CIS393 Final Project Name: Gavin Forsberg
Spring 2021
(The final exam is an individual exam. Please work independently and submit your final exam in the drop box on the class Sakai web site before 12:00 noon on May 8, 2021, Saturday.)

1. (20 pts) Basic HTTP/HTTPS concepts
(1) HTTP is a request and response protocol.
What is the response status code returned if the requested is successfully processed?
200 Ok

What is the response status code returned if the requested is forbidden?
403 Forbidden

What is the response status code returned if the requested is not successfully processed because of the internal server error?
500 Internal Server Error

(2) HTTP is a stateless protocol. Cookie and session are the two techniques that can be used to maintain the State for web applications. Briefly describe the differences between them and advantages and disadvantages of using them.

Cookies: Client-side, can last forever, doesn't need to be started because it is held locally, maximum size of 4KB, not dependent on a session, not as safe because they are stored locally, can only store strings

Session: Server side, lasts until the browser closes, session must be "started" via code, no maximum data size, dependent on a cookie, safer because it is server side, can store objects

(3) Create a cookie using PHP to store the name and phone provided by the user HTML form using the method GET for 7 days.

```
<?php
define("SevenDays", 60 * 60 * 24 * 7);
setcookie("name",  $_GET("name"), time() + SevenDays);
setcookie("pnumber",$_GET("pnumber"), time() + SevenDays);
?>
```

(4) Briefly describe how to prevent the Deny-of-Service attack and input Injection attack on the HTML form in the web pages.

Properly validating and sanitizing user input and output can prevent against both of these attacks. All input should be checked to verify that it does not have nay script code or HTML code, and only is what the developer wants to receive. Files shouldn't be directly browsable by the user, developers can employ taint mode for tracking data, and enforce use of POST method.

2. (15 pts) Basic JavaScript concepts

(1) Name **five** JavaScript's built-in objects.

1. Array
2. String
3. Math
4. JSON
5. Date

(2) How the event-handling works in the JavaScript Event models and give examples of three events handing operations.

Events are things that start when the user does something on the page. When an event occurs, like a user clicks on a photo, that event is handled, possibly by redirecting you to a different page or enlarging the picture. Some examples include onclick, mouseup, and onerror.

(3) What is the main advantage of using AJAX in Rich web applications as compare with the traditional web applications?

They are more interactive. Entries are validated individually and dynamically, errors are displayed asynchronously which allows users to address invalid entries individually and quickly rather than editing and submitting the entire form until it is valid. It also allows for some fields to be filled in based on previous fields.

3. (15 pts) Basic PHP/MySQL concepts

(1) List the major steps of query data items from a MySQL table using PHP.

1. Open the database connection
2. Select the database
3. Run the query on the database through the connection
4. While there are rows in the result, fetch the current row into the array $row
5. Print out each element in $row (the values of the attributes)

(2) What is the main advantage of dynamically generate the HTML5 Form using the data from the database in PHP?

Non-technical users will be able to use the system to query a database quickly.

(3) Write the PHP code to save the login info into a HTTP session if login is successful.

```
require 'authentication.inc';
require 'db.inc';
if (!$connection = mysqli_connect($loginName, $username, $password))  die("Cannot
      connect");
$loginUsername = $_POST["loginUsername“];
$loginPassword = $_POST["loginPassword“];
if (!mysqli_selectdb($connection, $databaseName))
      showerror();
session_start();
```

4. (50 pts) Web programming using HTML/CSS/JavaScript and PHP/MySQL

Create a store.html web page using Dream Weaver or other IDE software that calls the store.php to query wine from the MySQL database wine table in the playground.bradley.edu.

1. The store.html web page should consist of an image, a HTML5 summary elements to briefly describe the query operation, and a HTML5 form to submit the query.

The HTML5 form must have an email input type for the email, a set of check button input types for the wine types, and a text input type for the wine year with an error label.

2. Validate the email field using HTML5 validation, `validate the wine type field using JavaScript Alert window to disallow the empty wine type, and validate the wine year using the error message label innerHTML property to disallow the year earlier than 1960 and later than 2010.`

3. The store.php will do the following:
`1)` Save the email into a cookie.

2) Return the wines information with the type of the wine user checked and the year of the wine with the year later than the year specified (for example, if user enters year 1980, then display the wine with year between 1980 to 2010. The returned wine information should include the wine name, wine type name, and year from wine table, and must be displayed in a HTML5 table with a caption and field heads similar to the Lab10 Part II table.
(Hit: The wine type name is from the wine_type table.)

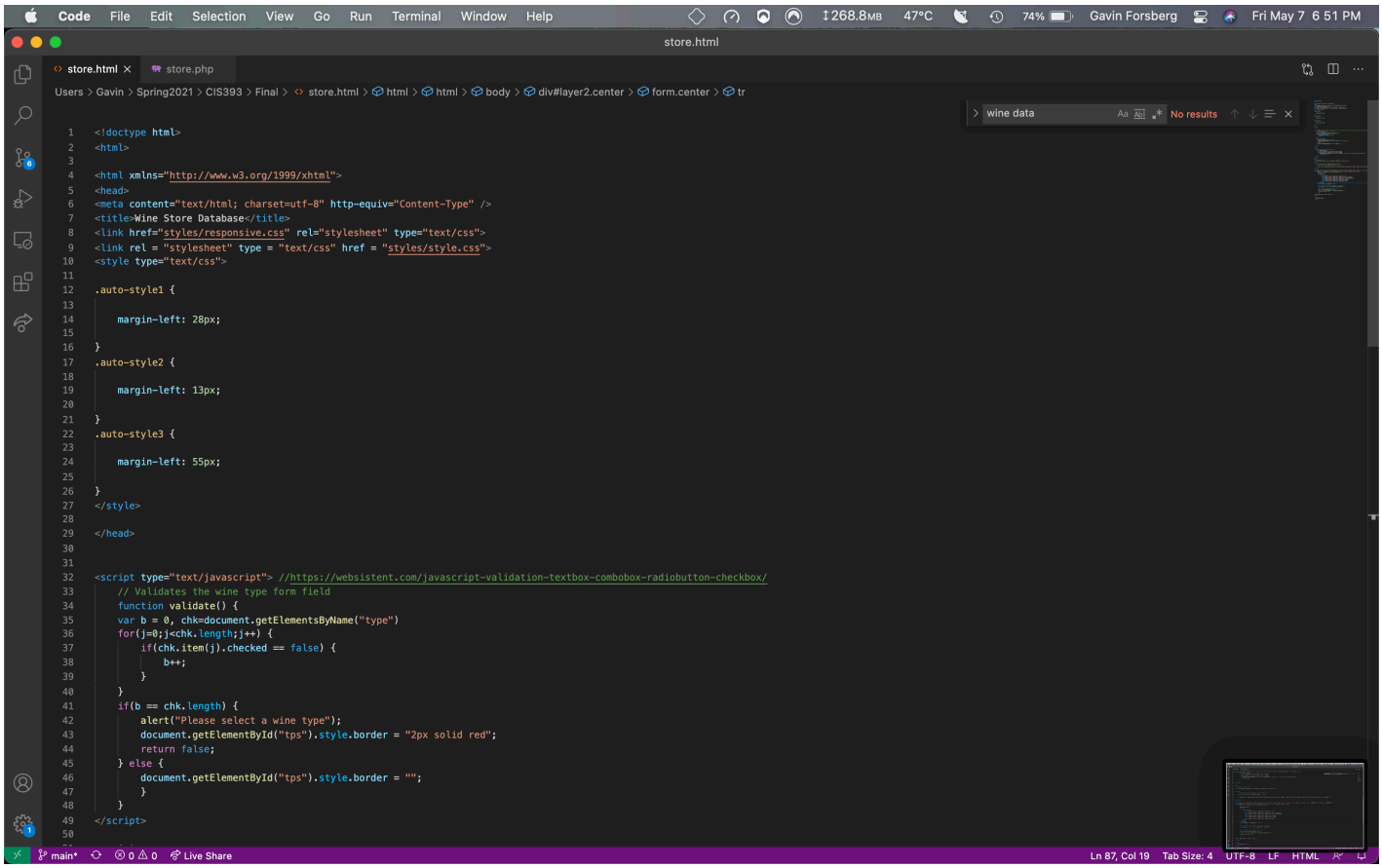
3) Email back the query results to the user.

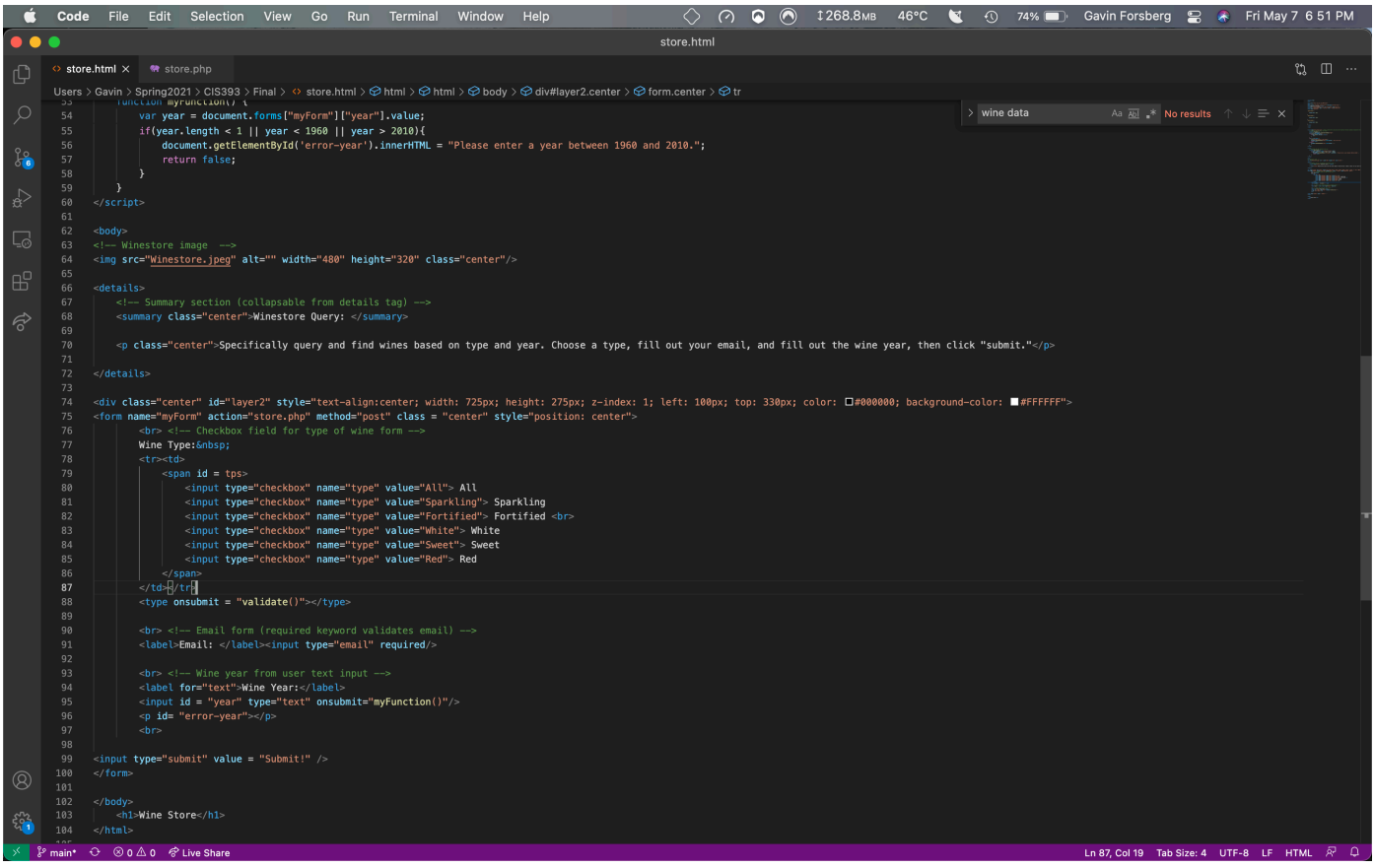
4. Upload/Test the html and php pages on playground.bradley.edu. Submit a MS report with the following:

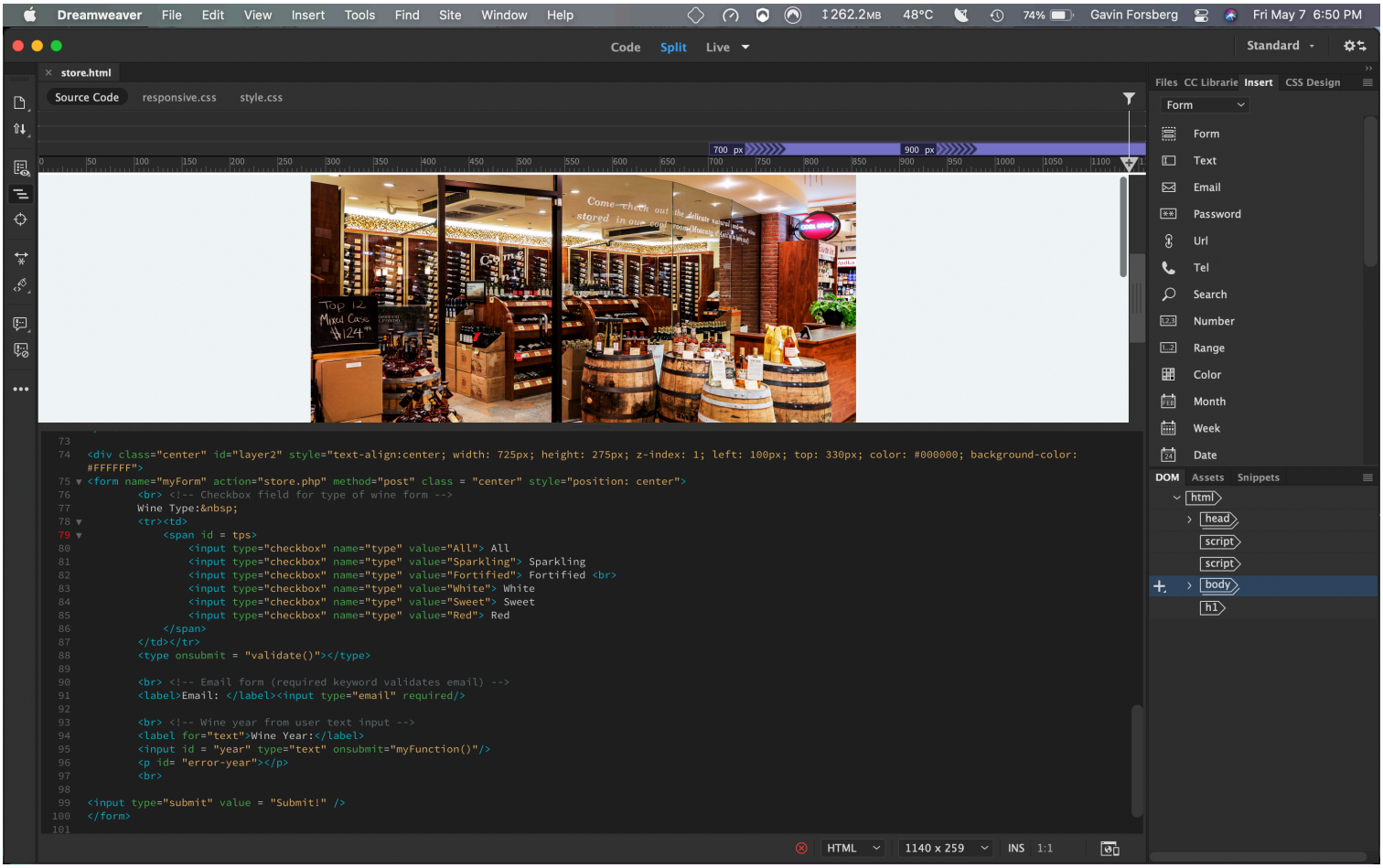
1) Two screen shots of the GUI developing steps using the Dream Weaver or other IDE software:
- 1 screen shot for the project creation.
- 2 screen shots for the HTML page design and form design.
2) Seven screen shots of all the run results:
- 1 screen shot for the invalid user inputs with email validation, 1 screen shot for the alert window validation, and 1 screen shot for the .innerHtml error message validation.
- 1 screen shot to show the cookie written and 1 screen shot to show the saved cookie similar to the Fig 19.17 and fig 19.18 of the textbook/lecture notes
- 2 screen shots for the successful query results in the HTML5 table with 2 different sets of wine type and year
- 1 screen shot to show the email sent back to the user.

Submit your MS report and all the HTML/PHP/JS/CSS/IMG files in the drop box on the class Sakai web site by the due date.

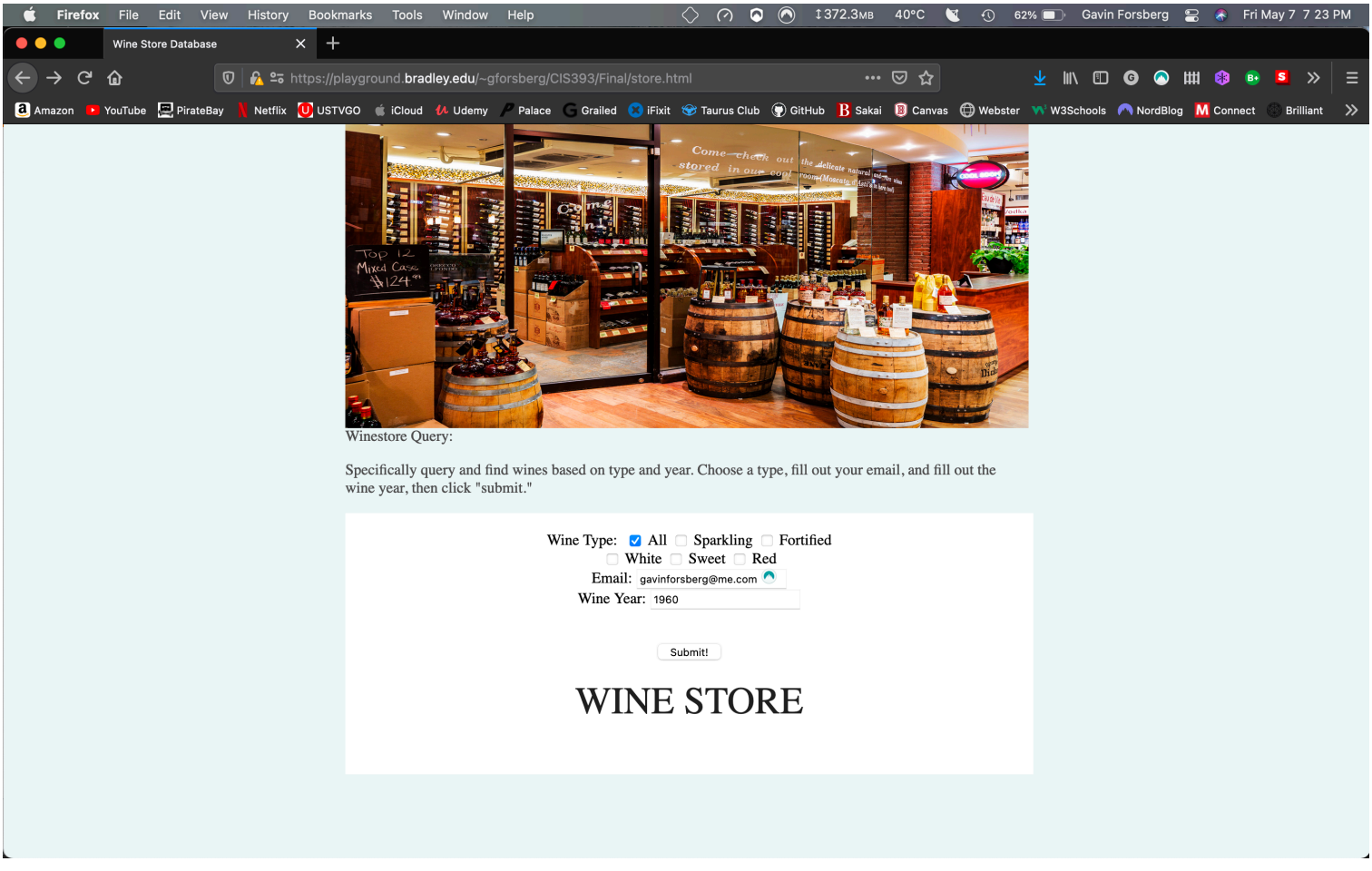
I took advantage of both Dreamweaver and Visual Study Code in building this site. Below is my store.html file.



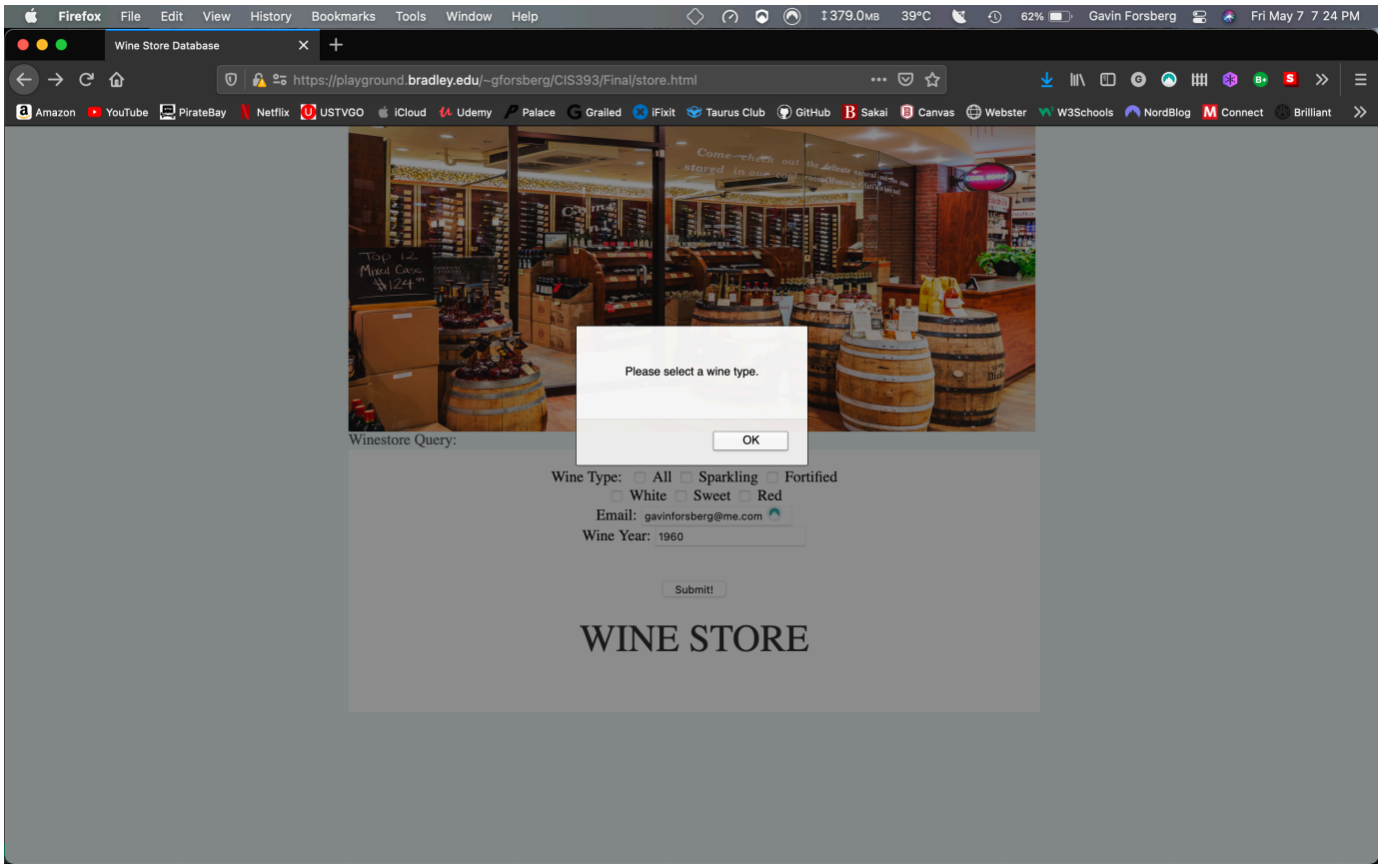


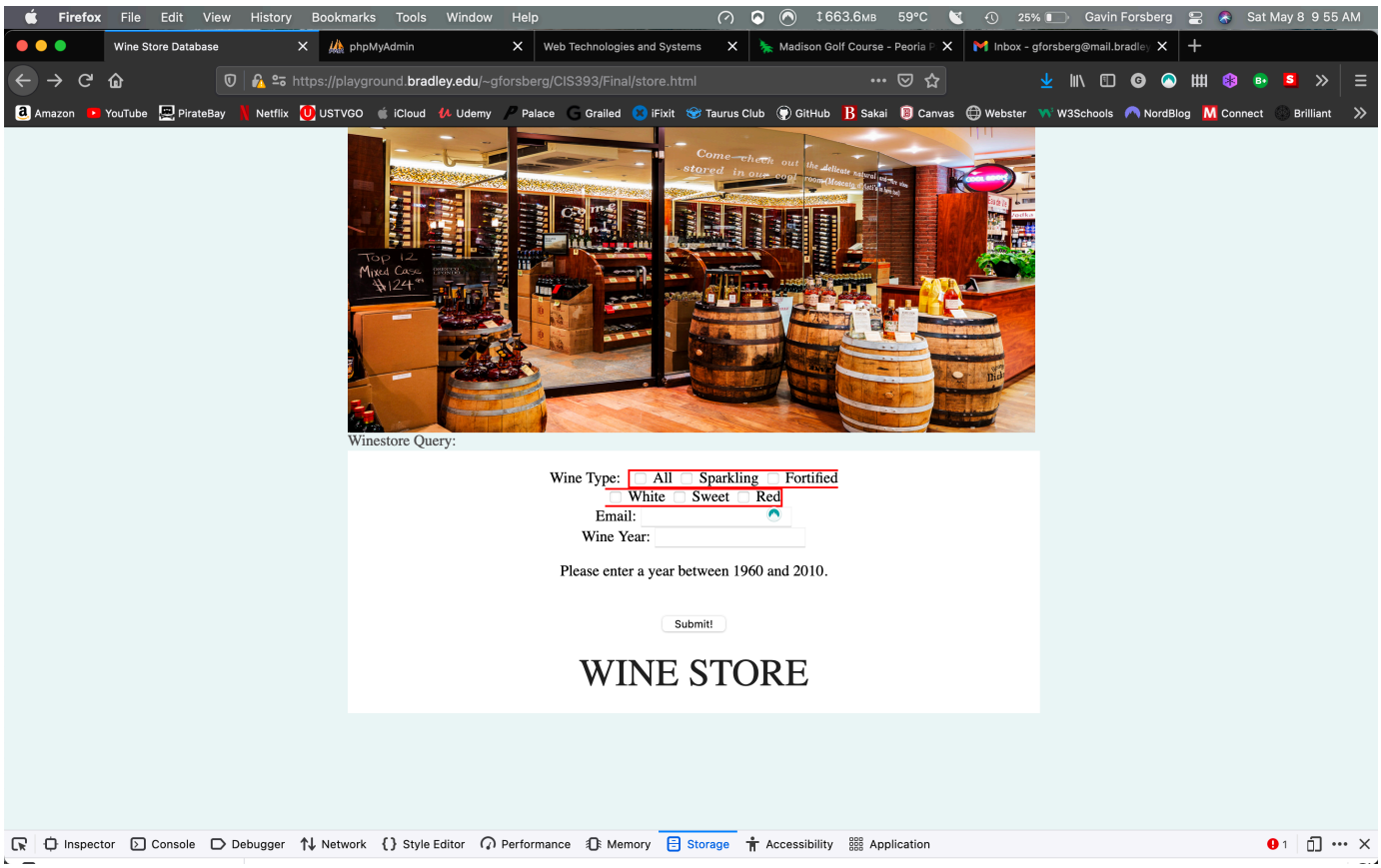


This is another screenshot of store.html, this time using Dreamweaver (ABOVE). (BELOW) Is my wine store site when loaded for the first time.

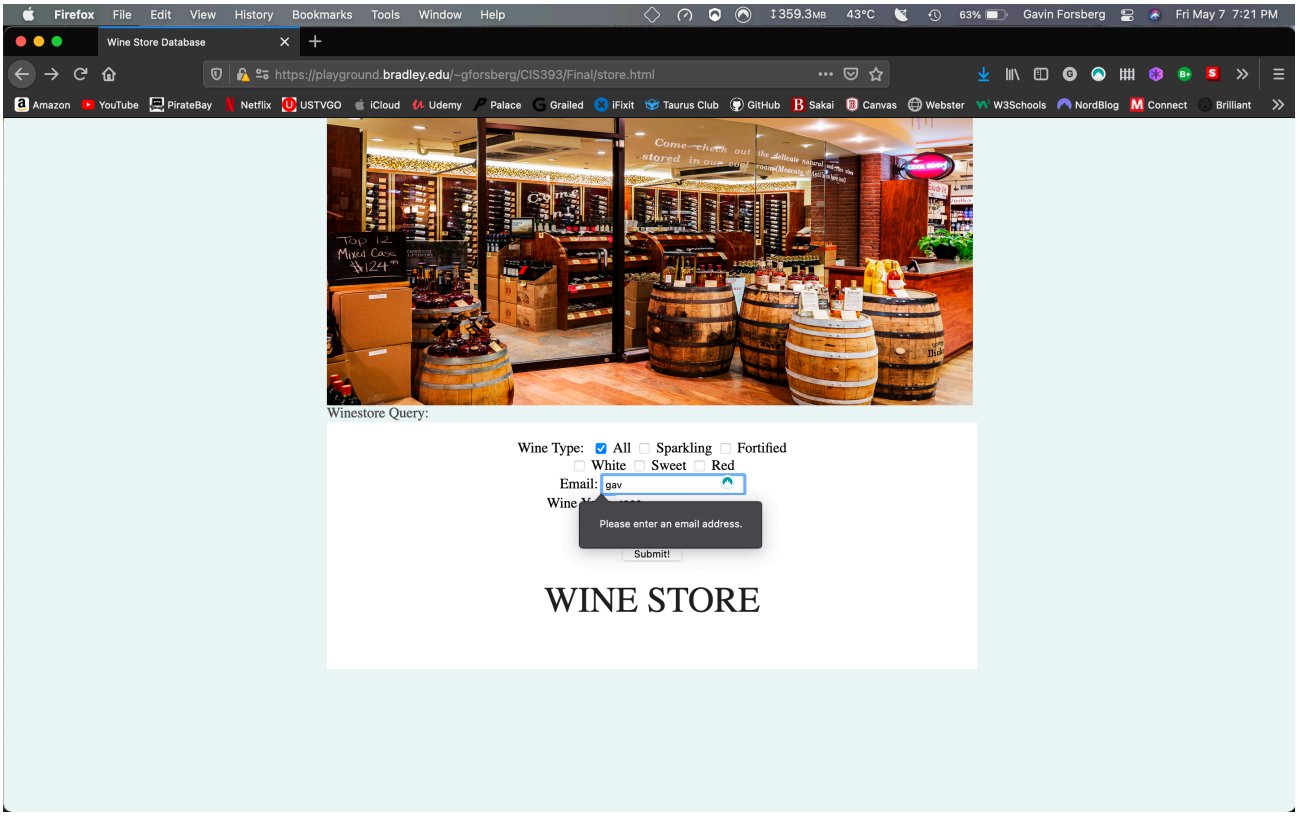


The following are screenshots of the validation. First, checkbox validation. After the alert appears and it closed, a red border surrounds the boxes to be filled in.

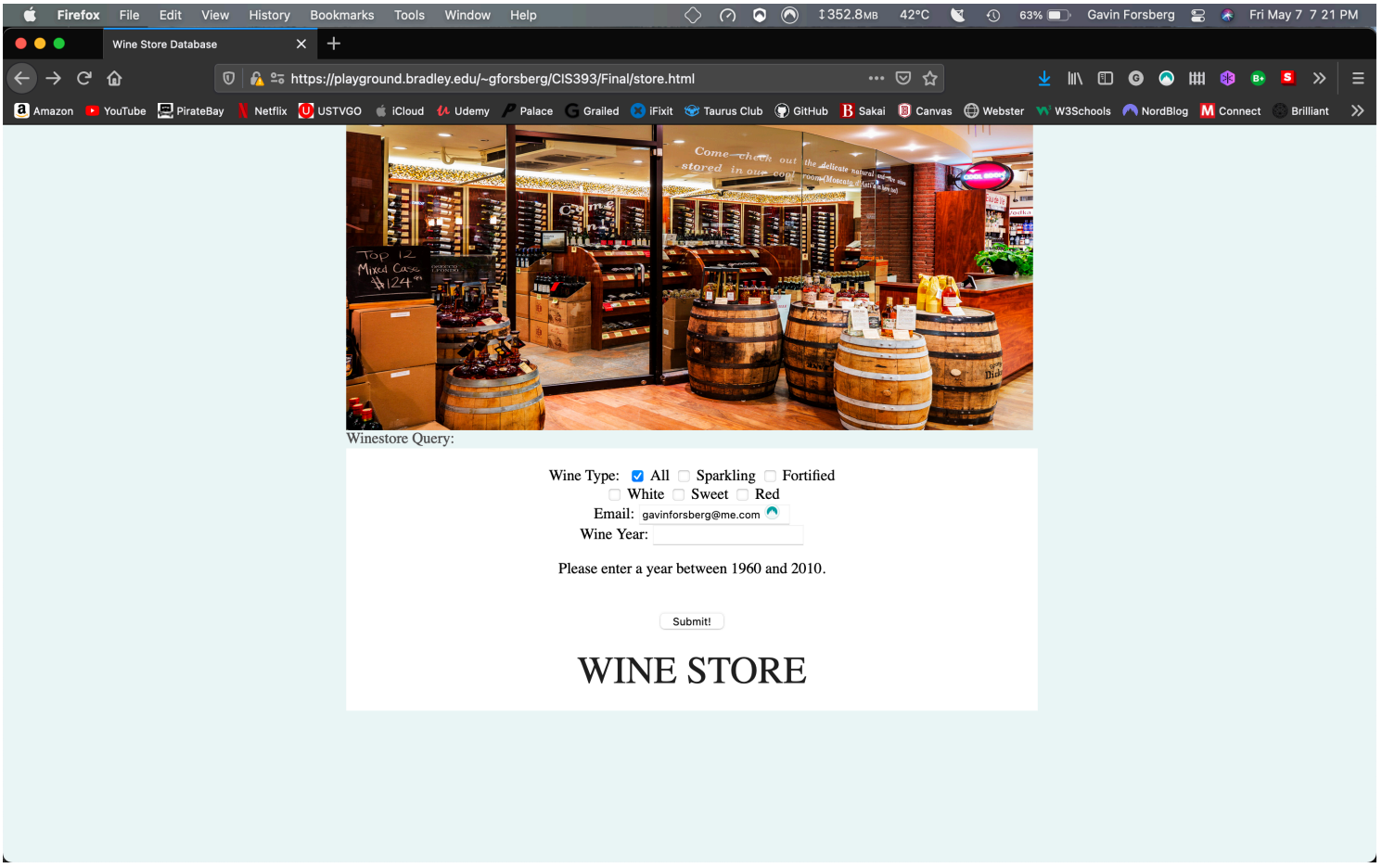


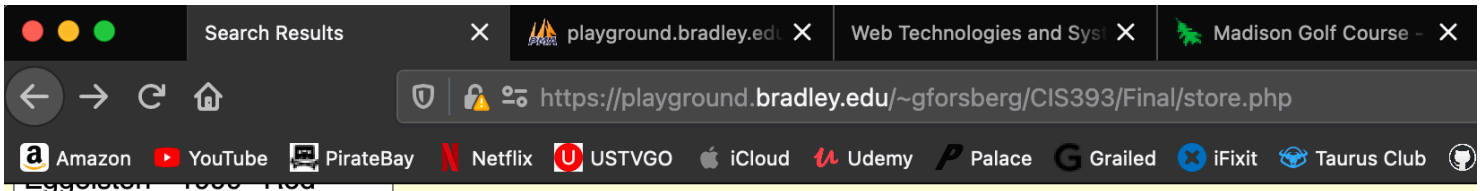


Second, the email validation.



Finally, the year validation (.innerHTML).





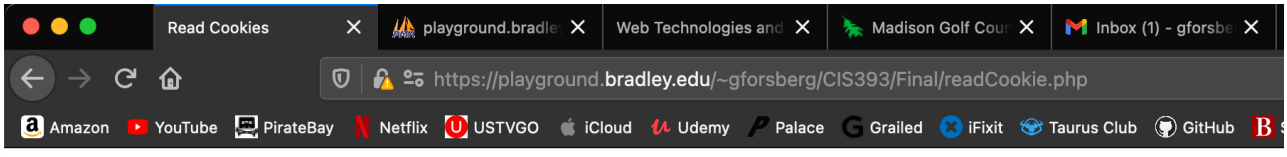
Mockridge	1999	All
Mockridge	1999	Sparkling
Mockridge	1999	Fortified
Mockridge	1999	Sweet
Mockridge	1999	White
Mockridge	1999	Red
Triskit	1999	All
Triskit	1999	Sparkling
Triskit	1999	Fortified
Triskit	1999	Sweet
Triskit	1999	White
Triskit	1999	Red
Holdenson	1999	All
Holdenson	1999	Sparkling
Holdenson	1999	Fortified
Holdenson	1999	Sweet
Holdenson	1999	White
Holdenson	1999	Red

The cookie has been set with the following data:

Email: gforsberg@mail.bradley.edu

Click here to read the saved cookie.

As done in the book, I have added some text to show the cookie at the bottom of store.php. After clicking the link, you will be redirected to readCookie.php where the cookie will be once again showed.

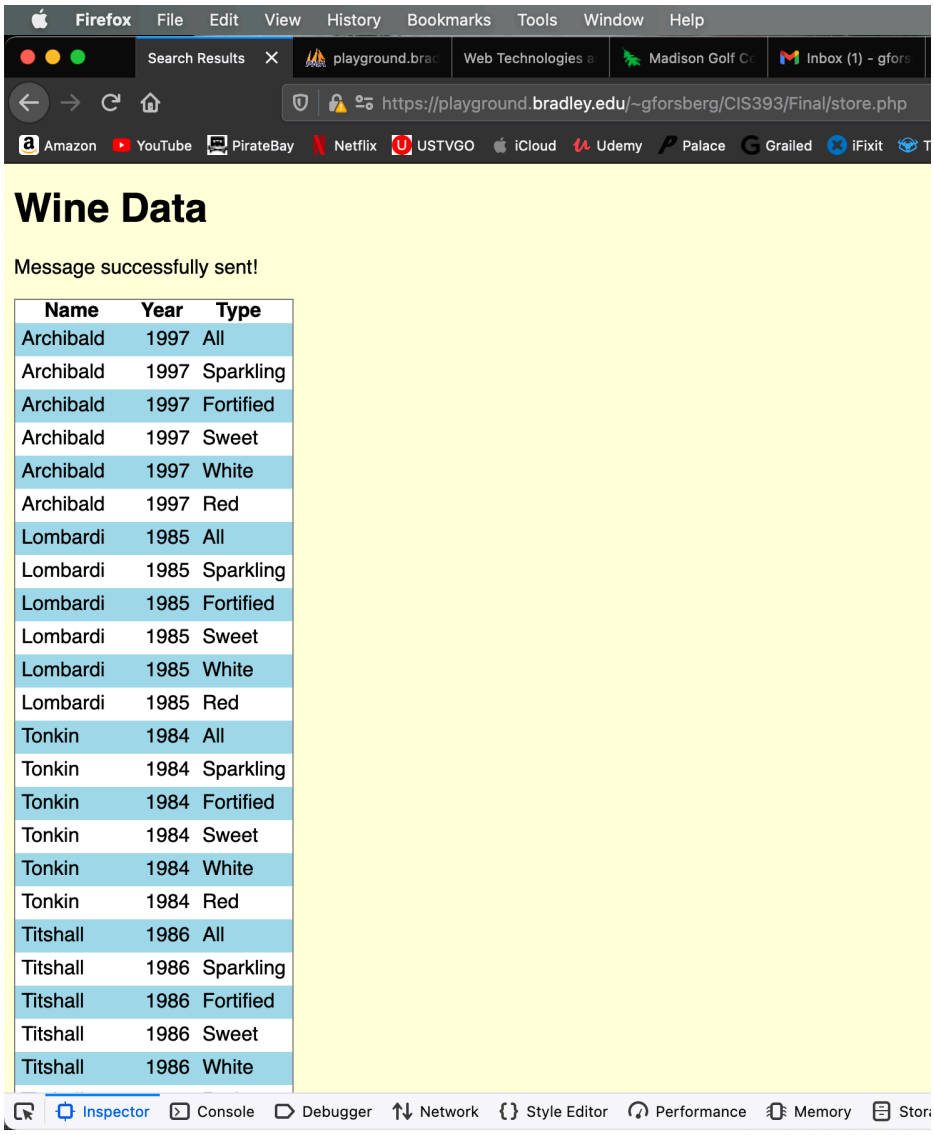


The following data is saved in a cookie on your computer

Email: gforsberg@mail.bradley.edu

This (below) is the code responsible for readCookie.php.

```php
<!DOCTYPE html>
<html>
    <head>
        <meta charset = "utf-8">
        <title> Read Cookies </title>
    </head>
    <body>
        <p>The following data is saved in a cookie on your computer</p>
        <?php
            foreach($_COOKIE as $key => $value)
                print("<p>$key: $value</p>");
        ?>
    </body>
</html>
```



The HTML table (left) shows the top of query results for all types of wine from 1962+.

The (above) HTML table shows the bottom of a query, selecting red type wines from 1976+.

WineSellers@gmail.com via playground.bradley.edu
to me

Wine Name	Year	Wine Type
Krennan	1976	Sparkling
Leramonth	1976	Sparkling
Kinsala	1976	Sparkling
Stribling	1976	Sparkling
Skerry	1976	Sparkling
Belcombe	1976	Sparkling
Mockridge	1976	Sparkling
Sorrenti	1976	Sparkling
Morfooney	1976	Sparkling
Holdenson	1976	Sparkling

Reply Forward

The screenshot (left) is from a query selecting only sparkling type wines form 1976

The screenshot (bottom) is from a query finding all wines from 1976.