**Assignment3**
**Part 1**

**Database Requirements:**
Frequently, not only will you be asked to design and develop Web applications, but you will also be asked to create (design) database solutions that interact with the Web application—and, in fact, the data repository is the *core* of all Web applications. Hence, the following business requirements.

A pet store owner, who owns a number of pet stores, requests that you develop a Web application whereby he and his team can record, track, and maintain relevant company data, based upon the following business rules:

1. A customer can buy many pets, but each pet, if purchased, is purchased by only one customer.
2. A store has many pets, but each pet is sold by only one store.

**Remember:** an organization's business rules are the key to a well-designed database.

For the Pet's R-Us business, it's important to ask the following questions to get a better idea of how the database and Web application should work together:

- Can a customer exist without a pet? Seems reasonable. Yes. (optional)
- Can a pet exist without a customer? Again, yes. (optional)
- Can a pet store not have any pets? It wouldn't be a pet store. (mandatory)
- Can a pet exist without a pet store? Not in this design. (mandatory)

**NB:** Unless otherwise noted, *ALL* ERDs must be created and submitted in **MySQL Workbench format** (**.mwb**), and include the following criteria:
- entities (include color)
- connectivities
- cardinalities
- relationship strengths (use appropriate drawings of lines between entities)
- relationship participations (optional/mandatory)
- PKs, FKs, PFs (if used)
- Attributes (define *suitable* attributes):

**Mandatory** attributes for entities such as people, places, or organizations:
- first name
- last name
- street
- city
- state
- **zip (char) – Note: change from video. No longer int unsigned zero-filled!**
- **phone (bigint unsigned)**
- email
- url

**NB:** *Be sure* to change default FK options to **On Update Cascade**, **On Delete Cascade** —*and* understand the ramifications of these changes!

**Additional attributes:**

| **store:** | **customer:** | **pet:** |
|---|---|---|
| ytd_sales, url | balance, total_sales | type, sex, cost, price, age, color, sale_date, vaccine, neuter |

***All*** tables must have notes attribute.
**Data:**
Each table ***must*** include at least **10** records, ***and* be able to forward-engineer**.

**Note:** after forward-engineering the ERD data design with data, double-click on the **local** connection from the main page in MWB, then issue the following commands:

`use database_name;` (i.e., your fsuid)
`show tables;`
`select * from table_name;` (for each table)

**When grading, the tables are checked for:**
1) Tables created, *and* 10 records per table.
2) The video displays 5 records, ***yours*** must include min. **10** records per table.

**Notes:**

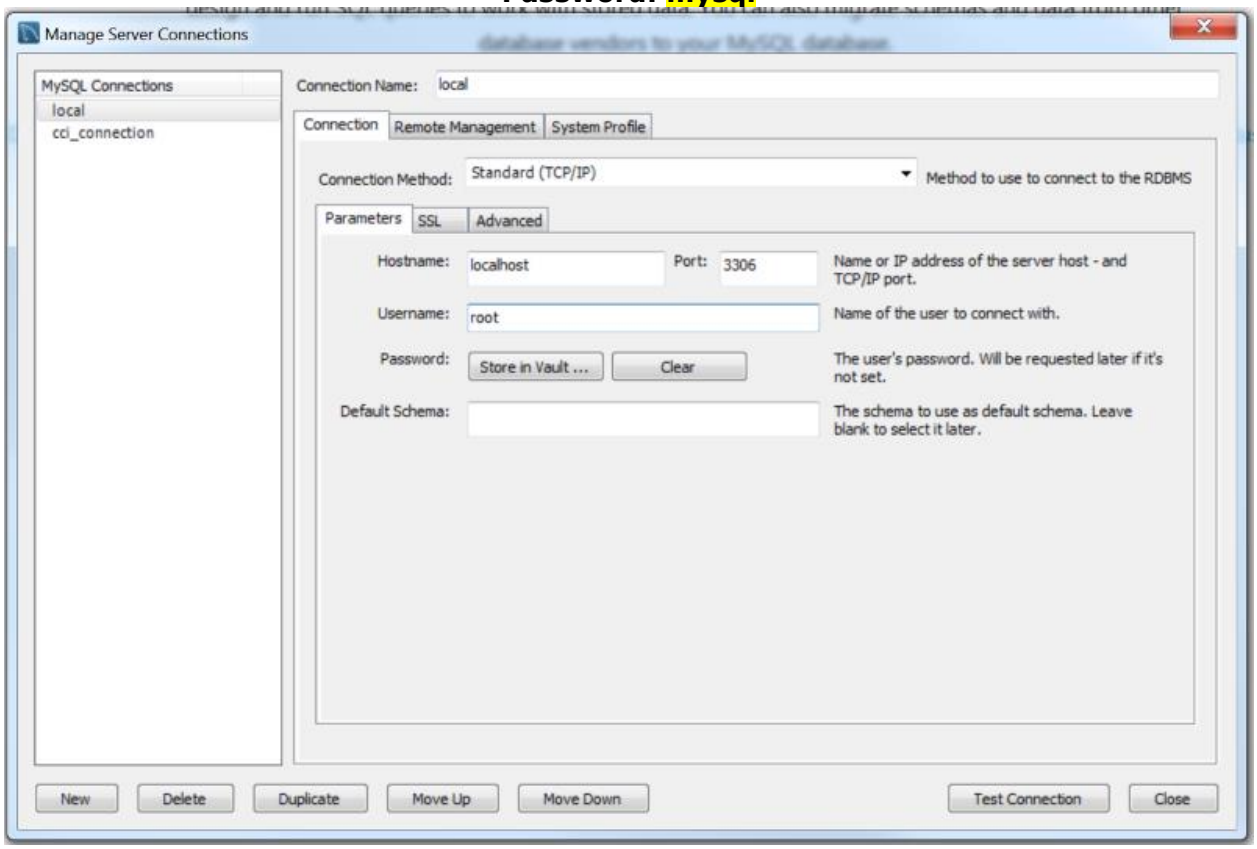
1. If necessary, download latest **MySQL Workbench** case tool: http://dev.mysql.com/downloads/workbench/
2. Save **a3.sql** file:
    a. Create tables and include data
    **b. Export file: File > Export > Forward Engineer SQL CREATE SCRIPT**

**Notes:**
**Beginning with this assignment**, ***be sure*** **to have AMPPS turned on**--with Apache web server, PHP, and MySQL running--***every*** time you boot up your machine. That way, you won't encounter errors that are apart from the code.

Do ***NOT*** create a remote connection—create *only* a **local** connection (see below).

Do ***NOT*** create tables on the CCI server, ***be sure*** **to *ONLY* create the tables locally–that is, on *your* computer (see below)**.

**Local Host Connection (AMMPS Login)**
**Username: root**
**Password: mysql**



**Helper Videos:**

**1. Database Requirements:**

http://www.qcitr.com/vids/LIS4381_A3_Database_Requirements.mp4

**2. Mobile App Requirements:**

http://www.qcitr.com/vids/LIS4381_A3.mp4

***NB*:** there are **two** development requirements:

1. Database
2. Mobile app

**Research how to do the following requirements:**

1. Create a launcher icon image and display it in the activity (screen)
2. Add color(s) to activity controls
3. Add border around image and button
4. Add text shadow (button)

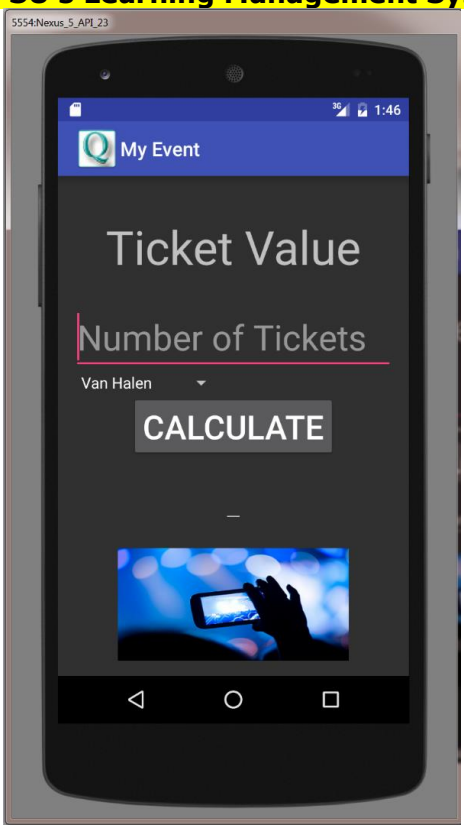
**Part 2**

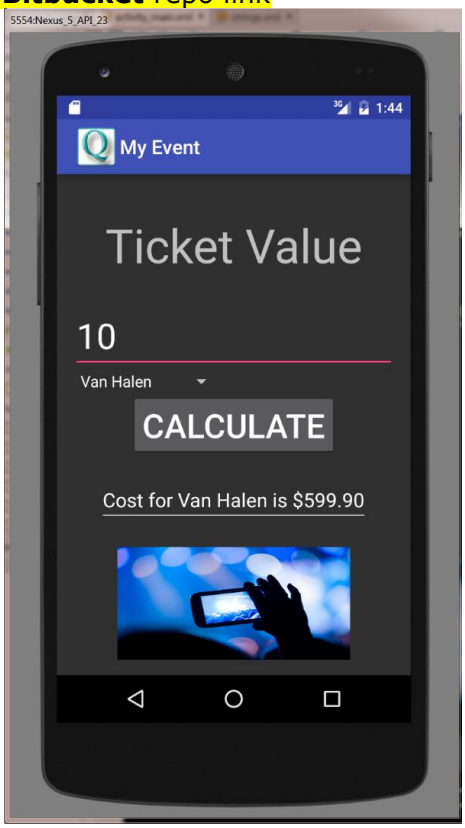
**README.md** file should include the following items:

1. **Course title, your name, assignment requirements, as per A1;**
2. Screenshot of ERD;
3. Screenshot of running application's **first** user interface;
4. Screenshot of running application's **second** user interface;
5. Screenshots of 10 records for **each** table—use *select * from each table*;
6. Links to the following files:
    a. a3.mwb
    b. a3.sql

**Deliverables:**

1. Provide **Bitbucket** read-only access to **lis4381** repo, include links to the repos you created in the above tutorials in **README.md**, using Markdown syntax (**README.md** must also include links and screenshot(s) as per above.)
2. **FSU's Learning Management System**: include lis4381 **Bitbucket** repo link



## Part 3
## Questions (PHP/MySQL: Chs. 5, 6):

1. An error that lets the application run but produces the wrong results is known as a
a. runtime error
b. user error
c. logic error
d. syntax error

2. An error that violates the rules for how PHP statements must be written is known as a
a. runtime error
b. user error
c. logic error
d. syntax error

3. An error that occurs after an application is running is known as a
a. runtime error
b. user error
c. logic error
d. syntax error

4. A simple way to trace the execution of an application is to insert _____ statements at appropriate points within the code.
a. runtime
b. error
c. echo
d. keyword

5. The goal of testing is to
a. fix all errors in the application
b. find all errors in the application
c. make sure the application works with valid data
d. make sure the application works with invalid data

6. The goal of debugging is to
a. fix all errors in the application
b. find all errors in the application
c. make sure the application works with valid data
d. make sure the application works with invalid data

7. When you use the header function to redirect a request,
a. a response is sent to the web server so it requests another page
b. the web server returns a new page to the browser
c. a response is returned to the browser that tells it to request another page
d. the web server returns a new page to the controller of the MVC pattern

8. One reason for using the header() function to redirect a request, rather than using the include() or require() functions
a. is that it's more efficient than forwarding a request
b. is to have a PHP file run itself again
c. is to reduce the number of round trips that are required
d. is to do all processing for the request on the server

9. When you use the MVC pattern, the controller gets the HTTP requests and then directs the use of the files that represent
a. the model, the view, and the database
b. the database and the view
c. the model, the view, and the user interface
d. the model and the view

10. When you use the MVC pattern, the _____ consists of the PHP files that make up the user interface of the application.
a. model
b. database
c. controller
d. view

11. When you use the MVC pattern, the model consists of the PHP files that work with and represent the _____ of the application.
a. model
b. view
c. controller
d. data or database

12. When you use the MVC pattern, you
a. make each layer as independent as possible
b. perform all data validation on the client
c. use the pattern for every page in the application
d. put all of the PHP code in the controller

13. Which of the following is ***not*** a benefit of using the MVC pattern for an application?
a. it's easier to make changes to the application
b. web designers can work independently on the view
c. there's less repetition of code
d. it's easier to test and debug the application
e. the application runs more efficiently

14. When you code a function in PHP, you start with the keyword _____.
a. function
b. add
c. get
d. parameter

15. When you create a function definition (i.e., code a function) in PHP, you can list one or more _____ separated by commas (if more than one), and wrapped within parentheses.
a. functions
b. controls
c. keywords
d. parameters

16. To call a function in PHP, you code the function name followed by a list of any _____ that are required.
a. functions
b. arguments
c. keywords
d. controls

17. To pass data back to the statement that calls a function, the function can use the _____ statement.

a. global
b. control
c. return
d. function

18. A simple sequence of testing web applications (or other software):
**Display correct order**:
1. Try various methods to make the application fail.
2. Test with valid data.
3. Check the user interface.
4. Test with invalid data.

**Code example:**

```
function get_product($product_id) {
   global $db;
   $query = "SELECT * FROM products
           WHERE productID = '$product_id'";
   $product = $db->query($query);
   $product = $product->fetch();
   return $product;
}
```

19. Which of the following is a proper PHP statement for calling the function in this example and storing the returned result in a variable named $product.

a. $product = get_product($product_id);
b. $product = get_product(product_id);
c. $product = $get_product($product_id);
d. $product = $get_product(product_id);

20. What does this function return when it is called?

a. an array of all the rows in the products table
b. an array of all the rows with the specified category ID
c. an array of the columns in the first row of the products table
d. an array of the columns in the row with the specified product ID

## SQL Statements

1. List only the pet store IDs, full address, and phone number for all of the pet stores.
2. Display the pet store name, along with the number of pets each pet store has.
3. List each pet store ID, along with all of the customer first, last names and balances associated with each pet store.
4. Update the customer last name to 'Tidwall' for Customer #4.
5. Remove Pet #2.
6. Add two more customers.