total_rows, $alias, $secret);
```

```php
function printTable($collection, $offset, $total_rows, $user, $password) {
    // Loop through each bib record element
    $i = 0; // loop incrementer
    $col = 0; // up to three columns
    $c = 1 + $offset; // count each result
    while ($i < (count($collection))) { // START LOOP
        echo '<tr>'; // START ROW
        while (($col < 3) AND ($i < count($collection))) {
            if ($i == count($collection)) {
                $col = 3;
            }
            else {
                if ($c <= $total_rows) {
                    printCell($collection, $i, $user, $password);
                }
                $i++;
                $c++;
                $col++;
            }
        }
        echo '</tr>'; // END ROW
        $col = 0;
    } // END LOOP
    echo '</table>'; // END TABLE
    }
```

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//14. PRINT TABLE AND RESULTS
// Print table headers
tableHeaders();

// Print table and send alias and secret to get image from Content Cafe
printTable($collection, $offset, $total_rows, $alias, $secret);
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function printTable($collection, $offset, $total_rows, $user, $password) {
    // Loop through each bib record element
    $i = 0; // loop incrementer
    $col = 0; // up to three columns
    $c = 1 + $offset; // count each result
    while ($i < (count($collection))) { // START LOOP
        echo '<tr>'; // START ROW
        while (($col < 3) AND ($i < count($collection))) {
            if ($i == count($collection)) {
                $col = 3;
            }
            else {
                if ($c <= $total_rows) {
                    printCell($collection, $i, $user, $password);
                }
                $i++;
                $c++;
                $col++;
            }
        }
        echo '</tr>'; // END ROW
        $col = 0;
    } // END LOOP
    echo '</table>'; // END TABLE
}
```

```php
function printCell($collection, $i, $user, $password) {
    if ($i <= count($collection)) {
        echo '<td class="col-">'; // START COLUMN
        printBookJacket($collection, $i, $user, $password);
    }
    echo '</td>'; // END COLUMN
}
```

14.2 Print book jacket with title

```php
function printCell($collection, $i, $user, $password) {
    if ($i <= count($collection)) {
        echo '<td class=".col-">'; // START COLUMN
        printBookJacket($collection, $i, $user, $password);
    }
    echo '</td>'; // END COLUMN
}
```

```php
function printBookJacket($collection, $i, $user, $password) {
    if ($i <= count($collection)){
        $alt = $collection[$i]['title'];
        $title = $alt;
        $alt = str_replace("'", "", $alt);
        if (strlen($title) > 37) {
            $title = substr($title,0,37)."...";
        }

        if (is_null($collection[$i]['isbn'])) { // NO ISBN FOUND
            echo '<b>'.$collection[$i]['lcc'].'</b><br>';
            echo '<a href="'.$collection[$i]['catalog_url'].'rel="
            echo '<br><p><u>'.$title.'</a></p>';
            getFormat($collection, $i);
        }
        else    { // ISBN FOUND
            $isbn = $collection[$i]['isbn'];
            $isbn_url = getImage($isbn, $user, $password);
            echo '<b>'.$collection[$i]['lcc'].'</b><br>';
            echo '<a href="'.$collection[$i]['catalog_url'].'rel="
            echo '<br><p><u>'.$title.'</a></u></p>';
            getFormat($collection, $i);
        }
    }
}
```

14.3 Get book jacket URL

```
function printCell($collection, $i, $user, $password) {
    if ($i <= count($collection)) {
        echo '<td class=".col-">'; // START COLUMN
        printBookJacket($collection, $i, $user, $password);
    }
    echo '</td>'; // END COLUMN
}
```

```
function printBookJacket($collection, $i, $user, $password) {
    if ($i <= count($collection)){
        $alt = $collection[$i]['title'];
        $title = $alt;
        $alt = str_replace("'", "", $alt);
        if (strlen($title) > 37) {
            $title = substr($title,0,37)."...";
        }

        if (is_null($collection[$i]['isbn'])) { // NO ISBN FOUND
            echo '<b>'.$collection[$i]['lcc'].'</b><br>';
            echo '<a href="'.$collection[$i]['catalog_url'].'rel="
            echo '<br><p><u>'.$title.'</a></p>';
            getFormat($collection, $i);
        }
        else    { // ISBN FOUND
            $isbn = $collection[$i]['isbn'];
            $isbn_url = getImage($isbn, $user, $password);
            echo '<b>'.$collection[$i]['lcc'].'</b><br>';
            echo '<a href="'.$collection[$i]['catalog_url'].'rel="
            echo '<br><p><u>'.$title.'</a></u></p>';
            getFormat($collection, $i);
        }
    }
}
```

```
function getImage($isbn, $user, $password) {
    $base = 'https://contentcafe2.btol.com/ContentCafe/Jacket.aspx?';
    $end = array(
        'UserID' => $user,
        'Password' => $password,
        'Return' => 'T',
        'Type' => 'L',
        'Value' => $isbn
    );
    $url = $base.http_build_query($end);
    return $url;
}
```

14.3 Get book jacket URL

Type=

- S – Small sized image
- M – Medium sized image
- L – Large sized image

Return=

- T - If no image exists return an image with text “No Image Available”
- 1 - In no image exists return a 1 x 1 pixel image. This essentially displays nothing.

```
function getImage($isbn, $user, $password) {
    $base = 'https://contentcafe2.btol.com/ContentCafe/Jacket.aspx?';
    $end = array(
        'UserID' => $user,
        'Password' => $password,
        'Return' => 'T',
        'Type' => 'L',
        'Value' => $isbn
    );
    $url = $base.http_build_query($end);
    return $url;
}
```

14.4 Embed book jacket

```
else    { // ISBN FOUND
    $isbn = $collection[$i]['isbn'];
    $isbn_url = getImage($isbn, $user, $password);
    echo '<b>'.$collection[$i]['lcc'].'</b><br>';
    echo '<a href="'.$collection[$i]['catalog_url'].'rel="noopener noreferrer" target="_blank">'."<img src=".$isbn_url." alt='".$alt."'
    echo '<br><p><u>'.$title.'</a></u></p>';
    getFormat($collection, $i);
```

14.5 Print format icon

```
        if (is_null($collection[$i]['isbn'])) { // NO ISBN FOUND
            echo '<b>'.$collection[$i]['lcc'].'</b><br>';
            echo '<a href="'.$collection[$i]['catalog_url'].'rel=
            echo '<br><p><u>'.$title.'</a></p>';
            getFormat($collection, $i);
        }
        else    { // ISBN FOUND
            $isbn = $collection[$i]['isbn'];
            $isbn_url = getImage($isbn, $user, $password);
            echo '<b>'.$collection[$i]['lcc'].'</b><br>';
            echo '<a href="'.$collection[$i]['catalog_url'].'rel=
            echo '<br><p><u>'.$title.'</a></u></p>';
            getFormat($collection, $i);
        }
    }
}
```

14.5 Print format icon

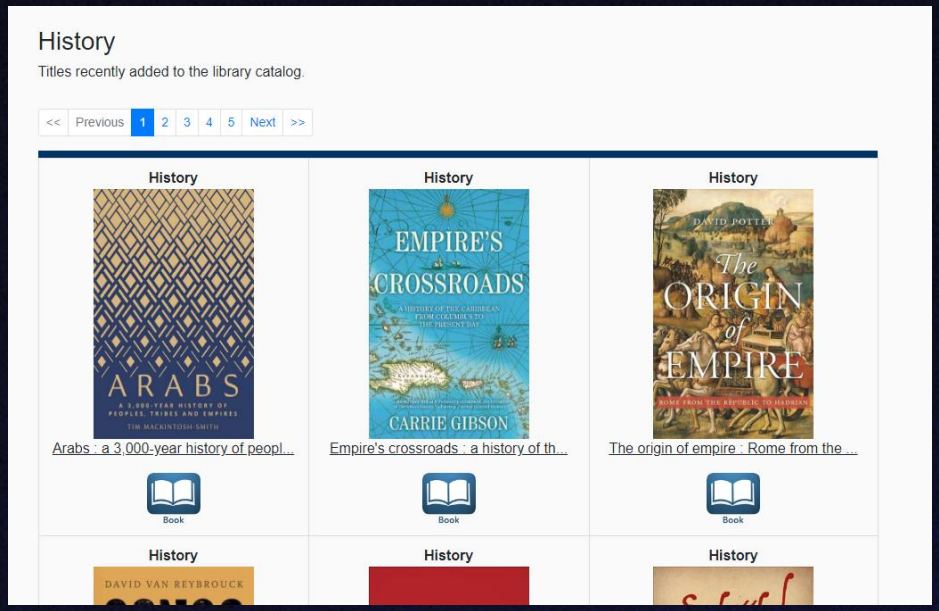
```
        if (is_null($collection[$i]['isbn'])) { // NO ISBN FOUND
            echo '<b>'.$collection[$i]['lcc'].'</b><br>';
            echo '<a href="'.$collection[$i]['catalog_url'].'rel=
            echo '<br><p><u>'.$title.'</a></p>';
            getFormat($collection, $i);
        }
        else    { // ISBN FOUND
            $isbn = $collection[$i]['isbn'];
            $isbn_url = getImage($isbn, $user, $password);
            echo '<b>'.$collection[$i]['lcc'].'</b><br>';
            echo '<a href="'.$collection[$i]['catalog_url'].'rel=
            echo '<br><p><u>'.$title.'</a></u></p>';
            getFormat($collection, $i);
        }
    }
}
```

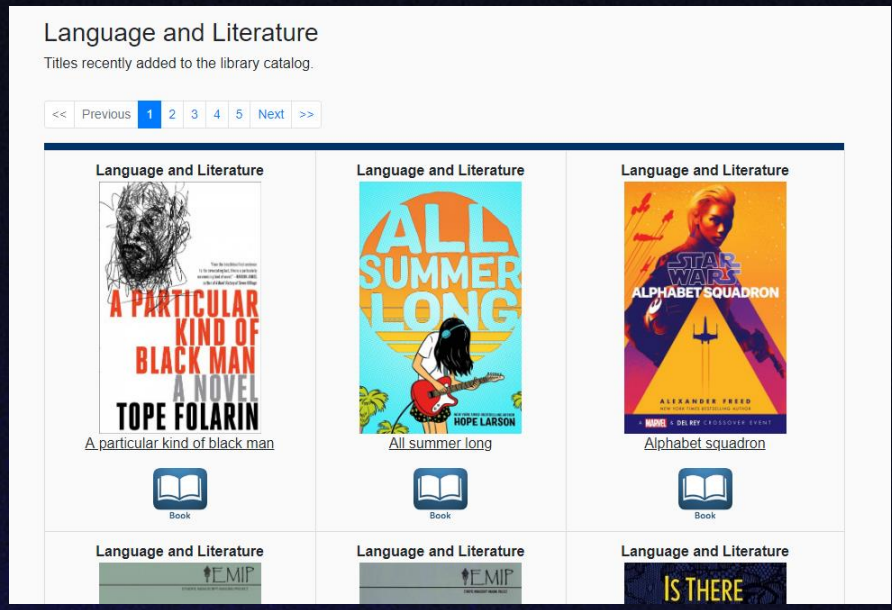
```
function getFormat($collection, $i) { // GET ICON FOR MATERIAL TYPE
    if ($collection[$i]['mat_type'] == 'book') {
        echo "<img src='media_book.gif' alt='Book' width='60' height=
    }
    else if ($collection[$i]['mat_type'] == 'electronic book') {
        echo "<img src='media_ebook.gif' alt='Electronic Book' width=
    }
```

15. Close the database connection

```
//15. CLOSE DATABASE CONNECTION
pg_close($connection);
```

class.php

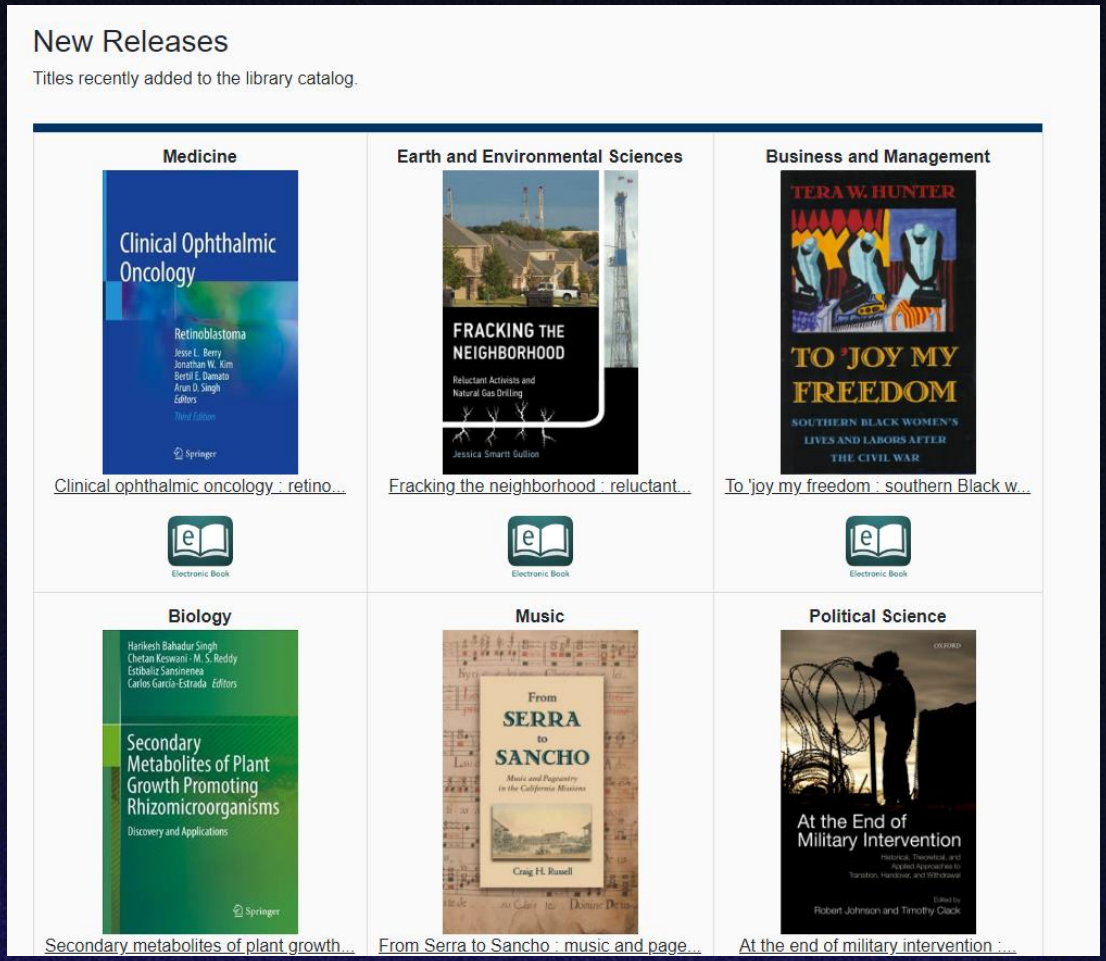

History
Titles recently added to the library catalog.
<< Previous 1 2 3 4 5 Next >>
History
ARABS
Arabs : a 3,000-year history of peopl...
Book
History
EMPIRE'S CROSSROADS
CARRIE GIBSON
Empire's crossroads : a history of th...
Book
History
DAVID POTTER
The ORIGIN of EMPIRE
The origin of empire : Rome from the ...
Book
History
DAVID VAN REYBROUCK
History
History


Language and Literature
Titles recently added to the library catalog.
<< Previous 1 2 3 4 5 Next >>
Language and Literature
A PARTICULAR KIND OF BLACK MAN A NOVEL
TOPE FOLARIN
A particular kind of black man
Book
Language and Literature
ALL SUMMER LONG
HOPE LARSON
All summer long
Book
Language and Literature
STAR WARS
ALPHABET SQUADRON
ALEXANDER FREED
Alphabet squadron
Book
Language and Literature
Language and Literature
Language and Literature
IS THERE

home.php

Homepage (home.php)

- Similar to class.php
- Displays 6 random titles cataloged recently
- Checks to display only titles with found book jackets



Getting random titles

- WHERE
  - … AND random() <0.01

home_query.sql

```
WHERE
m.record_type_code = 'b' AND
brp.best_title IS NOT NULL AND
b.title IS NOT NULL AND
brl.location_code NOT LIKE 'c%' AND
brl.location_code NOT LIKE 'h%' AND
brl.location_code NOT LIKE 'l%' AND
brl.location_code NOT LIKE 'o%' AND
brl.location_code NOT LIKE 'rl%' AND
brl.location_code NOT LIKE 'rg%' AND
brl.location_code NOT LIKE 'w%' AND
brl.location_code NOT LIKE 'v%' AND
a.call_number_prefix IS NOT NULL AND
((brp.material_code = 'a') OR (brp.material_code = 'u')) AND
(b.cataloging_date_gmt <= NOW() AND b.cataloging_date_gmt >= NOW() - '3 month'::INTERVAL) AND
random() < 0.01
```

Looping through results (home.php)

- $perPage = 6
- checkISBN checks for book jacket
- If book jacket flag is true, print
- Loop continues until 6 book jackets are found

```
function printTable($collection, $perPage, $user, $password) {
        // Loop through each bib record element
        // check if ISBN matches a book jacket
        // if true function will print the book jacket
        // increment to next result

        $i = 0; // count each result of query including no book jackets
        $col = 0; // up to three columns
        $c = 0; // count each result with book jacket

        while ($i < count($collection) AND ($c < $perPage)) { // start loop
            echo '<tr>'; // start row
            while (($col < 3) AND ($c < $perPage) AND ($i < count($collection))) {
                //break loop if at end
                if ($i == count($collection)) {
                    $col = 3;
                }
                else {
                    $flag = checkISBN($collection, $i, $user, $password);
                        if ($flag == 1) {
                        $c++;
                        $col++;
                        }
                $i++;
                }
            }
            echo '</tr>'; // end row
            $col = 0; // reset columns
        } // end loop
    echo '</table>'; // end table
}
```

Check ISBN (home.php)

- Build the URL for the image
- Return a flag value for found or not found

```php
function checkISBN($collection, $i, $user, $password) {
    // build URL for ISBN image
    // get dimensions, print book jacket (if available)
    // flag success of finding book jacket

    if ($i < count($collection)){
        $base = 'https://contentcafe2.btol.com/ContentCafe/Jacket.aspx?';
        $urlEnd = $collection[$i]['isbn'];

        if (is_null($collection[$i]['isbn'])) {
            return -1;
        }

        $end = array(
            'UserID' => $user,
            'Password' => $password,
            'Return' => 'l',
            'Type' => 'L',
            'Value' => $urlEnd
        );

        $url = $base.http_build_query($end);
        $flag = getdims($url, $collection, $i, $user, $password);
        return $flag;

    }
}
```

Check dimensions for book jacket

- Not Found:
  - If width and height are 1 x 1, no book jacket exists, return false and search for next title
- Found:
  - If width and height are greater than 1 x 1, return true and print result

```
function getdims ($url, $collection, $i, $user, $password) {
        // call a curl to get image dimensions,
        // print cell if book jacket is found
        // return a flag if successful

        $flag = 0;
        $ch = curl_init();
        $opts = [ CURLOPT_RETURNTRANSFER => 1 , CURLOPT_URL => $url];
        curl_setopt_array($ch , $opts);
        curl_setopt($ch, CURLOPT_SSL_VERIFYPEER, FALSE);
        curl_setopt($ch, CURLOPT_SSL_VERIFYHOST, FALSE);
        $response = curl_exec($ch);

      // Process image
      $image = imagecreatefromstring( $response );
      $dims = [ imagesx( $image ), imagesy( $image ) ];
      list($width, $height) = $dims;

        //If no book jacket, skip to next
        if (($width <= 1) AND ($height <= 1)) {
            imagedestroy($image);
            return $flag;
        }
        // else print cell and book jacket
        else {
            printCell($collection, $i, $user, $password);
            imagedestroy($image);
            $flag++;
            return $flag;
        }
}
```

Print book jacket (if found)

```php
function printCell($collection, $i, $user, $password) {
    if ($i <= count($collection)) {
        echo '<td class=".col-">'; // START COLUMN
        printBookJacket($collection, $i, $user, $password);
    }
    echo '</td>'; // END COLUMN
}

function printBookJacket($collection, $i, $user, $password) {
    if ($i <= count($collection)){
        $alt = $collection[$i]['title'];
        $title = $alt;
        $alt = str_replace("'", "", $alt);
        if (strlen($title) > 37) {
            $title = substr($title,0,37)."...";
        }

        if (is_null($collection[$i]['isbn'])) { // NO ISBN FOUND
            echo '<b>'.$collection[$i]['lcc'].'</b><br>';
            echo '<a href="'.$collection[$i]['catalog_url'].'rel=
            echo '<br><p><u>'.$title.'</a></p>';
            getFormat($collection, $i);
        }
        else    { // ISBN FOUND
            $isbn = $collection[$i]['isbn'];
            $isbn_url = getImage($isbn, $user, $password);
            echo '<b>'.$collection[$i]['lcc'].'</b><br>';
            echo '<a href="'.$collection[$i]['catalog_url'].'rel=
            echo '<br><p><u>'.$title.'</a></u></p>';
            getFormat($collection, $i);
        }
    }
}
```

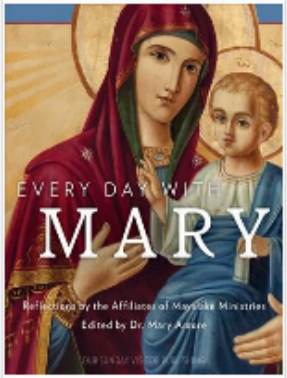
headings.php

Results with headings (headings.php)

BOOK

Ethiopian scribal practice : plates for the Catalogue of the Ethiopic Manuscript Imaging Project

Manuscripts, Ethiopic -- Catalogs.
Codicology.
Scribes -- Africa.
Scribes -- Ethiopia.



BOOK

Every day with Mary : reflections by the affiliates of Mayslake ministries

Mary, Blessed Virgin, Saint -- Meditations.
Mary, Blessed Virgin, Saint -- Devotion to.
Devotional calendars -- Catholic Church.

headings_query.sql

- Fields for query:
  - Title (brp)
  - Bib Record Number (m)
  - Material Type (brp)
  - Call Number Prefix (cn)
  - ISBN* (included in subquery)
  - Cataloging Date (b)
  - Bib Record Location (brl)
  - **Subject (v)**

```
FROM
sierra_view.record_metadata as m

LEFT OUTER JOIN
sierra_view.bib_record_property as brp
ON
m.id = brp.bib_record_id

LEFT OUTER JOIN
sierra_view.bib_record_call_number_prefix AS a
ON brp.bib_record_id = a.bib_record_id

LEFT OUTER JOIN
sierra_view.bib_view as b
ON
brp.bib_record_id = b.id

LEFT OUTER JOIN
sierra_view.bib_record_location as brl
ON
m.id = brl.bib_record_id

LEFT OUTER JOIN
sierra_view.varfield v
ON v.record_id = m.id
```

```
WHERE
m.record_type_code = 'b' AND -- bib records only
brp.best_title IS NOT NULL AND -- title is not null
(b.bcode3 != 's') AND (b.bcode3 != 'n') AND -- not suppressed
v.varfield_type_code = 'd' AND -- index d for subjects
((v.marc_tag ~'6[0-3][0-9]') OR (v.marc_tag ~'65[0-1]')) AND -- MARC tag between 600-630, 650-651)
((v.marc_ind2 = '0') OR (v.marc_ind2 = '4')) -- 2nd Indicator 0 or 4
```

Getting the subject headings

- Use “v.field_content as subject”
- Problem:
  - v.field_content repeats multiple rows for every subject per title
  - Duplicate bib record numbers

	title character varying (1000)	bib_record_num text	isbn text	field_content character varying (20001)
1	Reading Romans backward...	b4430597a	9781...	|aBible.|pRomans|xCriticism, interpretation, etc.
2	A gospel for the poor : glob...	b4430594a	9780...	|aChristianity and politics|zLatin America|xHistory|y20th century.
3	A gospel for the poor : glob...	b4430594a	9780...	|aChurch and social problems|xProtestant churches|xHistory|y20th century.
4	A gospel for the poor : glob...	b4430594a	9780...	|aEvangelicalism|zLatin America|xHistory|y20th century.
5	A gospel for the poor : glob...	b4430594a	9780...	|aLatin America|xChurch history|y20th century.
6	A gospel for the poor : glob...	b4430594a	9780...	|aLiberalism (Religion)|xProtestant churches|xHistory|y20th century.
7	A gospel for the poor : glob...	b4430594a	9780...	|aSocial gospel|zLatin America|xHistory|y20th century.
8	The turnout gap : race, ethn...	b4430589a	9781...	|aMinorities|xPolitical activity|zUnited States.
9	The turnout gap : race, ethn...	b4430589a	9781...	|aPolitical participation|xSocial aspects|zUnited States.
10	The turnout gap : race, ethn...	b4430589a	9781...	|aVoter turnout|xSocial aspects|zUnited States.
11	The turnout gap : race, ethn...	b4430589a	9781...	|aVoting research|zUnited States.
12	Republicanism and the futu...	b4430588a	9781...	|aDemocracy|xPhilosophy.

Getting the subject headings

- 1. Concatenate all subjects per title into one row:
  - string_agg(v.field_content, '|' ORDER BY v.marc_tag ASC)
  - Extra '|' shows the start of the next heading

	title character varying (1000)	bib_record_num text	isbn text	subject text
1	Reading Romans backward...	b4430597a	9781...	|aBible.|pRomans|xCriticism, interpretation, etc.
2	A gospel for the poor : glob...	b4430594a	9780...	|aChurch and social problems|xProtestant churches|xHistory|y20th century.||aSocial gospel|zLatin America|xHistory|
3	The turnout gap : race, ethn...	b4430589a	9781...	|aPolitical participation|xSocial aspects|zUnited States.||aVoter turnout|xSocial aspects|zUnited States.||aVoting rese
4	Republicanism and the futu...	b4430588a	9781...	|aDemocracy|xPhilosophy.||aRepublicanism|xPhilosophy.
5	Antidemocracy in America : ...	b4430586a	9780...	|aTrump, Donald,|d1946-||aPolitical culture|zUnited States|y21st century.||aConservatism|zUnited States|xHistory|y
6	Making all Black lives matte...	b4430583a	9780...	|aBlack lives matter movement.||aBlack power|zUnited States|xHistory|y21st century.
7	The known citizen : a histor...	b4420616a	9780...	|aPrivacy|zUnited States|xHistory|y20th century.||aInformation society|zUnited States|xHistory|y21st century.||aPriv
8	The rise of Rome : from the ...	b4420610a	9780...	|aItalic peoples|xCultural assimilation.||aItalic peoples|xHistory.||aRome|xHistory|yTo 510 B.C.||aRome|xHistory|yR
9	A fistful of shells : West Afri...	b4420603a	9780...	|aAfrica, West|xHistory|yTo 1884.

Getting the subject headings

- 2. Remove unwanted subfields
- string_agg(regexp_replace(v.field_content, '(\|[a-dpqt]{1})', ' ', 'ig'), '|' ORDER BY v.marc_tag ASC)

	title character varying (1000)	bib_record_num text	isbn text	subject text
1	Reading Romans backward...	b4430597a	9781...	Bible. Romans|xCriticism, interpretation, etc.
2	A gospel for the poor : glob...	b4430594a	9780...	Church and social problems|xProtestant churches|xHistory|y20th century.| Social gospel|zLatin America|x
3	The turnout gap : race, ethn...	b4430589a	9781...	Political participation|xSocial aspects|zUnited States.| Voter turnout|xSocial aspects|zUnited States.| Votir
4	Republicanism and the futu...	b4430588a	9781...	Democracy|xPhilosophy.| Republicanism|xPhilosophy.
5	Antidemocracy in America : ...	b4430586a	9780...	Trump, Donald, 1946-| Political culture|zUnited States|y21st century.| Conservatism|zUnited States|xHisto
6	Making all Black lives matte...	b4430583a	9780...	Black lives matter movement.| Black power|zUnited States|xHistory|y21st century.
7	The known citizen : a histor...	b4420616a	9780...	Privacy|zUnited States|xHistory|y20th century.| Information society|zUnited States|xHistory|y21st centur
8	The rise of Rome : from the ...	b4420610a	9780...	Italic peoples|xCultural assimilation.| Italic peoples|xHistory.| Rome|xHistory|yTo 510 B.C.| Rome|xHistor
9	A fistful of shells : West Afri...	b4420603a	9780...	Africa, West|xHistory|yTo 1884.

Getting the subject headings

- 3. Replace subdivisions with dashes
- string_agg(regexp_replace(regexp_replace(v.field_content, '(\|[e-orsuvwxyz]{1})', ' -- ', 'ig'), '(\|[a-dpqt]{1})', ' ', 'ig'), '|' ORDER BY v.marc_tag ASC)

	title character varying (1000)	bib_record_num text	isbn text	subject text
1	Reading Romans backward...	b4430597a	9781...	Bible. Romans -- Criticism, interpretation, etc.
2	A gospel for the poor : glob...	b4430594a	9780...	Church and social problems -- Protestant churches -- History -- 20th century.| Social gospel -- Latin America -- History -- 20th century.| Liberal
3	The turnout gap : race, ethn...	b4430589a	9781...	Political participation -- Social aspects -- United States.| Voter turnout -- Social aspects -- United States.| Voting research -- United States.| Mi
4	Republicanism and the futu...	b4430588a	9781...	Democracy -- Philosophy.| Republicanism -- Philosophy.
5	Antidemocracy in America : ...	b4430586a	9780...	Trump, Donald, 1946-| Political culture -- United States -- 21st century.| Conservatism -- United States -- History -- 21st century.| United State
6	Making all Black lives matte...	b4430583a	9780...	Black lives matter movement.| Black power -- United States -- History -- 21st century.
7	The known citizen : a histor...	b4420616a	9780...	Privacy -- United States -- History -- 20th century.| Information society -- United States -- History -- 21st century.| Privacy, Right of -- United St
8	The rise of Rome : from the ...	b4420610a	9780...	Italic peoples -- Cultural assimilation.| Italic peoples -- History.| Rome -- History -- To 510 B.C.| Rome -- History -- Republic, 510-30 B.C.
9	A fistful of shells : West Afri...	b4420603a	9780...	Africa, West -- History -- To 1884.

Loop through headings.php

```
function printTable($collection, $offset, $total_rows, $user, $password) {

        // Loop through each bib record element
        $i = 0; // counter
        $c = 1 + $offset; // counter starting with 1st result
        while ($i < (count($collection))) { // START LOOP
            echo '<tr>'; // START ROW
            if ($c <= $total_rows) {
                    printCell($collection, $i, $c, $user, $password);
                    }
                    $i++;
                    $c++;
            echo '</tr>'; // END ROW
            //$col = 0;
        } // END LOOP
    echo '</table>'; // END TABLE
}
```

Print book jacket and title

```php
function printTable($collection, $offset, $total_rows, $user, $password) {

        // Loop through each bib record element
        $i = 0; // counter
        $c = 1 + $offset; // counter starting with 1st result
        while ($i < (count($collection))) { // START LOOP
            echo '<tr>'; // START ROW
            if ($c <= $total_rows) {
                printCell($collection, $i, $c, $user, $password);
                }
                $i++;
                $c++;
            echo '</tr>'; // END ROW
            //$col = 0;
        } // END LOOP
    echo '</table>'; // END TABLE
}
```

```php
function printCell($coll, $i, $c, $user, $password) {
    if ($i < count($coll)) {
        echo '<td class=".col-">'; // START COLUMN
        printBookJacket($coll, $i, $user, $password);
        echo '</td>'; // END COLUMN
        echo '<td class=".col-">'; // START COLUMN
        getTitle($coll, $i);
        echo '</td>'; // END COLUMN
    }
}
```

Print each subject heading

- Replace all '|' with newlines for each heading

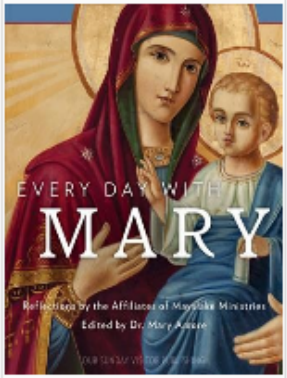
```
function getTitle($collection, $i) {
    //$count = 0;
    if ($i < count($collection)){
        $title = $collection[$i]['title'];
        if (strlen($title) > 120) {
            $title = substr($title,0,120)."...";
        }
            echo '<a href="'.$collection[$i]['catalog_url'].'rel="noopener noreferrer" target="_blank">'.'<br><u><b>'
            echo '<br>';
            echo "<small><ul>". nl2br(str_replace('| ', "\n", $collection[$i]['subject'])).'</ul></small>';
    }
}
```

Results with headings (headings.php)

BOOK

Ethiopian scribal practice : plates for the Catalogue of the Ethiopic Manuscript Imaging Project

Manuscripts, Ethiopic -- Catalogs.
Codicology.
Scribes -- Africa.
Scribes -- Ethiopia.

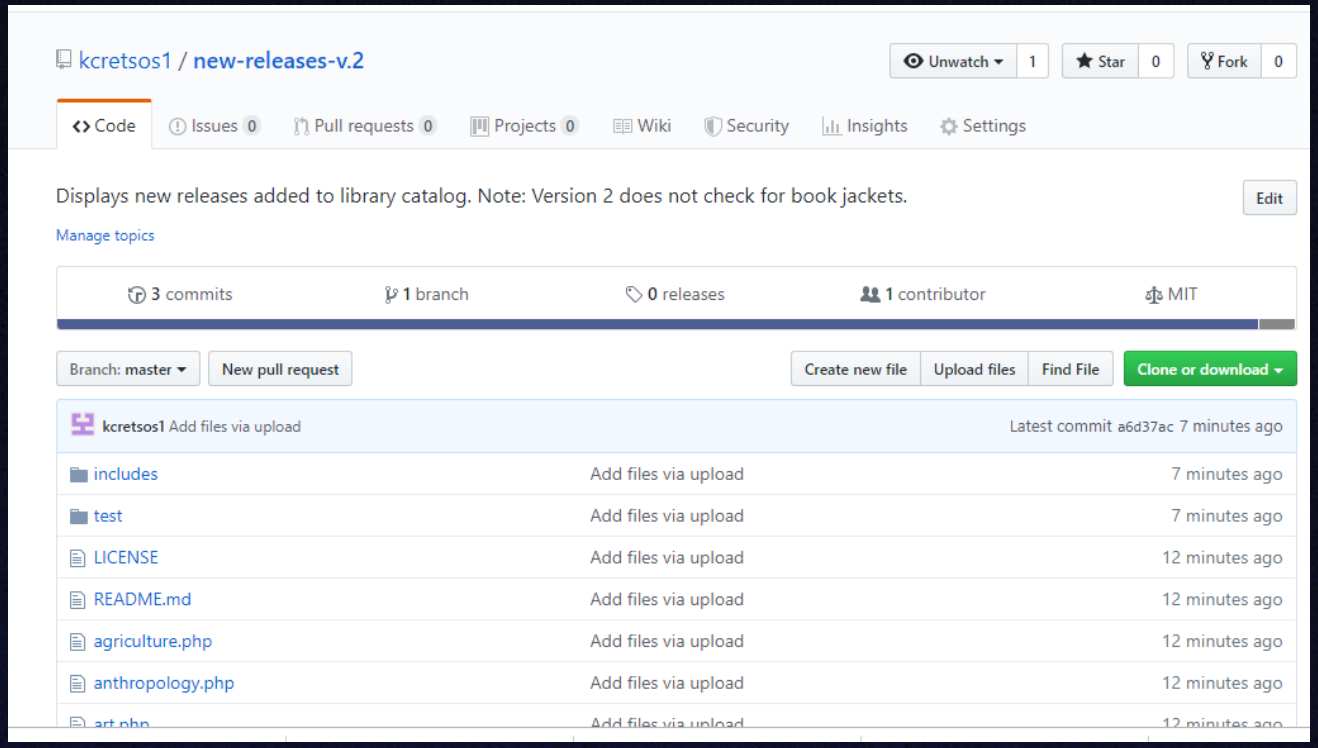


BOOK

Every day with Mary : reflections by the affiliates of Mayslake ministries

Mary, Blessed Virgin, Saint -- Meditations.
Mary, Blessed Virgin, Saint -- Devotion to.
Devotional calendars -- Catholic Church.

Github source code



https://github.com/kcretsos1/new-releases-v.2

https://github.com/kcretsos1/new-releases-v.1

Areas for improvement

- Is there a more efficient way to check for book jackets?
- Other sources for book jackets (For example: Google Books API)?
- Update some of the icons for material types
- Need to add better branding

Comments/Questions

Thanks!

Kevin Cretsos
Library Systems Support Specialist
Roesch Library
University of Dayton
937-229-3674
kcretsos1@udayton.edu