How to Create a Simple REST API With Slim Framework

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This tutorial help to create REST API using Restful API Framework SLIM (https://www.slimframework.com/) for any web application or mobile application.You can use these REST End points to any android, IOS, Angularjs etc application.Rest API help to communication between the client app and the server application.I am using MySQL for database and fetch records from mysql using php.

I will create REST API that can be HTTP GET, POST, PUT and DELETE type request.I will use GET request for fetch records, POST for add new records,PUT for update record into database,Delete for delete record from database.

PHP Restful API Framework SLIM

Slim is a PHP micro framework that helps you quickly write simple and powerful web applications and APIs.SLIM framework is easy to use and very light weight with supports all kind of requests.I assuming you have knowledge of basic PHP, mysql and rest service.

Read: Different type of web services. (https://www.phpflow.com/php/web-service-types-soapxml-rpcrestful/)

How to configure Slim framework on XAMPP/WAMP

You need to download Slim framework (https://github.com/slimphp/Slim-Skeleton) and unzip this,Now we will rename `Slim-Skeleton-master` folder to dummy and paste into `XAMPP/htdocs` or `wamp/www` folder.

Now project folder structure will look like below,

`XAMPP/htdocs/dummy`

I am assuming you have composer install, if not please install composer on your system.Please open `XAMPP/htdocs/dummy` folder into `cmd` line and run below command,

`composer update`

Create Virtual Host into XAMPP

Step 1: Open `D:\XAMPP\apache\conf\extra\httpd-vhosts.conf` file and added below codes into end of file.

∧

```
1  <VirtualHost *:80>
2      DocumentRoot "D:\XAMPP\htdocs\dummy\public"
3      ServerName dummy
4   <Directory "D:\XAMPP\htdocs\dummy\public">
5      Order allow,deny
6      Allow from all
7   </Directory>
```

Please uncomment `NameVirtualHost *:80` line from `httpd-vhosts.conf` file.

Note: *Please Change 'D:' drive as per your install XAMPP drive.*

Step 2: Now open `C:\Windows\System32\drivers\etc\hosts` files and added below codes into end of file.

```
1  127.0.0.1        dummy
```

Now open `http://dummy` on browser, that will redirect to slim home page which is `index.php` file into public folder.

How to connect MySQL with Slim

I am using MYSQL database for this slim tutorials.I will create `dummy_db` in mysql using phpMyAdmin UI or MySQL server.We will run below SQL query into `dummy_db` database,

```
1  --
2  -- Table structure for table `employee`
3  --
4
5  CREATE TABLE IF NOT EXISTS `employee` (
6  `id` int(11) NOT NULL COMMENT 'primary key',
7    `employee_name` varchar(255) NOT NULL COMMENT 'employee name',
8    `employee_salary` double NOT NULL COMMENT 'employee salary',
9    `employee_age` int(11) NOT NULL COMMENT 'employee age'
10  ) ENGINE=InnoDB AUTO_INCREMENT=58 DEFAULT CHARSET=latin1 COMMENT='datatable demo table';
```

We will create db connection method in `index.php` file,You can create separate db connection file and include into `index.php` as well, since i am creating simple laymen user slim tutorials so i will not create complexity in this slim tutorial code.

Open `dummy/public/index.php` file and added below code in the end of file.

```
1  function getConnection() {
2      $dbhost="127.0.0.1";
3      $dbuser="root";
4      $dbpass="";
5      $dbname="dummy_db";
6      $dbh = new PDO("mysql:host=$dbhost;dbname=$dbname", $dbuser, $dbpass);
7      $dbh->setAttribute(PDO::ATTR_ERRMODE, PDO::ERRMODE_EXCEPTION);
8      return $dbh;
9  }
```

As you can see MySQL connection information,The parameters are,

dbhost : This will contain hostname of database like, IP address or hostname, if your slim framework application code and mysql server on same machine You can define localhost as a hostname.

dbname : The name of database.You can replace as per your db name.

dbuser : The username of mysql database.

dbpass : The password of mysql database.

now open `http://dummy/` URL on browser, if everything fine you will see slim home page otherwise error will show,

HTTP Rest Service

I will create following rest end points in this slim example tutorials,We will create GET,POST,PUT and DELETE type request.

#	Route	Method	Type	Full route	Description
1	/employee	GET	JSON	http://yourhost/api/v1/employees/	Get all employee data
2	/employee/{id}	GET	JSON	http://yourhost/api/v1/employee/1	Get a single employee data
3	/create	POST	JSON	http://yourhost/api/v1/create	Create new record in database
4	/update/{id}	PUT	JSON	http://yourhost/api/v1/update/21	Update an employee record
5	/delete/{id}	DELETE	JSON	http://yourhost/api/v1/update/2	Delete an employee record

Create HTTP routes in Slim Framework

We are planning create above rest call into this tutorial so we will add below rest end points into `dummy/src/routes.php` file,

```php
<?php
// Routes

// API group
$app->group('/api', function () use ($app) {
    // Version group
    $app->group('/v1', function () use ($app) {
 $app->get('/employees', 'getEmployes');
 $app->get('/employee/{id}', 'getEmployee');
 $app->post('/create', 'addEmployee');
 $app->put('/update/{id}', 'updateEmployee');
 $app->delete('/delete/{id}', 'deleteEmployee');
 });
});
```

I have created `api` and `v1` group for versioning process only, that will help to navigate rest end point easily.I use GET, POST, PUT and DELETE type request and pass rest url and controller method which will call on API request.

```
 ex: $app->post('/create', 'addEmployee');
```

in above Routes the HTTP method is POST type and `'addEmployee'` is function that will call on `'/create'` rest end point.

Get all records from MySQL Database Using Slim Restful API Framework

We will create new method `getEmployes()` into `dummy/public/index.php` file and return JSON ^
results.This method will get all employee details from employee table.

```
1  function getEmployes($response) {
```

now test rest call `http://dummy/api/v1/employees` using browser , it will show employee list json results data.

How to Fix cross-domain request in Slim

sometimes, we are using cross domain rest call , so client will get error on console about cross domain request blah blah..? We can fix that issue easily in slim framework by `corsslim` plugin.

First we will include `"palanik/corsslim": "dev-slim3"` into composer file and run again `'composer update'` command.We will write some **CORS configuration** code into `public\index.php` file.

```
1 $corsOptions = array(
2     "origin" => "*",
3     "exposeHeaders" => array("Content-Type", "X-Requested-With", "X-authentication", "X-client"),
4     "allowMethods" => array('GET', 'POST', 'PUT', 'DELETE', 'OPTIONS')
5 );
6 $cors = new \CorsSlim\CorsSlim($corsOptions);
```

Add New Employee Data Using MySQL and Slim Restful API Framework

We will create new HTTP Post method `addEmployee()` into `dummy/public/index.php` file. This methos will create new record into MySQL database.You need to send data into json format.

```
1  function addEmployee($request) {
2      $emp = json_decode($request->getBody());
3
4      $sql = "INSERT INTO employee (employee_name, employee_salary, employee_age) VALUES (:name, :
5      try {
6          $db = getConnection();
7          $stmt = $db->prepare($sql);
8          $stmt->bindParam("name", $emp->name);
9          $stmt->bindParam("salary", $emp->salary);
10         $stmt->bindParam("age", $emp->age);
11         $stmt->execute();
12         $emp->id = $db->lastInsertId();
13         $db = null;
14         echo json_encode($emp);
15     } catch(PDOException $e) {
16         echo '{"error":{"text":'. $e->getMessage() .'}}';
17     }
18 }
```

now test rest call `http://dummy/api/v1/create` using any rest test client like postman etc , it will return created employee JSON data as a results.

Update Employee Data Using MySQL and Slim Restful API Framework

We will create new HTTP PUT method `updateEmployee()` into `dummy/public/index.php` file. This method will update existing employee record into MySQL database.You need to send employee data with ID

into json format.

```
1  function updateEmployee($request) {
2      $emp = json_decode($request->getBody());
3   $id = $request->getAttribute('id');
4      $sql = "UPDATE employee SET employee_name=:name, employee_salary=:salary, employee_age=:age
5      try {
6          $db = getConnection();
7          $stmt = $db->prepare($sql);
8          $stmt->bindParam("name", $emp->name);
9          $stmt->bindParam("salary", $emp->salary);
10         $stmt->bindParam("age", $emp->age);
11         $stmt->bindParam("id", $id);
12         $stmt->execute();
13         $db = null;
14         echo json_encode($emp);
15     } catch(PDOException $e) {
16         echo '{"error":{"text":'. $e->getMessage() .'}}';
17     }
18 }
```

now test rest call `http://dummy/api/v1/update/1` using any rest test client like postman etc , it will return updated employee json data as a results.

Delete record from MySQL Table Using Slim REst Api Framework

We will create Delete type request and new method `deleteEmployee()` into `dummy/public/index.php` file.This method will take employee id as parameter and delete records from employee table.

```
1  function deleteEmployee($request) {
2   $id = $request->getAttribute('id');
3      $sql = "DELETE FROM employee WHERE id=:id";
4      try {
5          $db = getConnection();
6          $stmt = $db->prepare($sql);
7          $stmt->bindParam("id", $id);
8          $stmt->execute();
9          $db = null;
10  echo '{"error":{"text":"successfully! deleted Records"}}';
11     } catch(PDOException $e) {
12         echo '{"error":{"text":'. $e->getMessage() .'}}';
13     }
14 }
```

Conclusion

This Slim Api Framework tutorials has basic crud table operation.We have learn add new records and edit existing records into MySQL database using rest web service. We have also added listing of employee table data with delete record from mysql table.You can integrate these rest call to any web application which are communicating to server using APIs.You can extend this Slim example tutorials as per your need and enjoy :).

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