Phát Triển Phần Mềm Mã Nguồn Mở

ADVANCED TOPICS

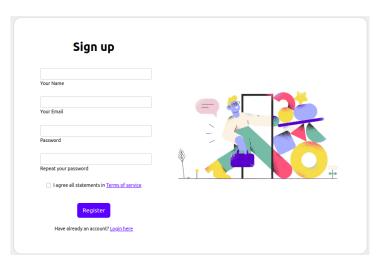
NGUYỄN HẢI TRIỀU

Bộ môn Kỹ thuật phần mềm Khoa Công nghệ thông tin ĐH Nha Trang

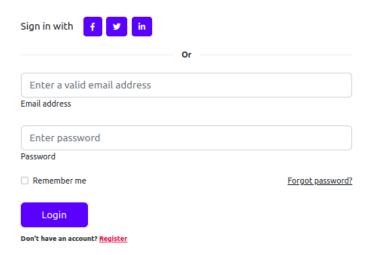
Mục lục

- Password Hashing Functions
- 2 JSON
- RESTful API

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Hình 1: Thiết lập form đăng kí như hình trên, thông tin đăng kí được lưu lại trong database.



Hình 2: Nếu đăng kí thành công, người dùng có thể đăng nhập vào form tài khoản vừa đăng kí.

- As more secure web services avoid storing passwords in plain text format
- Create password hashes using password hash() function.

```
1    $options = [
2    'cost' => 12,
3  ];
4    $hashedPassword = password_hash($plaintextPassword,
5    PASSWORD_DEFAULT, $options);
```

- PASSWORD_DEFAULT contains the value as PASSWORD_BCRYPT using bcrypt standard.
- In PHP Version >= 7.0, random salt will be generated by password hash() for each password hashed

password _verify()

is the built-in function provided (as of PHP >=5.5) to verify the validity of a password against a known hash.

```
<! <?php
if (password_verify($plaintextPassword, $hashedPassword)) {
  echo 'Valid Password';
}
}
else {
  echo 'Invalid Password.';
}
? }
</pre>

? / )
? ?>
```

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The json_decode() function takes a JSON-encoded string as its first parameter and parses it into a PHP variable. It will return an object of stdClass if the top level item in the JSON object is a dictionary or an indexed array if the JSON object is an array.

Use $var_dump()$ to view the types and values of each property on the object we decoded above.

```
1  var_dump($object);
2  //class stdClass#2 (4) {
3   //["name"] => string(4) "Jeff"
4   //["age"] => int(20)
5   //["active"] => bool(true)
6   //["colors"] =>
7   //array(2) {
8   // [0] => string(3) "red"
9   // [1] => string(4) "blue"
10  //}
```

To return an associative array for JSON objects instead of returning an object, pass **true** as the second parameter to json_decode().

Note that json_decode() will return NULL if the string cannot be converted.

The json_encode function will convert a PHP array to a JSON-encoded string. It returns a JSON-encoded string on success or **FALSE** on failure.

Forces the creation of an object instead of an array

Makes the JSON easily readable

- Password Hashing Functions
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- RESTful API

- Application Programming Interface is a system that contains a set of rules or protocols or tools which help in providing interaction between two applications or software by standard data access.
- APIs get requests and return the result in the programmer's software system.
- Prerequisites: PHP and PHP cURL library

cURL

cURL (GET Requests) is a tool for transferring data with URL syntax. It support HTTP, FTP, SCP and many others(curl >= 7.19.4). Remember, you need to install and enable the cURL extension to use it.

```
1 // a little script check is the cURL extension loaded or not
2 if(!extension_loaded("curl")) {
3 die("cURL extension not loaded! Quit Now.");
  }
5 // Actual script start
6 // create a new cURL resource
7 // $curl is the handle of the resource
8 $curl = curl_init();
  // set the URL and other options
10
   curl_setopt($curl, CURLOPT_URL, "http://www.example.com");
11
   // execute and pass the result to browser
12 curl_exec($curl);
13
   // close the cURL resource
14
   curl_close($curl);
```

cURL

If you want to mimic HTML form POST action, you can use cURL.

```
1 // a little script check is the cURL extension loaded or not
2 if(!extension_loaded("curl")) {
  die("cURL extension not loaded! Quit Now.");
  // Actual script start
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7 // $curl is the handle of the resource
  $curl = curl_init();
   // set the URL and other options
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   curl_setopt($curl, CURLOPT_URL, "http://www.example.com");
   // execute and pass the result to browser
12
   curl exec($curl):
13
   // close the cURL resource
14
   curl close($curl):
```

Types of Web APIs (Web APIs are those which are accessible over the internet):

- Open APIs: These APIs are publicly available as there is no restrictions.
- Partner APIs: The user needs license and special rights to access this type of APIs.
- 3 Private APIs: Owned by companies for internal systems.
- Omposite APIs: Its a combination of data and service APIs for speeding up the execution process.

Types of Web Service APIs (Web service APIs are platform-independent methods that are accessed by a network connection):

- SOAP: Simple Object Access Protocol which uses web service definition language or XML for data transfer. It is very robust. These are used in integrating APIs.
- 2 JSON-RPC: For data transfer it uses JSON.
- REST: The set of rules includes some standard architectural principles for data exchange. For making a request, it uses HTTP methods of getting, PUT, POST, PATCH, DELETE for all CRUD operations.

REST output is in the form of JSON:

- GET: Read or retrieves information.
- POST: Creates new record.
- PUT: Update a record.
- DELETE: Deletes a record

GET: Fetch information or data collection. For example product details from a table.

POST: Adds or creates new information such as feedback or reviews of some restaurant.

APIs

```
payment" => array( "accountNumber" => $this->request->data['
      accountNumber'], "routing" => $this->request->data['routing'
     ], "method" => $this->request->data['method'] ), );
  $apiCall = APIcall('POST', 'https://api.geeksforgeeks.com/
      url_for_post/', json_encode($data_array));
  $response = json_decode($apiCall, true); $errors = $response['
      response']['errors'];
  $data = $response['response']['data'][0];
```

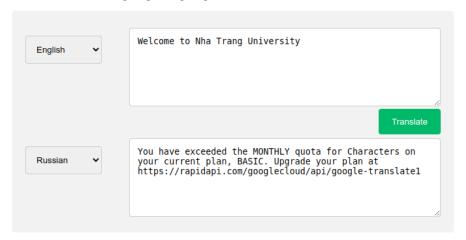
Bài tập

Sử dung API: google-translate1 từ trang https://rapidapi.com/googlecloud/api/google-translate1, Method: POST. Hãy tạo trang chứa form dịch ngôn ngữ tự động có chức năng cơ bản như google translate như hình 3. Biết rằng

```
<?php
   //https://rapidapi.com/qooglecloud/api/qoogle-translate1
   $curl = curl init():
   curl_setopt_array($curl, [
       CURLOPT_URL => "https://google-translate1.p.rapidapi.com/
           language/translate/v2",
6
       CURLOPT_RETURNTRANSFER => true,
       CURLOPT FOLLOWLOCATION => true.
       CURLOPT_ENCODING => "",
       CURLOPT_MAXREDIRS => 10,
10
       CURLOPT TIMEOUT => 30.
       CURLOPT_HTTP_VERSION => CURL_HTTP_VERSION_1_1,
       CURLOPT_CUSTOMREQUEST => "POST",
       CURLOPT_POSTFIELDS => "q=Hello%2C%20guy!&target=vi&source=en"
13
       CURLOPT HTTPHEADER => [
```

Ví dụ đọc API bằng PHP

Sử dụng API: google-translate1 từ trang \url {https://rapidapi.com/googlecloud/api/google-translate1}, Method: GET để tạo ra ứng dụng dịch ngôn ngữ



Hình 3: Kết quả thiết kế form sử dụng GET google-translate1 api

Reference

```
[1] PHP Notes for Professionals,
https://goalkicker.com/PHPBook/
[2] How to add API function to a simple PHP Page ?,
https://www.geeksforgeeks.org/
how-to-add-api-function-to-a-simple-php-page/
```