



## EAST WEST UNIVERSITY

Department of Computer Science and Engineering

B.Sc. in Computer Science and Engineering Program

Mid Term II Examination, Summer 2020 Semester

**Course:** CSE 480: Web Database Programming, Section-1

**Instructor:** Abdus Satter, Adjunct Faculty, CSE Department

**Full Marks:** 30 (15 will be counted for final grading)

**Time:** 1 Hour and 10 Minutes

**Note:** There are Five questions, answer ALL of them. Marks of each question are mentioned at the right margin.

- 1 Write a PHP script that creates the following table using for loops. Add cellpadding="3px" and cellspacing="0px" to the table tag. 4

1 * 1 = 1,2	1 * 2 = 2,3	1 * 3 = 3,4	1 * 4 = 4,5	1 * 5 = 5,6
2 * 1 = 2,3	2 * 2 = 4,4	2 * 3 = 6,5	2 * 4 = 8,6	2 * 5 = 10,7
3 * 1 = 3,4	3 * 2 = 6,5	3 * 3 = 9,6	3 * 4 = 12,7	3 * 5 = 15,8
4 * 1 = 4,5	4 * 2 = 8,6	4 * 3 = 12,7	4 * 4 = 16,8	4 * 5 = 20,9
5 * 1 = 5,6	5 * 2 = 10,7	5 * 3 = 15,8	5 * 4 = 20,9	5 * 5 = 25,10
6 * 1 = 6,7	6 * 2 = 12,8	6 * 3 = 18,9	6 * 4 = 24,10	6 * 5 = 30,11

Figure-1

### 2 Scenario\_A:

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Assume that, you are asked to build a web-based application for helping students submitting application for scholarship online. The system is shown in Figure 2 along with its source code.

<p><b>Scholarship Application Form</b></p> <p><b>* denotes mandatory field</b></p> <p>Student Id*</p> <input type="text"/> <p>Full Name*</p> <input type="text"/> <p>Email Address*</p> <input type="text"/> <p>Date of Birth*</p> <input type="text"/> <p>CGPA*</p> <input type="text"/> <p>Phone No.*</p> <input type="text"/>	<pre> &lt;h3&gt;Scholarship Application Form&lt;/h3&gt; &lt;h5&gt;* denotes mandatory field&lt;/h5&gt; &lt;form id="applicationForm" method="post"&gt;   &lt;label&gt;Student Id*&lt;/label&gt;   &lt;input type="text" name="studentId" /&gt;   &lt;label&gt;Full Name*&lt;/label&gt;   &lt;input type="text" name="fullName" /&gt;   &lt;label&gt;Email Address*&lt;/label&gt;   &lt;input type="text" name="email" /&gt;   &lt;label&gt;Date of Birth*&lt;/label&gt;   &lt;input type="datetime" name="dob" /&gt;   &lt;label&gt;CGPA*&lt;/label&gt;   &lt;input type="text" name="cgpa" /&gt;   &lt;label&gt;Phone No.*&lt;/label&gt;   &lt;input type="text" name="phoneNo" /&gt; &lt;/form&gt; </pre>
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Figure-2

**Design** a PHP script for scenario A that has an HTML form to take input as shown in Figure-2 and insert the information into the table named “application” of the database name “EWU\_DB” using PHP.

Add server side and client-side **validation** for the input data with the condition that are given below.

Validation Part (Use Regular expression):

- Student Id: should be the following format, <year>-<3-digit no>-<2-digit no> (for example, 2020-112-90)
- Full Name: should have first name and last name and character range is between 6 to 30.
- Email: must be a valid email address.
- Phone No.: must be start with either +88017, +88019, +88016, +88013, +88014, 017, 019, 013, 014 Must have 13 character if it is start with 0 or 14 if it is start with +.
- Date of Birth: must be a valid date. 12/01/2019 is acceptable, and 12/13/2019 is not acceptable. Must be 01/01/2000 or earlier but not before 01/01/1997.
- CGPA: must be greater than 3.90 to apply for the scholarship

3 **Outline** a PHP script named “view.php” for scenario A that reads at most 20 tuples whose CGPA is greater than 3.92 in descending order from the application table and displays it in an HTML table using PHP. 4

4 JSON (JavaScript Object Notation) is most widely used data format for data interchange on the web. This data interchange can happen between two computer applications at different geographical locations or running within the same machine. The good thing is that JSON is a human-readable as well as a machine-readable format. So, while applications/libraries can parse the JSON documents – humans can also look at the data and derive the meaning from it. All modern programming languages (e.g., Java, JavaScript, Ruby, C#, PHP, Python, and Groovy) and application platforms provide excellent support for producing (serializing) and consuming (deserializing) JSON data. It is commonly used for developing Web API applications. 4

**Write** a PHP script named “applicationApi.php” for scenario A that provides two API-one for inserting data using POST method and another for getting application(s) from the application table based on studentId using GET method. Follow JSON format for data communication.

5 MongoDB is a free and open-source cross-platform document-oriented database program. Classified as a NoSQL database program, MongoDB uses JSON-like documents with schemata. In MongoDB, collection is a group of MongoDB documents. It is the equivalent of an RDBMS table. A collection exists within a single database. Typically, all documents in a collection are of similar or related purpose. In collection, a document is a set of key-value pairs. 8

Suppose you have a database named “FruitDB” in MongoDB. The collection name in the database is “fruit”. The collection “fruit” contains documents as the following JSON structure.

```
[{"name": "apple", "quantity": 100, "tags": ["import", "export"], "unitPrice": 50, "reviews": [{"id": 1, "text": "very good", "name": "John", "address": {"country": "UK", "zipCode": 1000}, "rating": 40}, {"id": 2, "text": "excellent", "name": "Tom", "address": {"country": "USA", "zipCode": 1000}, "rating": 80}], "origin": {"country": "Africa", "address": "101 TelFord", "postCode": 1000}}, {"name": "orange", "quantity": 200, "tags": ["import"], "unitPrice": 10, "reviews": [{"id": 1, "text": "average", "name": "James", "address": {"country": "Australia", "zipCode": 100}, "rating": 25}, {"id": 2, "text": "excellent", "name": "Leonard", "address": {"country": "USA", "zipCode": 1000}, "rating": 60}], "origin": {"country": "India", "address": "200 Katialu", "postCode": 200}}]
```

**Figure-3**

- Write** a MongoDB query to find the name and origin country of the fruits
- Write** a MongoDB query to find the fruits having unit price within 10 to 100 and quantity at least 1000
- Write** a MongoDB query to find the fruits which got at least one review from USA
- Write** a MongoDB query to find the fruits which got ratings at least 40 from UK
- Write** a MongoDB query to find the fruits that origins in Bangladesh and have one of the following tags – “import”, “export”, “high”, “low”, “moderate”, “standard”, “quality”, “extra-import”, “daily”, “mid”, “top graded”, “mid graded”.