General Instructions: Put the entire app directory into one zip file and submit as an attachment under Content → Homework 9 for this course on the Blackboard Learn system by the above deadline. Note that you may submit multiple times, but only the most recent entry submitted before the above deadline will be graded.

1. For this homework you will create the Login app to demonstrate the use of communication in iOS. Your app will accept a user name and password, and will contact a server to see if they are valid, and if so, display the received user ID number. See screenshots below for details.
   a. Create a Single View Application project called Login.
   b. In the info.plist add the “App Transport Security Settings” property, and underneath that, add the “Allow Arbitrary Loads” property, with value set to “YES”.
   c. Add a “Login” title label at the top center of the view. Add two labels along the left side for “User Name:” and “Password:”.
   d. Next to, and in-line with, the User Name label add a text field that extends to the right margin for entering the user’s name.
   e. Next to, and in-line with, the Password label add a text field that extends to the right margin for entering the user’s password. The characters entered into this text field should be hidden (show up as just dots) as they are entered (check “Secure Text Entry” attribute).
   f. Below the two text fields should be a centered message label that initially says “Enter username and password.” This label will also be used to display other messages (see below).
   g. Below the message label should be a centered “Login” button. When the Login button is pressed, if the User Name field is empty, the message label should display “User name is empty.” If the User Name field is non-empty, but the Password field is empty, the message label should display “Password is empty.”
   h. If Login button is pressed and both fields are non-empty, then your app should send a POST request to http://www.eecs.wsu.edu/~holder/courses/MAD/hw9/login.php with parameters “username” and “password” set appropriately. The login.php script is shown below. If the username and password are valid, then the login.php script will return a positive integer \( N \) as the user’s ID. The message label should then display
“Your user ID is $N$.” If the username and password are not valid, then the script will return a zero, and the message label should display “Invalid login.”

login.php:

```php
// login - Return user ID for given username and password.

// Get POST parameters
$username = $_POST['username'];
$password = $_POST['password'];

$users = array {
    array("Mario", "peach", 1),
    array("Bowser", "junior", 2),
    array("Yoshi", "dragon", 3)
};

$userID = 0;
for ($userID = 0; $userID < count($users); $userID++)
{
    if ($users[$userID][0] == $username && $users[$userID][1] == $password)
    {
        $userID = $users[$userID][2];
        break;
    }
}

echo $userID;
```

Code snippet showing use of dispatch_async:

```swift
NSURLSessionDataTask* dataTask = [session dataTaskWithURL:request:
    completionHandler:^(NSURLSessionDataTask* dataTask, NSURLResponse* response, NSError* error) {
    if (error == nil) {
        dispatch_async(dispatch_get_main_queue(), ^{
            [self processResponse:dataTask]; // modifies view
        });
    } else {
        NSLog(@"Error: %@", error.localizedDescription);
    }
}];
```

1 Modifying the view from a background thread (like the thread used to perform the POST request in the background) can have unexpected results. Therefore, any modifications to the view should be wrapped in a “dispatch_async(dispatch_get_main_queue(), ^{ code here });” call. See code snippet above.
Screenshots:

1. User Name: [Field]
   Password: [Field]
   Enter username and password.
   Login

2. User Name: Yoshi
   Password: [Field]
   Your user ID is 3.
   Login

3. User Name: Larry
   Password: [Field]
   Password is empty.
   Login

4. User Name: Larry
   Password: [Field]
   Invalid login.
   Login