

Laporan Praktikum WSE #5

Mata Kuliah : Web Service Engineering

Dosen Pengampu : Muhayat, M.IT

Praktikum : P5 – Membangun RESTful CRUD API dengan Express

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A. Tujuan Praktikum

1. Mampu membangun RESTful API sederhana menggunakan Express.js.
2. Menerapkan operasi dasar CRUD (Create, Read, Update, Delete).
3. Menggunakan HTTP method dan status code secara benar.
4. Mengetahui struktur dasar server API modular dengan Node.js.

B. Lingkungan & Tools

- ✓ Node.js 18+ & npm
- ✓ Express.js
- ✓ VS Code
- ✓ Nodemon (dev dependency)
- ✓ Postman / Thunder Client
- ✓ Git & GitHub (opsional)

C. Arsitektur Singkat

- ✓ Client (Postman / Thunder Client) → mengirim HTTP request.
- ✓ API Server (Express) → menerima request dan menentukan route handler.
- ✓ Router (products.routes.js) → mendefinisikan endpoint CRUD.
- ✓ Data (products.data.js) → menyimpan data produk sementara (array).
- ✓ Response JSON → dikembalikan ke client dengan status code yang sesuai.

D. Langkah Implementasi (ringkas)

1. Membuat folder project bernama praktikum5_restful_crud/
2. Inisialisasi project menggunakan npm init -y
3. Menginstal Express dan Nodemon (npm install express & npm install nodemon --save-dev)
4. Membuat struktur folder src/routes/, src/data/, src/app.js
5. Menulis kode CRUD (GET, POST, PUT, DELETE) di products.routes.js
6. Menghubungkan route ke app.js menggunakan app.use('/api/products', productRoutes)
7. Menjalankan server dengan npm run dev dan menguji endpoint di Postman

E. Hasil & Bukti

Lampirkan Screenshot Hasil Uji Endpoint di Postman

GET /api/products → Menampilkan seluruh produk (200 OK)

The screenshot shows the Postman interface with a successful GET request to `http://localhost:3000/products`. The response status is 200 OK, and the response body is a JSON array of products:

```
1: { "status": "success", "data": [ { "id": 3, "name": "Pensil 2B", "price": 5000, "stock": 120 }, { "id": 2, "name": "Buku Tulis", "price": 12000, "stock": 50 } ] }
```

GET /api/products/1 → Menampilkan produk dengan ID tertentu (200 OK / 404 Not Found)

The screenshot shows the Postman interface with a successful GET request to `http://localhost:3000/products/1`. The response status is 200 OK, and the response body is a JSON object representing a single product:

```
1: { "status": "success", "data": { "id": 1, "name": "Pensil 2B", "price": 5000, "stock": 120 } }
```

POST /api/products → Menambah produk baru (201 Created)

The screenshot shows the Postman interface with a successful POST request to `http://localhost:3000/products`. The response status is 201 Created, and the response body is a JSON object confirming the creation of a new product:

```
1: { "status": "success", "message": "Product created", "data": { "id": 3, "name": "Pulpen pilot biru", "price": 8000, "stock": 60 } }
```

PUT /api/products/1 → Memperbarui data produk (200 OK / 404 Not Found)

The screenshot shows the Postman interface with a successful PUT request. The URL is `http://localhost:3000/products/1`. The response status is 200 OK, and the response body is:

```
1 {  
2   "status": "success",  
3   "message": "Product updated",  
4   "data": {  
5     "id": 1,  
6     "name": "Buku Catatan Kuliah",  
7     "price": 15000,  
8     "stock": 75  
9   }  
10 }
```

DELETE /api/products/1 → Menghapus produk (200 OK / 404 Not Found)

The screenshot shows the Postman interface with a successful DELETE request. The URL is `http://localhost:3000/products/1`. The response status is 200 OK, and the response body is:

```
1 {  
2   "status": "success",  
3   "message": "Product deleted"  
4 }
```

F. Analisis

API telah berfungsi sesuai prinsip CRUD dasar. Setiap endpoint berhasil merespons dengan status code yang sesuai. Namun, validasi input dan penanganan error masih sederhana dan akan dikembangkan lebih lanjut pada Praktikum 6 (RESTful API Best Practices).

G. Kesimpulan

Mahasiswa berhasil membangun RESTful CRUD API sederhana dengan Express.js. Hasil pengujian menunjukkan endpoint berfungsi dengan benar untuk operasi dasar Create, Read, Update, dan Delete.

H. Checklist Praktikum

- ✓ Struktur project Express sudah sesuai
- ✓ CRUD endpoint berjalan dengan benar
- ✓ Status code sesuai dengan operasi
- ✓ Response JSON terstruktur rapi
- ✓ Pengujian berhasil di Postman