CS3010 Final Exam - Practice:

True or False (1 point each)

1. It is possible to join tables on more than one condition. **True**
2. When working with PHP inside of html code, the scripts are written inside of `<php>` `</php>` elements. **False** - PHP is rendered by `<?php … ?>`
3. POST calls place variables and values in the URL. **False** - GET calls place parameters in URL
4. Dynamic sites render HTML with a backend language on the server side before serving up the HTML to send to the user. **True**
5. PHP is run on pages with a `.html` file extension. **False** - php files require the .html file extension
6. Static websites allow for users to enter information and send it to the backend for processing. **False** - Static sites do not have backend capabilities.
7. Dictionaries in PHP access their data with the dot operator. **False** - dictionaries use the `dictionaryName["key"]` syntax for accessing data.
8. It is possible to store data across multiple page actions with session variables. **True**
9. MySQL is a Document Store type database. **False** MySQL is a relational database.
10. Data from the front end of a website can be send to the backend by using the form element. **True**

Multiple Choice (4 points each)

1. What would the URL (assuming we're running this locally) be after a user were to click the submit button with the values of:

```
<!DOCTYPE html>
<html>
  <head>
    <title>
      index.php
    </title>
  </head>
  <body>
    <form action='somePage.php' method='get'>
      Name: <input type='text' name='name'> <br />
      FAVORITE POKEMON: <input type='text' name='favPokemon' /> <br />
      <input type='submit'>
```

```
    </form>
  </body>
</html>
```

- http://localhost:8888/index.php
- http://localhost:8888/index.php?name=Matt&favPokemon=snorlax
- http://localhost:8888/somePage.php
- http://localhost:8888/somePage.php?name=Matt&favPokemon=snorlax

2. Given the defined class, which of the below options is how we would create and execute the function `interrupt`?:

```
class KanyeClass {
    function KanyeClass() {
      echo "My greatest pain in life is that I will never be able to see myself perform live";
    }

    function interrupt() {
      echo "Imma let you finish";
    }
}
```

```
$kanye = new KanyeClass();
$kanye.interrupt();
```

```
$kanye = new KanyeClass();
$kanye->interrupt();
```

```
$kanye = KanyeClass();
$kanye->interrupt();
```

```
$kanye = new KanyeClass("Kanye West");
$kanye.interrupt();
```

3. Given the below code, how would we access the variables sent from the form?

```
<form action='somePage.php' method='post'>
  Name: <input type='text' name='name'> <br />
  FAVORITE POKEMON: <input type='text' name='favPokemon' /> <br />
  <input type='submit'>
</form>
```

```
$userSubmission = $_GET();
```

```
$userNAme = $_GET["name"];
$userPokempn = $_GET["favPokemon"];
```

```
$userNAme = $_POST["name"];
$userPokempn = $_POST["favPokemon"];
```

```
$userSubmission = $_POST
```

4. What is would the output of the below code be?

```
function countStuff($variable){
  $wordArray = explode(",", $variable);
  $numWords = sizeof($wordArray);
  $totalCount = 0;

  for($i = 0; $i < $numWords; $i++){
    $wordLength = 0;
    $wordLength = strlen($wordArray[$i]);
    $totalCount += $wordLength;

    echo $wordArray[$i]."<br />";
  }

```

```
  $averageLetters = $totalCount / $numWords;
  echo "The average letters per word are: ".$averageLetters;


}

$sentence = "a,b,c ,d e, fg";

countStuff($sentence);
```

```
a
b
c
d e
fg
The average letters per word are: 2
```

```
a,b,c
,de
e,
fg
The average letters per word are: 3
```

```
a,b,c
d, e
 fg
The average letters per word are: 4
```

```
a,b,c
,de
e,
fg
The average letters per word are: 2
```

5. What is the output of the following code?

```
function printArray($arr) {
  $arrLen = sizeof($arr);

  for($i = 0; $i < $arrLen; $i++){
    echo $arr[$i]." <br />";
```

```
  }
}


function arrayManipulation($array){
  $arrLen = sizeof($array);

  for($i = 0; $i < $arrLen; $i++){
    $array[$i] = "OVERWRITE";
  }

  printArray($array);
}




$flintstones = ["Fred", "Wilma", "Barney", "Betty"];

arrayManipulation($flintstones);
printArray($flintstones);
```

```
OVERWRITE
OVERWRITE
OVERWRITE
OVERWRITE
Fred
Wilma
Barney
Betty
```

```
Fred
Wilma
Barney
Betty
OVERWRITE
OVERWRITE
OVERWRITE
OVERWRITE
```

```
OVERWRITE
OVERWRITE
OVERWRITE
OVERWRITE
OVERWRITE
OVERWRITE
OVERWRITE
OVERWRITE
```

```
Fred
Wilma
Barney
Betty
Fred
Wilma
Barney
Betty
```

Short Answer (5 points each)

1. Write a SQL Query to **obtain all authors** with an age greater than 59:

```sql
SELECT * FROM authors WHERE age > 20;
```

2. Write a SQL Query to **obtain only age** of Margaret Atwood

```sql
SELECT age FROM authors WHERE name = "Margaret Atwood";
```

3. Write a SQL Query to **change the age** of Neil Stephenson to 27

```sql
UPDATE authors SET age=27 WHERE name="Neil Stephenzon";
```

4. Write a SQL Query to **enter new data** with all of below table's data into the author table. Jim Butcher (47), and Liu Cixin (56)

```
INSERT INTO authors (name, age) VALUES ("Jim Butcher", 47), ("Liu Cixin", 56);
```

5. Write a SQL Query to **obtain all authors** from the author table joined to all data in the books table.

```
SELECT * FROM authors JOIN books on authors.name = books.author
```

6. Write a SQL Query to **obtain all fantasy authors and their works** from the author table **AND** all corresponding data in the books table.

```
SELECT * FROM authors JOIN books on authors.name = books.author WHERE books.genre="Fantasy";
```

7. What is the output of the following code, **and** what type of data structure is `myContainer`?

```
function readWords($variable, $key1, $key2) {
  echo "The first variable is ".$variable[$key1];
  echo "The second variable is ".$variable[$key2];
}


$myContainer["TV"] = "Teenage Mutant Ninja Turtles";
$myContainer["Movie"] = "Kung Fu Hustle";

readWords($myContainer, "Movie", "TV");
```

```
The first variable is Kung Fu HustleThe second variable is Teenage Mutant Ninja Turtles
```

8. Fill in the function `printList` to display each of the names inside of a `<div>` with their corresponding styling?

```
<?php
```

```php

function printList($someList, $someColors){

  for($i=0; $i < sizeof($someList); $i++){
    echo "<div style='color:".$someColors[$i]."'>".$someList[$i]." with the color ".$someColors[$i]."</div>";
  }
}

$myList = ["Scary", "Baby", "Sporty", "Posh", "Ginger"];
$colorList = ["Crimson", "Blue", "Green", "gray", "firebrick"];

printList($myList, $colorList);

?>
```

Coding (10 points each)

For the following questions, assume there exists a MySQL database with the following tables:

author

name	age
Brandon Sanderson	43
Ursula K. Le Guin	88
Neil Stephenson	59
N.K. Jemisin	46
Samin Nosrat	39
Margaret Atwood	79

books

title	genre	publication_date	author
Way of Kings	Fantasy	2010-08-31	Brandon Sanderson
Words of Radiance	Fantasy	2014-03-04	Brandon Sanderson
The Final Empire	Fantasy	2006-07-17	Brandon Sanderson
Elantris	Fantasy	2005-04-21	Brandon Sanderson
Snow Crash	Science Fiction	1992-06-01	Neil Stephenson
Cryptonomicon	Science Fiction	1999-01-01	Neil Stephenson
A Wizard of Earthsea	Fantasy	1968-01-01	Ursula K. Le Guin
Left Hand of Darkness	Science Fiction	1968-01-01	Ursula K. Le Guin
The Broken Earth	Fantasy	2018-10-02	N.K. Jemisin
Salt Fat Acid Heat	Food	2017-04-25	Samin Nosrat

userpass

username	password
stephenKing	scaryThings
grrm	sellout4evr

Database Name: myDatabase

Database User: root

Database Password: password

1. Using the provided tables, write code to connect to a database and select all data from the Author table and display them in a table.

```php
<?php

$servername = 'localhost';
$username = 'root';
$password = 'password';
```

```php
$mydatabase = 'myDatabase';

$conn = new mysqli($servername, $username, $password, $mydatabase);

if ($conn -> connect_error) {
  die('connection failed: '.$conn->connect_error);
}

$sqlQuery = "SELECT * FROM authors WHERE 1";
$result = $conn->query($sqlQuery);

$conn->close();

if ( $result -> num_rows > 0 ) {

  echo "<table>";
  echo "<th>Name</th><th>Age</th>";


  while($row = $result->fetch_assoc() ) {
    $author = $row["name"];
    $age = $row['age'];

    echo "<tr> <td> $author </td>  <td> $age</td> </tr>";
  }

  echo "</table>";
}
```

2. Using the provided tables, write code to connect to a database and check a user's password is correct. If the user's password is correct, Make the user's username persistent so that it can be accessed throughout the entire site.

```php
<?php

$user = $_POST['username'];
$pw = $_POST['password'];

$servername = 'localhost';
$username = 'root';
$password = 'password';
$mydatabase = 'myDatabase';

$conn = new mysqli($servername, $username, $password, $mydatabase);
```

```php

if ($conn -> connect_error) {
  die('connection failed: '.$conn->connect_error);
}

$sqlQuery = "SELECT username FROM userpass WHERE username=$user AND password=$pw";
$result = $conn->query($sqlQuery);

$conn->close();

if ( $result -> num_rows > 0 ) {
  $row = $result->fetch_assoc();
  $foundUser = $row["user"];
}
```

3. Using the provided form, write code to take data from the form and upload it into the proper database table (provided)

```php
<!DOCTYPE html>
<html>
  <head>
    <title>
      Enter a new book!
    </title>
  </head>
  <body>
    <form action='somePage.php' method='get'>
      Title: <input type='text' name='title'> <br />
      Author: <input type='text' name='author'> <br />
      Genre: <input type='text' name='genre'> <br />
      Publication Date: <input type='date' name='publication_date'> <br />

      <input type='submit'>
    </form>
  </body>
</html>
```

```php
<?php
```

```php

$title = $_GET['title'];
$author = $_GET['author'];
$genre = $_GET['genre'];
$pubDate = $_GET['publication_date'];

$servername = 'localhost';
$username = 'root';
$password = 'password';
$mydatabase = 'myDatabase';

$conn = new mysqli($servername, $username, $password, $mydatabase);

if ($conn -> connect_error) {
  die('connection failed: '.$conn->connect_error);
}

$sqlQuery = "INSERT INTO `books`(`title`, `genre`, `publication_date`,
`author`) VALUES ($title, $genre, $pubDate, $author)";
$result = $conn->query($sqlQuery);

$conn->close();
```