Experiment No: 18

Create a REST API using php.

Date:

Competency and Practical Skills:

Relevant CO: 5

Objectives:

1. To understand how REST API works.

Theory:

What is REST?

REST stands for Representational State Transfer, REST is an architectural style which defines a set of constraints for developing and consuming web services through standard protocol (HTTP). REST API is a simple, easy to implement and stateless web service. There is another web service available which is SOAP which stands for Simple Object Access Protocol which is created by Microsoft.

REST API is widely used in web and mobile applications as compared to SOAP. REST can provide output data in multiple formats such as JavaScript Object Notation (JSON), Extensible Markup Language (XML), Command Separated Value (CSV) and many others while SOAP described output in Web Services Description Language (WSDL).

How Does REST API Work

REST requests are related to CRUD operations (Create, Read, Update, Delete) in database, REST uses GET, POST, PUT and DELETE requests. Let me compare them with CRUD.

- **GET** is used to retrieve information which is similar to **Read**
- **POST** is used to create new record which is similar to **Create**
- **PUT** is used to update record which is similar to **Update**
- **DELETE** is used to delete record which is similar to **Delete**

How to Create and Consume Simple REST API in PHP

JSON format is the most common output format of REST API, we will use the JSON format to consume our simple REST API. We will develop an online transaction payment REST API for our example. I will try to keep it as simple as possible so i will use **GET** request to retrieve information.

1. Create REST API in PHP
2. Consume REST API in PHP

1. Create REST API in PHP

To create a REST API, follow these steps:

A. Create a Database and Table with Dummy Data

B. Create a Database Connection

C. Create a REST API File

A. Create a Database and Table with Dummy Data

To create database run the following query.

```
CREATE DATABASE allphptricks;
```

To create a table run the following query. **Note:** I have already attached the SQL file of this table with dummy data, just download the complete zip file of this tutorial.

```
CREATE TABLE IF NOT EXISTS `transactions` (
`id` int(20) NOT NULL AUTO_INCREMENT,
`order_id` int(50) NOT NULL,
`amount` decimal(9,2) NOT NULL,
`response_code` int(10) NOT NULL,
`response_desc` varchar(50) NOT NULL,
PRIMARY KEY (`id`),
UNIQUE KEY `order_id` (`order_id`)
) ENGINE=InnoDB DEFAULT CHARSET=latin1 ;
```

B. Create a Database Connection

Just create a **db.php** file and paste the following database connection in it. Make sure that you update these credentials with your database credentials.

```
// Enter your Host, username, password, database below.
$con = mysqli_connect("localhost","root","","allphptricks");
   if (mysqli_connect_errno()){
        echo "Failed to connect to MySQL: " . mysqli_connect_error();
        die();
        }
```

C. Create a REST API File

Create a **api.php** file and paste the following script in it.

```
<?php
header("Content-Type:application/json");
if (isset($_GET['order_id']) && $_GET['order_id']!="") {
        include('db.php');
        $order_id = $_GET['order_id'];
        $result = mysqli_query(
        $con,
        "SELECT * FROM `transactions` WHERE order_id=$order_id");
        if(mysqli_num_rows($result)>0){
        $row = mysqli_fetch_array($result);
        $amount = $row['amount'];
        $response_code = $row['response_code'];
        $response_desc = $row['response_desc'];
        response($order_id, $amount, $response_code,$response_desc);
        mysqli_close($con);
        }else{
```

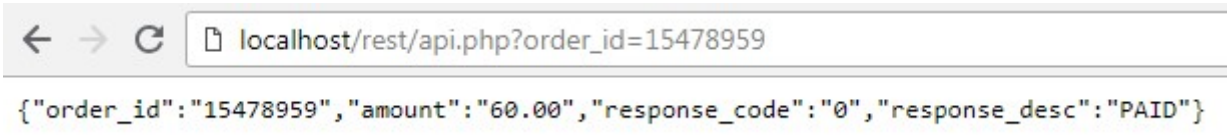
```
                response(NULL, NULL, 200,"No Record Found");
                }
}else{
        response(NULL, NULL, 400,"Invalid Request");
        }

function response($order_id,$amount,$response_code,$response_desc){
        $response['order_id'] = $order_id;
        $response['amount'] = $amount;
        $response['response_code'] = $response_code;
        $response['response_desc'] = $response_desc;

        $json_response = json_encode($response);
        echo $json_response;
}
?>
```

The above script will accept the GET request and return output in the JSON format.

I have created all these files in folder name **rest,** now you can get the transaction information by browsing the following URL.

http://localhost/rest/api.php?order_id=15478959

You will get the following output.



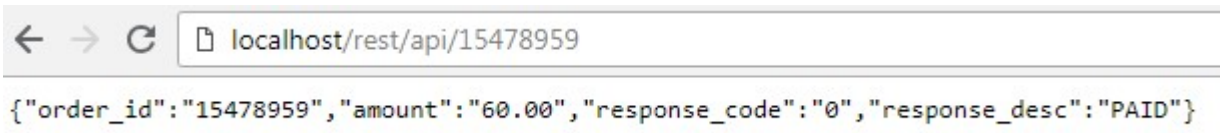
Above URL is not user friendly, therefore we will rewrite URL through the .htaccess file, copy paste the following rule in .htaccess file.

```
RewriteEngine On    # Turn on the rewriting engine

RewriteRule ^api/([0-9a-zA-Z_-]*)$ api.php?order_id=$1 [NC,L]
```

Now you can get the transaction information by browsing the following URL.

http://localhost/rest/api/15478959

You will get the following output.



2. Consume REST API in PHP

To consume a REST API, follow these steps:

1. Create an Index File with HTML Form

2. Fetch Records through CURL

1. Create an Index File with HTML Form

```
<form action="" method="POST">
<label>Enter Order ID:</label><br />
<input type="text" name="order_id" placeholder="Enter Order ID" required/>
<br /><br />
<button type="submit" name="submit">Submit</button>
 </form>
```

2. Fetch Records through CURL

```
<?php
if (isset($_POST['order_id']) && $_POST['order_id']!="") {
        $order_id = $_POST['order_id'];
        $url = "http://localhost/rest/api/".$order_id;

        $client = curl_init($url);
        curl_setopt($client,CURLOPT_RETURNTRANSFER,true);
        $response = curl_exec($client);

        $result = json_decode($response);

        echo "<table>";
        echo "<tr><td>Order ID:</td><td>$result->order_id</td></tr>";
        echo "<tr><td>Amount:</td><td>$result->amount</td></tr>";
        echo "<tr><td>Response Code:</td><td>$result->response_code</td></tr>";
        echo "<tr><td>Response Desc:</td><td>$result->response_desc</td></tr>";
        echo "</table>";
}
?>
```

You can do anything with these output data, you can insert or update it into your own database if you are using REST API of any other service provider. Usually in case of online transaction, the service provider provides status of payment via API. You can check either payment is made successfully or not. They also provide a complete guide of it.

Note: Make sure CURL is enabled on your web server or on your localhost when you are testing demo.

Implementation:

Create a REST API using php.

Output:

Conclusion:

Quiz:

1. What is REST API?

Suggested Reference:

- https://www.allphptricks.com/create-and-consume-simple-rest-api-in-php/)

References used by the students:

Rubric wise marks obtained:

Rubrics	1	2	3	Total
Marks				