KOLEJ UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF COMPUTING AND INFORMATION TECHNOLOGY

ACADEMIC YEAR 2020/2021

DECEMBER EXAMINATION

AMIT2043 WEB SYSTEMS AND TECHNOLOGIES

WEDNESDAY, 16 DECEMBER 2020 TIME: 9:00 AM – 12:00 NOON (3 HOURS)

DIPLOMA IN INFORMATION TECHNOLOGY
DIPLOMA IN SCIENCE (INTERNET TECHNOLOGY)

Instructions to Candidates:

Answer **ALL** questions in the requested format or template provided.

- This is an open book final online assessment. You MUST answer the assessment questions on your own without any assistance from other persons.
- You must submit your answers within the following time frame allowed for this online assessment:
    o The deadline for the submission of your answers is **half an hour** from the end time of this online assessment.
- Penalty as below **WILL BE IMPOSED** on students who submit their answers late as follows: o The final marks of this online assessment will be reduced by 10 marks for answer scripts that are submitted within 30 minutes after the deadline for the submission of answers for this online assessment.
    o The final marks of this online assessment will be downgraded to zero (0) mark for any
answer scripts that are submitted after one hour from the end time of this online assessment. • Extenuation Mitigating Circumstance (EMC) encountered, if any, must be submitted to the Faculty/Branch/Centre within 48 hours after the date of this online assessment. All EMC applications must be supported with valid reasons and evidence. The UC EMC Guidelines apply.

FOCS Additional Instructions to Candidates:
- Include your **FULL NAME**, **STUDENT ID** and **PROGRAMME OF STUDY** in your submission of answer.
- Read all the questions carefully and understand what you are being asked to answer. • Marks are awarded for your own (original) analysis. Therefore, use the time and information to build well-constructed answers.

AMIT2043 WEB SYSTEMS AND TECHNOLOGIES

STUDENT'S DECLARATION OF ORIGINALITY

By submitting this online assessment, I declare that this submitted work is free from all forms of plagiarism and for all intents and purposes is my own properly derived work. I understand that I have to bear the consequences if I fail to do so.

Final Online Assessment Submission
Course Code:
Course Title:
Signature:
Name of Student:
Student ID:
Date:

AMIT2043 WEB SYSTEMS AND TECHNOLOGIES

Question 1

a) Dynamic web pages are contents that are generated dynamically at runtime when a client requests certain resources from a web server.

(i) Discuss any **TWO (2)** examples of dynamic web pages features. (6 marks)

-Login and logout feature

-Ability to access to database

-Ability to store and process form entries

(ii) Analyze whether client-side or server-side technology is better-suited to provide dynamic web pages. (8 marks)

-Server-side technology is better because it is more powerful than client-side technology.It can be used to do any complex task such as form process, login and logout, or database access etc.

b) Construct the PHP code to store the list in Table 1 below into an associative array and name the array *$fruits*. Create a function called *sumBasket* that accepts *$fruits* as an argument and uses a *foreach* loop to iterate through the array to sum the price of each fruit. Finally, the *sumBasket* function should display the total in 2 decimal places as shown in Figure 1 below. (14 marks)

Fruit Name	Price
Apples	5.80
Oranges	8.40
Pineapples	10.10
Mangoes	6.50
Durians	25.00

Table 1: Prices of fruits.

Total price: RM 55.80

Figure 1: Expected output.

```php
<!DOCTYPE html>
<html>

<head>
    <title>Fruits</title>
    <?php
    //this is associative array
    $fruit = [
        "Apples" => 5.80,
        "Oranges" => 8.40,
        "Pineapples" => 10.10,
        "Mangoes" => 6.50,
        "Durians" => 25.00,
    ];

    //this is multi-dimensional array (if question ask)
    //$fruit = array(
    //    array("Apples", 5.80),
    //    array("Oranges", 8.40),
    //    array("Pineapples", 10.10),
    //    array("Mangoes", 6.50),
    //    array("Durians", 25.00),
    //);

    function sumBasket($fruits){
        $total = 0;
        foreach ($fruits as $fruit) {
            $total += $fruit;
        }
        return $total;
    }

    ?>
    <style>
        table,
        th,
        td {
            border: 1px solid black;
            border-collapse: collapse;
```

```
            width: 400px;
            height: 30px;
        }
    </style>
</head>

<body>
    <table>
        <tr>
            <th>Fruit Name</th>
            <th>Price</th>
        </tr>
        <?php            //Apples => 5.8 ($key => $value)
        foreach ($fruit as $key => $value) {
            echo "<tr>";
            echo "<td>" . $key . "</td>";
            //this is to price two decimal places (number_format)
            echo "<td>" . number_format($value, 2) . "</td>";
            echo "</tr>";
        }
        ?>
    </table>
    <p>Total Price: <?php echo number_format(sumBasket($fruit), 2);
?></p>
</body>

</html>
```

c) Provide **THREE (3)** advantages for using external files to hold standard procedures when creating web pages. (9 marks)

-Easy to maintain: Putting JavaScript in a folder makes it easier to maintain. Developers can focus on editing JavaScript code without touching HTML.
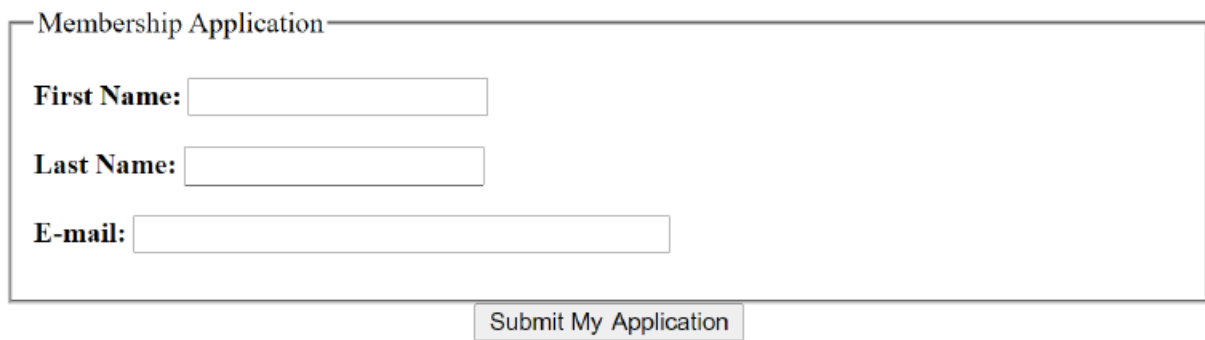
-Cacheable: If multiple pages use the same script file, they only need to be loaded once. Can speed up page loading speed.

-Easy code readability

d) Write the html code to generate the form as shown in Figure 2 below. Assume the file name is *apply.php*. Include PHP scripts to validate the *e-mail* field and provide feedback to users as shown in Figure 3 when the user left the *e-mail* field blank. You are required to include the PHP validation

scripts together with your html codes within the same *apply.php* file.

(13 marks)

Figure 2: Application Form

Error: Email cannot be empty.

Figure 3: Sample feedback to user when email field is empty.

```
<!DOCTYPE html>
<html>

<head>
    <title>Application Form</title>
    <?php
    $email = "";
    if ($_SERVER["REQUEST_METHOD"] == "POST") {
        $email = $_POST['email'];

        if (empty($email)) {
            echo "Email cannot be empty";
        }
    }
    ?>
</head>

<body>
    <form action="apply.php" method="post">
        <fieldset>
            <legend>Membership Application</legend>
            <label for="fName"><strong>First Name:</strong></label>
            <input type="text" name="fName" id="fName"><br><br>
            <label for="lName"><strong>Last Name:</strong></label>
            <input type="text" name="lName" id="lName"><br><br>
            <label for="email"><strong>E-mail:</strong></label>
            <input type="text" name="email" id="email"><br><br>
        </fieldset>
```

```
            <input type="submit" value="Submit My Application"
name="Submit">
    </form>


</body>


</html>
```

[Total: 50 marks]

Question 2

a) You would like to provide users with the ability to upload a file from the client side to a PHP script named *handle_upload.php* at the server side. Write the HTML code that would allow users to choose the file they want to upload. The maximum file size allowed for the users to upload is 10MB. (12 marks)

```
<!DOCTYPE html>
<html>


<head>
    <title>Upload Form</title>
    <?php
    $uploadFile = "";
    $maxSize = 10000000; //10 x 1000 x 1000


    if ($_SERVER["REQUEST_METHOD"] == "POST") {
        $uploadFile = basename($_FILES["file"]["name"]);
        if($_FILES["file"]["size"] > $maxSize){
            echo "File size is above 10MB";
        }
    }
    ?>
</head>


<body>
    <h1>Accept 10MB file</h1>
                <form    action="handle_upload.php"    method="post"
enctype="multipart/form-data">
        <br><br><input type="file" name="file" id="file">
        <br><br><input type="submit" value="Submit" name="Submit">
    </form>
```

```
</body>


</html>
```

b) Cookies and sessions are PHP tools that are used for storing *state* information about an individual's Web site visits.

(i) Provide **THREE (3)** examples of *state information* that can be stored by both cookies and sessions in the statement Q2. b) above. (6 marks)

-Provide shopping cart that store order information

-Store user id and password

-Temporary store user information as a browser navigate in multipart form

(ii) Contrast between the use of cookies and sessions in the statement Q2. b) above. (8 marks)

Small text file that is stored in the user's computer.	Temporary store information on the server to be used across multiple webpage
Track user browsing history and cart information	Total time user used for an activity
Stored in temporary Internet file folder	Saved as cookie, form field or URL
Max 4KB	No limit

c) jQuery methods could potentially execute before the Document Object Model (DOM) is completely loaded.

(i) With the aid of jQuery code, explain how you can ensure that your jQuery methods are executed only after the DOM is completely loaded. (8 marks)

- To make sure DOM is already loaded before running the function, you must add a $(document).ready(//function is written inside); or the short form $(//function written inside); which is made by the jquery team

(ii) Provide **THREE (3)** examples of where tasks might fail if the methods are executed before the DOM is fully loaded. (9 marks)
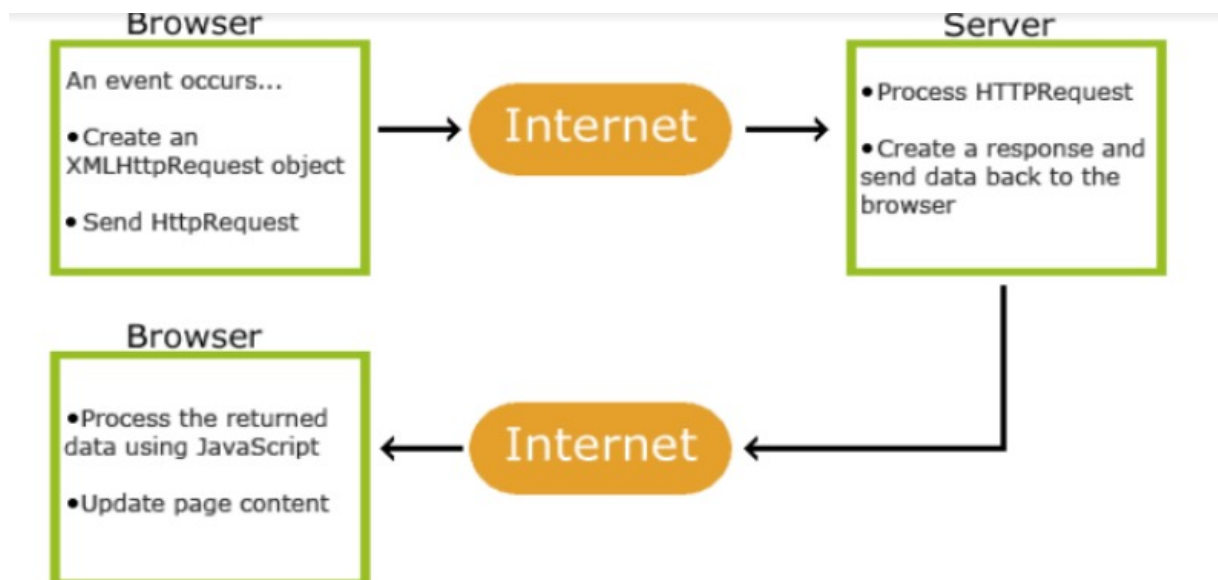
- Hide element that is not created yet.
- Get the size of the image that is not loaded yet.
- Some methods wont function at all

d) Asynchronous JavaScript and XML (AJAX) is a technique for creating fast and dynamic web pages. State the series of steps involved between the client and the server in an AJAX operation. (7 marks)

-Create an XMLHttpRequest Object

-Send the request to server

-Server response