

# LAPORAN PRATIKUM PEMOGRAMAN WEB LANJUT

## JOBSHEET 8 – Implementasi Restful API



DISUSUN OLEH :

NAMA : MARDHIYAH MILLANIA

KELAS : 2A

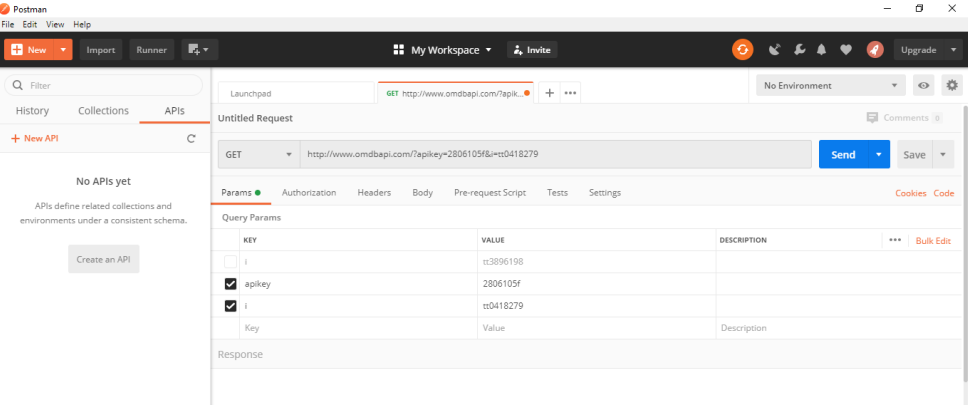
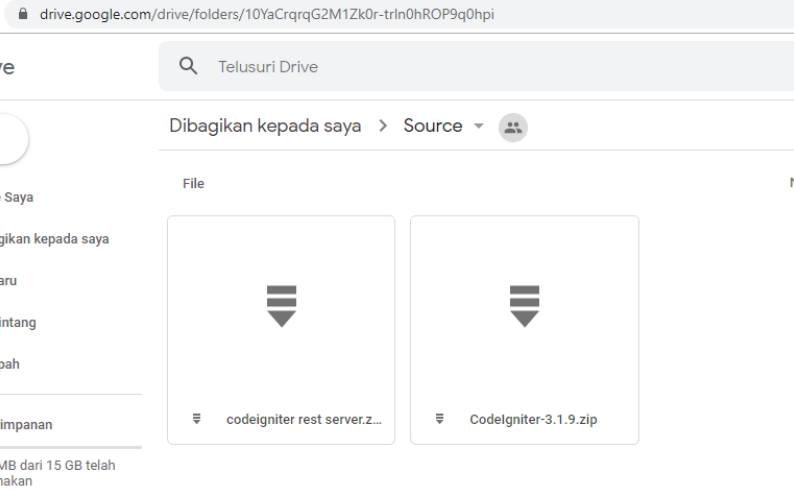
PRODI : D-4 TEKNIK INFORMATIKA

NIM : 1841720081

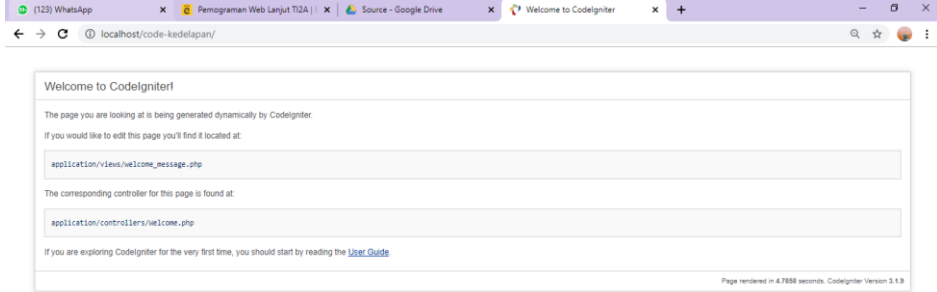
ABSEN : 19



**Praktikum – Bagian 1: Instalasi library restful codeigniter**

Langkah	Keterangan
1	<p>Silahkan unduh aplikasi Postman terlebih dahulu.</p> 
2	<p>Pada praktikum kali ini kita akan menggunakan source codeigniter yang baru dan Library Rest Server. Untuk versi codeigniter yang digunakan adalah versi 3.1.9. sedangkan untuk Library Rest Server dapat di unduh pada link berikut :</p> <p><a href="https://drive.google.com/drive/folders/10YaCrqrqG2M1Zk0r-trln0hROP9q0hpi?usp=sharing">https://drive.google.com/drive/folders/10YaCrqrqG2M1Zk0r-trln0hROP9q0hpi?usp=sharing</a></p> 
3	<p>Extract codeigniter yang sudah di unduh dan letakkan pada folder httdocs. Beri nama Code-kedelapan dan coba akses di <a href="http://localhost/Code-kedelapan/">http://localhost/Code-kedelapan/</a>. Pastikan tampilan seperti gambar dibawah ini:</p>



	
4	<p>Selanjutnya lakukan konfigurasi dasar pada <b>config.php</b> seperti berikut:</p> <pre>application &gt; config &gt; config.php 18   to \$_SERVER['SERVER_ADDR'] if av 19   The auto-detection mechanism exi 20   development and MUST NOT be used 21   22   If you need to allow multiple do 23   a PHP script and you can easily 24   25   */ 26 \$config['base_url'] = ''; 27</pre> <pre>application &gt; config &gt; config.php 30   Index File 31   ----- 32   33   Typically this will be your index.php file 34   something else. If you are using mod_rewrite 35   variable so that it is blank. 36   37   */ 38 \$config['index_page'] = 'index.php'; 39 40 /*</pre> <p>Menjadi seperti berikut :</p> <pre>application &gt; config &gt; config.php 17   your installation, but due to security concerns the hostname 18   to \$_SERVER['SERVER_ADDR'] if available, or localhost otherw 19   The auto-detection mechanism exists only for convenience dur 20   development and MUST NOT be used in production! 21   22   If you need to allow multiple domains, remember that this fi 23   a PHP script and you can easily do that on your own. 24   25   */ 26 \$config['base_url'] = 'http://localhost/rest_server/'; 27 28 /*</pre>



```
application > config > config.php
35 | variable so that it is blank.
36 |
37 | */
38 | $config['index_page'] = '|';
39 |
40 | /*
```

Dan file **autoload.php**

```
application > config > autoload.php
56 | You can also supply an alternative
57 | in the controller:
58 |
59 | $autoload['libraries'] = array('u
60 | */
61 | $autoload['libraries'] = array();
62 |
```

```
application > config > autoload.php
85 | -----
86 | Auto-load Helper Files
87 | -----
88 | Prototype:
89 |
90 | $autoload['helper'] = array('url', 'file');
91 | */
92 | $autoload['helper'] = array();
93 |
```

Menjadi

```
application > config > autoload.php
53 |
54 | $autoload['libraries'] = array('database', 'e
55 |
56 | You can also supply an alternative library name
57 | in the controller:
58 |
59 | $autoload['libraries'] = array('user_agent' =
60 | */
61 | $autoload['libraries'] = array('database');
62 |
63 | /*
```



```
application > config > autoload.php
88 | Prototype:
89 |
90 | $autoload['helper'] = array('url', 'fil
91 */
92 $autoload['helper'] = array('url');
93
94 /*
```

Dan database.php seperti berikut:

```
application > config > database.php
71 | the query builder class.
72 */
73 $active_group = 'default';
74 $query_builder = TRUE;
75
76 $db['default'] = array(
77     'dsn' => '',
78     'hostname' => 'localhost',
79     'username' => 'root',
80     'password' => 'mysql',
81     'database' => 'rest_server',
82     'dbdriver' => 'mysqli',
83     'dbprefix' => '',
84     'pconnect' => FALSE,
85     'db_debug' => (ENVIRONMENT !== 'production'),
86     'cache_on' => FALSE,
87     'cachedir' => '',
88     'char_set' => 'utf8',
89     'dbcollat' => 'utf8_general_ci',
90     'swap_pre' => '',
91     'encrypt' => FALSE,
92     'compress' => FALSE,
93     'stricton' => FALSE,
94     'failover' => array(),
95     'save_queries' => TRUE
96 );
97
```

5

Selanjutnya buatlah database **rest\_server** pada phpmyadmin dan masukkan data dummy. Untuk data dummy dapat dibuat sebagai berikut:



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**Jobsheet-8: Implementasi Restful API**  
**Mata Kuliah Pemrograman Web Lanjut**  
Pengampu: Tim Ajar Web Lanjut  
Maret 2020

Server: localhost » Database: rest\_server

Structure SQL Search Query Export Import

No tables found in database.

Create table

Name: Number of columns: 4

Server: localhost » Database: rest\_server

Structure SQL Search Query Export Import Operations Privileges Routines Events Triggers Designer

Run SQL query/queries on database rest\_server:

```
1 CREATE TABLE 'mahasiswa' (
2   'id' int(11) NOT NULL,
3   'nrp' char(10) NOT NULL,
4   'nama' varchar(250) NOT NULL,
5   'email' varchar(250) DEFAULT NULL,
6   'jurusan' varchar(64) NOT NULL
7 ) ENGINE=InnoDB DEFAULT CHARSET=latin1;
8
9 INSERT INTO 'mahasiswa' ('id', 'nrp', 'nama', 'email', 'jurusan') VALUES
10 (1, '043040001', 'Doddy Ferdiansyah', 'doy@gmail.com', 'Teknik Mesin'),
11 (2, '023040123', 'Erik', 'erik@gmail.com', 'Teknik Industri'),
12 (3, '043040321', 'Rommy Fauzi', 'rommy@gmail.com', 'Teknik Planologi'),
13 (4, '033040023', 'Fajar Darmawan', 'fajar@yahoo.com', 'Teknik Informatika'),
14 (5, '113040321', 'Ferry Mulyanto', 'ferry@yahoo.com', 'Manajemen');
```

Clear Format Get auto-saved query

☐ Bind parameters

Delimiter: Show this query here again Retain query box Rollback when finished Enable foreign key checks Go

Server: localhost » Database: rest\_server » Table: mahasiswa

Browse Structure SQL Search Insert Export Import Privileges O

Showing rows 0 - 4 (5 total, Query took 0.0027 seconds.)

SELECT \* FROM 'mahasiswa'

Show all Number of rows: 25 Filter rows: Search this table Sort by key: None

+ Options

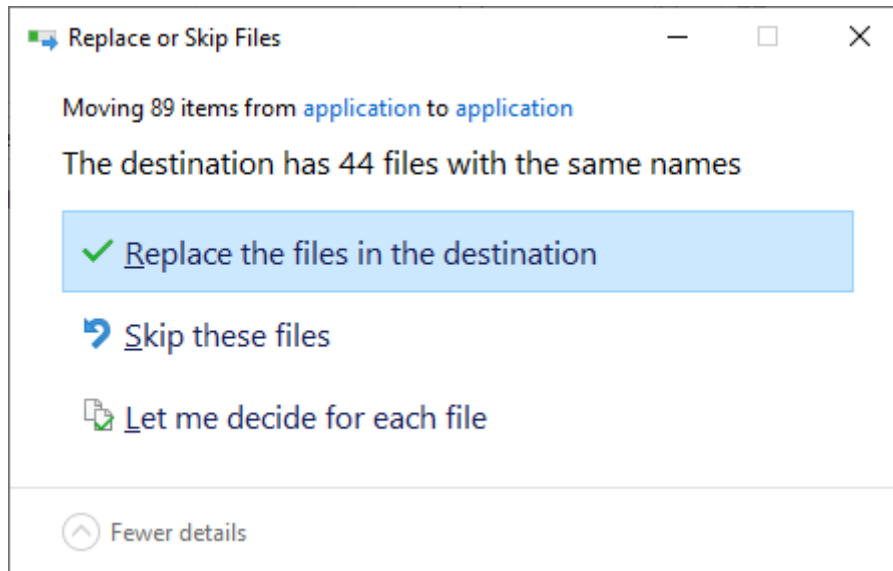
	id	nrp	nama	email	jurusan
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	1	043040001	Doddy Ferdiansyah	doy@gmail.com	Teknik Mesin
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	2	023040123	Erik	erik@gmail.com	Teknik Industri
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	3	043040321	Romy Fauzi	rommy@gmail.com	Teknik Planologi
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	4	033040023	Fajar Darmawan	fajar@yahoo.com	Teknik Informatika
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	5	113040321	Ferry Mulyanto	ferry@yahoo.com	Manajemen

☐ Check all With selected: ☐ Edit ☐ Copy ☐ Delete ☐ Export

Show all Number of rows: 25 Filter rows: Search this table Sort by key: None

6

Selanjutnya extract file Library Rest Server, buka folder **application** dan duplikasi file dan folder tersebut kedalam folder **application** pada project **Code-kedelapan**. Klik **Replace** files jika ada notifikasi duplikat.



Setelah proses duplikasi file selesai, pastikan file-file yang kita sudah konfigurasi di awal tetap terkonfigurasi.

PC ini > Disk Lokal (C:) > Program Files > Ampms > www > code-kedelapan > application			
Nama	Tanggal diubah	Jenis	Ukuran
cache	12/06/2018 20.45	Folder file	
config	24/03/2020 10.03	Folder file	
controllers	24/03/2020 10.03	Folder file	
core	12/06/2018 20.45	Folder file	
helpers	24/03/2020 10.03	Folder file	
hooks	24/03/2020 10.03	Folder file	
language	24/03/2020 10.03	Folder file	
libraries	24/03/2020 10.03	Folder file	
logs	24/03/2020 09.33	Folder file	
migrations	24/03/2020 10.03	Folder file	
models	12/06/2018 20.45	Folder file	
third_party	12/06/2018 20.45	Folder file	
views	12/06/2018 20.45	Folder file	
.htaccess	25/09/2017 09.43	File HTACCESS	1 KB
index.html	25/09/2017 09.43	File HTML	1 KB

- 7 Selanjutnya buka project <http://localhost/Code-kedelapan/>. Jika berhasil, tampilan akan berubah menjadi seperti ini:



	
8	Tahap instalasi Library Rest Server selesai

### Praktikum – Bagian 2: Membuat Aplikasi CRUD Restful Codeigniter

Langkah	Keterangan
1	<p>Buatlah file <b>Mahasiswa.php</b> pada <b>controller/api</b>. Selanjutnya tuliskan kode berikut:</p> <pre>application &gt; controllers &gt; api &gt; Mahasiswa.php 1  &lt;?php 2 3  defined('BASEPATH') OR exit('No direct script access allowed'); 4 5  require APPPATH.'libraries/REST_Controller.php'; 6  require APPPATH.'libraries/Format.php'; 7 8  class Mahasiswa extends REST_Controller { 9 10     public function __construct() 11     { 12         parent::__construct(); 13         \$this-&gt;load-&gt;model('Mahasiswa_model','mahasiswa'); 14     } 15 16     public function index_get() 17     { 18         \$id = \$this-&gt;get('id'); 19         if(\$id === null) { 20             \$mahasiswa = \$this-&gt;mahasiswa-&gt;getMahasiswa(); 21         } else { 22             \$mahasiswa = \$this-&gt;mahasiswa-&gt;getMahasiswa(\$id); 23         } 24 25         if(\$mahasiswa) { 26             \$this-&gt;response([ 27                 'status' =&gt; true, 28                 'data' =&gt; \$mahasiswa 29             ], REST_Controller::HTTP_OK); 29         }</pre>





	<pre>application &gt; controllers &gt; api &gt; Mahasiswa.php 30         } else { 31             \$this-&gt;response([ 32                 'status' =&gt; false, 33                 'message' =&gt; 'id not found' 34             ], REST_Controller::HTTP_NOT_FOUND); 35         } 36     } 37 38 } 39 40 /* End of file Controllername.php */ 41</pre>
2	<p>Selanjutnya Buatlah file <b>Mahasiswa_model.php</b> pada model. Selanjutnya tuliskan kode berikut:</p> <pre>application &gt; models &gt; Mahasiswa_model.php 1  &lt;?php 2 3  defined('BASEPATH') OR exit('No direct script access allowed'); 4 5  class Mahasiswa_model extends CI_Model { 6 7      public function getMahasiswa(\$id = null) 8      { 9          if(\$id == null) { 10             return \$this-&gt;db-&gt;get('mahasiswa')-&gt;result_array(); 11          } else { 12             return \$this-&gt;db-&gt;get_where('mahasiswa', ['id'=&gt;\$id])-&gt;result_array(); 13          } 14      } 15 16 } 17 18 /* End of file ModelName.php */ 19</pre>
3	<p>Sebelumnya tambahkan file <b>..htaccess</b>:</p> <pre> 1 RewriteEngine On 2 RewriteCond %{REQUEST_FILENAME} !-f 3 RewriteCond %{REQUEST_FILENAME} !-d 4 RewriteRule ^(.*)\$ index.php/\$1 [L]</pre> <p>Buka aplikasi postman, masukkan alamat <a href="http://localhost/Code-kedelapan/api/mahasiswa">http://localhost/Code-kedelapan/api/mahasiswa</a> dengan metode <b>GET</b>. dan jika berhasil maka tampilannya akan seperti ini:</p>



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**Mata Kuliah Pemrograman Web Lanjut**  
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Maret 2020

Launchpad

GET http://localhost/code-kedela...

No Environment

GET

http://localhost/code-kedelapan/api/Mahasiswa

Send

Save

Pretty

Raw

Preview

Visualize

JSON

```
1 {
2   "status": true,
3   "data": [
4     {
5       "id": "1",
6       "nrp": "043040001",
7       "nama": "Doddy Ferdiansyah",
8       "email": "doy@gmail.com",
9       "jurusan": "Teknik Mesin"
10    },
11    {
12      "id": "2",
13      "nrp": "023040123",
14      "nama": "Erik",
15      "email": "erik@gmail.com",
16      "jurusan": "Teknik Industri"
17    },
18    {
19      "id": "3",
20      "nrp": "043040321",
21      "nama": "Rommy Fauzi",
22      "email": "rommy@gmail.com",
23      "jurusan": "Teknik Planologi"
24    },
25    {
26      "id": "4",
27      "nrp": "033040023",
28      "nama": "Fajar Darmawan ",
29      "email": "fajar@yahoo.com",
30    }
31  ]
32 }
```

Kita juga dapat melakukan pencarian berdasarkan id, hasilnya akan seperti ini:

Launchpad

GET http://localhost/code-kedela...

No Environment

GET

http://localhost/code-kedelapan/api/Mahasiswa?id=2

Send

Save

Query Params

KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/> id	2	
Key	Value	Description

Body

Cookies

Headers (7)

Test Results

Status: 200 OK

Time: 858ms

Size: 383 B

Save Response

Pretty

Raw

Preview

Visualize

JSON

```
1 {
2   "status": true,
3   "data": [
4     {
5       "id": "2",
6       "nrp": "023040123",
7       "nama": "Erik",
8       "email": "erik@gmail.com",
9       "jurusan": "Teknik Industri"
10    }
11  ]
12 }
```

4

Untuk fungsi lain **Create**, **Update** dan **Delete**. Lanjutkan kode berikut pada file **mahasiswa.php**:



```
application > controllers > api > Mahasiswa.php
37
38     public function index_delete(){
39         $id=$this->delete('id');
40
41         if($id===null){
42             $this->response([
43                 'status' => false,
44                 'message' => 'provide an id!'
45             ], REST_Controller::HTTP_BAD_REQUEST);
46         }else{
47             if ($this->mahasiswa->deleteMahasiswa($id) > 0){
48                 //ok
49                 $this->response([
50                     'status' => true,
51                     'id' => $id,
52                     'message' => 'deleted.'
53                 ], REST_Controller::HTTP_OK);
54             }else{
55                 //id not found
56                 $this->response([
57                     'status' =>false,
58                     'message' => 'id not found!'
59                 ], REST_Controller::HTTP_BAD_REQUEST);
60             }
61         }
62     }
63 }
```



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## Jobsheet-8: Implementasi Restful API

### Mata Kuliah Pemrograman Web Lanjut

Pengampu: Tim Ajar Web Lanjut

Maret 2020

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```
application > controllers > api > Mahasiswa.php

64     public function index_post(){
65         $data = [
66             'nrp' => $this->post('nrp'),
67             'nama' => $this->post('nama'),
68             'email' => $this->post('email'),
69             'jurusan' => $this->post('jurusan'),
70         ];
71
72         if($this->mahasiswa->createMahasiswa($data) > 0){
73             $this->reponse([
74                 'status' => true,
75                 'message' => 'new mahasiswa has been created'
76             ], REST_Controller::HTTP_CREATED);
77         }else{
78             //id not found
79             $this->response([
80                 'status' => false,
81                 'message' => 'failed to create new data!'
82             ], REST_Controller::HTTP_BAD_REQUEST);
83         }
84     }
```



	<pre>application &gt; controllers &gt; api &gt; Mahasiswa.php 86     public function index_put(){ 87         \$id = \$this-&gt;put('id'); 88         \$data = [ 89             'nrp' =&gt; \$this-&gt;post('nrp'), 90             'nama' =&gt; \$this-&gt;post('nama'), 91             'email' =&gt; \$this-&gt;post('email'), 92             'jurusan' =&gt; \$this-&gt;post('jurusan'), 93         ]; 94 95         if(\$this-&gt;mahasiswa-&gt;updateMahasiswa(\$data, \$id) &gt; 0){ 96             \$this-&gt;reponse([ 97                 'status' =&gt; true, 98                 'message' =&gt; 'new mahasiswa has been created' 99             ], REST_Controller::HTTP_OK); 100         }else{ 101             //id not found 102             \$this-&gt;response([ 103                 'status' =&gt; false, 104                 'message' =&gt; 'failed to update data!' 105             ], REST_Controller::HTTP_BAD_REQUEST); 106         } 107 108     } 109 } 110 111 } 112 113 /* End of file Controllername.php */ 114</pre>
5	Dan lanjutkan kode pada file <b>Mahasiswa_model.php</b> :



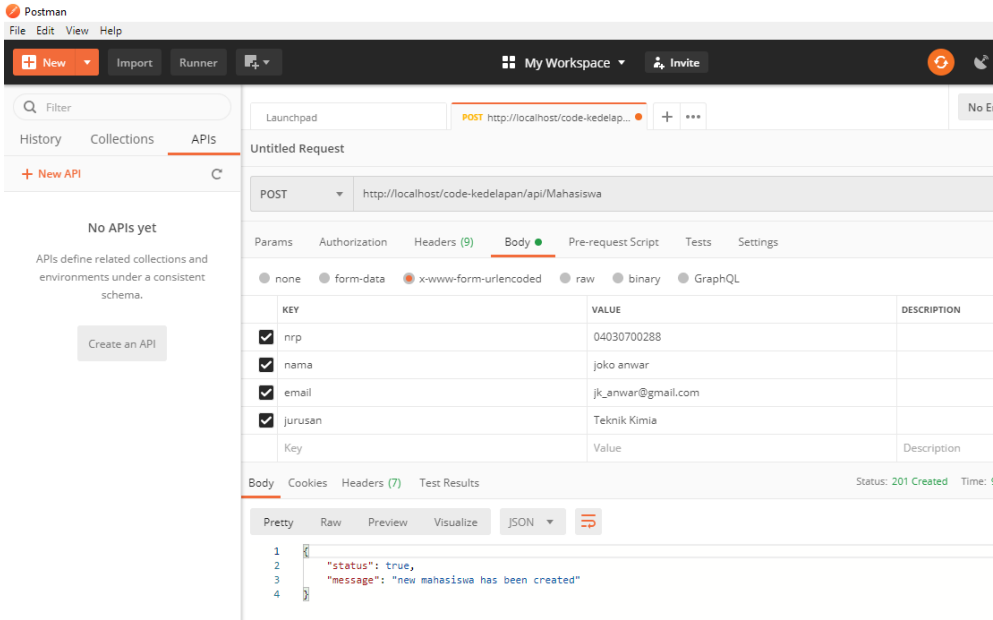
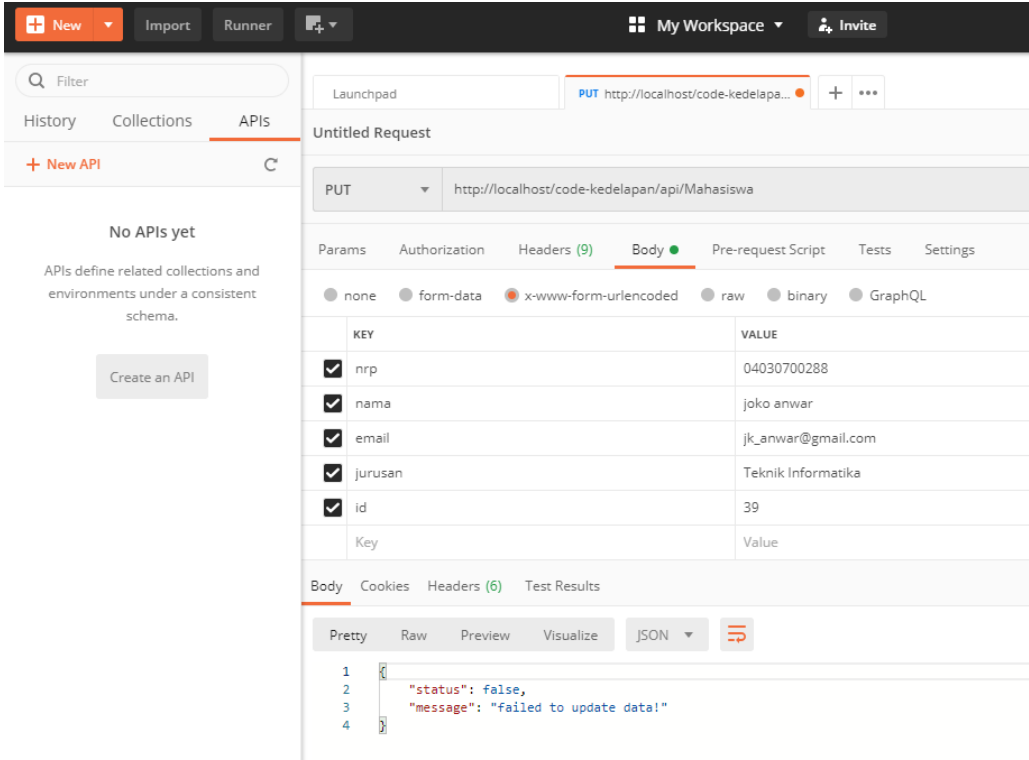
```
application > models > Mahasiswa_model.php
1  <?php
2
3  defined('BASEPATH') OR exit('No direct script access allowed');
4
5  class Mahasiswa_model extends CI_Model {
6
7      public function getMahasiswa($id = null)
8      {
9          if($id == null) {
10             return $this->db->get('mahasiswa')->result_array();
11          } else {
12             return $this->db->get_where('mahasiswa', ['id' => $id])->result_array();
13          }
14      }
15
16      public function deleteMahasiswa($id){
17          $this->db->delete('mahasiswa', ['id' => $id]);
18          return $this->db->affected_rows();
19      }
20
21      public function createMahasiswa($data){
22          $this->db->insert('mahasiswa', $data);
23          return $this->db->affected_rows();
24      }
25
26      public function updateMahasiswa($data, $id){
27          $this->db->update('mahasiswa', $data, ['id' => $id]);
28          return $this->db->affected_rows();
29      }
30
31  }
32
33  /* End of file ModelName.php */
34
```

- 6 Selanjutnya lakukan operasi **Create** data pada aplikasi postman, untuk operasi **Create**, **Update** dan **Delete**, arahkan parameter ke **Body** dan **x-www-form-urlencoded** seperti berikut:

	KEY	VALUE	DESCRIPTION
<input checked="" type="checkbox"/>	nrp		
<input checked="" type="checkbox"/>	nama		
<input checked="" type="checkbox"/>	email		
<input checked="" type="checkbox"/>	jurusan		
	Key	Value	Description



Jurusan Teknologi Informasi Politeknik Negeri Malang  
**Jobsheet-8: Implementasi Restful API**  
**Mata Kuliah Pemrograman Web Lanjut**  
Pengampu: Tim Ajar Web Lanjut  
Maret 2020

	
7	<p>Lakukan juga operasi <b>Update</b> data pada aplikasi postman, masukkan parameter id seperti berikut:</p> 
8	<p>Lakukan juga operasi <b>Delete</b> data pada aplikasi postman, parameter yang dimasukkan cukup id saja, seperti berikut:</p>



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## Jobsheet-8: Implementasi Restful API

### Mata Kuliah Pemrograman Web Lanjut

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Maret 2020

The screenshot displays the Postman application interface. On the left, the 'APIs' tab is selected, showing 'No APIs yet' and a 'Create an API' button. The main workspace shows a 'DELETE' request to 'http://localhost/code-kedelapan/api/Mahasiswa'. The 'Body' tab is active, showing a table of parameters:

KEY	VALUE	DESCRIPTION
<input type="checkbox"/> nrp	04030700288	
<input type="checkbox"/> nama	joko anwar	
<input type="checkbox"/> email	jk_anwar@gmail.com	
<input type="checkbox"/> jurusan	Teknik Informatika	
<input checked="" type="checkbox"/> id	39	
Key	Value	Description

Below the table, the 'Body' tab is selected, showing a JSON response:

```
1 {
2   "status": true,
3   "id": "39",
4   "message": "deleted."
5 }
```

The status bar at the bottom indicates 'Status: 200 OK'.