

Praktikum 10 - Matakuliah Pilihan 1 (Web)

Program Studi: Teknik Informatika

Lakukan praktikum dibawah ini, dan buat screenshot untuk pembuktian mengerjakan setiap poin dengan mengisi tabel dibawah, kemudian tunjukan hasil akhir dari men-share repository github yang telah dibuat.

A. Membuat JSON Web Token (Dynamic Bearer Token)

1. Lanjutkan Project Praktikum 8-9, dengan menggunakan file yang sama (copy)
2. Install library JWT **npm install jsonwebtoken bcryptjs**
3. Tambahkan file [auth.controller.js](#), [auth.middleware.js](#), dan [auth.routes.js](#)
4. Buat file .env disamping [server.js](#) (root folder) Isi file .env dengan variable sebagai berikut:
JWT_SECRET="KUNCI-RAHASIA"
JWT_EXPIRE=1d
5. Tambahkan script berikut di server.js `require('dotenv').config();`
6. Revisi model sebelumnya pada [user.model.js](#) dengan menambahkan fungsi baru seperti berikut, tambahkan findByEmail

```
    delete: (id, callback) => {
      db.query('DELETE FROM users WHERE id = ?', [id], callback);
    },

    // Get user by Email (untuk login)
    findByEmail: (email, callback) => {
      db.query('SELECT * FROM users WHERE email = ?', [email], callback);
    },
};
```

7. Masukan script berikut pada [auth.controller.js](#) yang telah dibuat

```

js auth.controller.js U X
controllers > JS auth.controller.js > login > login > User.findByEmail() callback
1 const User = require('../models/user.model');
2 const bcrypt = require('bcryptjs');
3 const jwt = require('jsonwebtoken');
4
5 exports.login = (req, res) => {
6   const { email, password } = req.body;
7
8   User.findByEmail(email, (err, results) => [
9     if (err) return res.status(500).json({ message: err.message });
10    if (results.length === 0) return res.status(404).json({ message: "User not found" });
11
12    const user = results[0];
13
14    const match = bcrypt.compareSync(password, user.password);
15    if (!match) return res.status(400).json({ message: "Wrong password" });
16
17    const token = jwt.sign(
18      { id: user.id, email: user.email },
19      process.env.JWT_SECRET,
20      { expiresIn: "7d" }
21    );
22
23    res.json([
24      message: "Login success",
25      token,
26      user: { id: user.id, name: user.name, email: user.email }
27    ]);
28  ]);
29};

```

8. Ubah [auth.middleware.js](#) yang sebelumnya menggunakan token biasa, menjadi json web token seperti gambar dibawah ini

```

h.controller.js U   JS user.model.js M   JS auth.middlewares.js M X
middlewares > JS auth.middlewares.js > ...
const jwt = require("jsonwebtoken");
const User = require("../models/user.model");

module.exports = (req, res, next) => {
  const header = req.headers.authorization;

  if (!header || !header.startsWith("Bearer ")) {
    return res.status(401).json({ message: "Unauthorized" });
  }

  const token = header.split(" ")[1];

  try {
    const decoded = jwt.verify(token, process.env.JWT_SECRET);

    // Optional: cek user masih ada
    User.getById(decoded.id, (err, results) => {
      if (err) return res.status(500).json({ message: err.message });
      if (results.length === 0) {
        return res.status(401).json({ message: "Invalid token user" });
      }

      req.user = results[0];
      next();
    });
  } catch (err) {
    return res.status(401).json({ message: "Invalid token" });
  }
};

```

9. Tambahkan Routes untuk mengakses login pada auth.routes.js

```
$ auth.controller.js U   JS user.model.js M   JS auth.middlewares.js M   JS auth.routes.js U X
routes > JS auth.routes.js > ...
1  const express = require("express");
2  const router = express.Router();
3  const authController = require("../controllers/auth.controller");
4
5  router.post("/login", authController.login);
6
7  module.exports = router;
```

10. Pada [server.js](#) tambahkan kode berikut untuk menambahkan routes

```
const authRoutes = require("./routes/auth.routes");
app.use('/api/auth', authRoutes);
```

B. SETUP DATABASE

1. Pada tabel user seharusnya password dienkripsi dengan bcryptjs. Oleh karena itu kita buat hasil enkripsinya dengan membuat tools node js seperti berikut
2. Buat file [createpwd.js](#) dan tulis kode seperti dibawah ini

```
const bcrypt = require('bcryptjs');
const hash = bcrypt.hashSync('passwordkamu', 10);
console.log(hash);
```

3. Ganti **passwordkamu** dengan password yang diinginkan, lalu ketik perintah node

```
PS D:\Node\Praktikum8> node .\createpwd.js
$2b$10$UtTsJEFWY0JfqNOHTI859uf2QADWr9ry4g8w/t3/1fyZNZvwj0nC2
```
4. Ganti isi field password dengan hasil dari hash menggunakan bcryptjs.

Note: Ini adalah simulasi, kedepannya untuk create user dan password seharusnya menggunakan bcryptjs agar lebih aman.

B. Gunakan POSTMAN dapatkan Token BEARER

1. Install postman di visual code, dan lakukan login berdasarkan email dan password yang terdaftar di database
2. Dapatkan bearer dengan memanggil API endpoints api/auth/login

The screenshot shows the Postman application interface. At the top, it says "http://localhost:8001/api/auth/login". Below that, it shows a "POST" method and the URL "http://localhost:8001/api/auth/login". The "Body" tab is selected, showing a raw JSON payload:

```

1 {
2   ...
3     "email": "tepungbumbu@gmail.com",
4     "password": "sajiku"
}

```

Below the body, there's a "Response" section with a cartoon illustration of an astronaut. At the bottom, it says "Enter the URL and click Send to get a response". The bottom navigation bar includes "PROBLEMS", "OUTPUT", "DEBUG CONSOLE", "TERMINAL", "PORTS", "POSTMAN CONSOLE", "1 Error", "All Logs", and a "Clear" button.

3. Catat bearer yang di dapatkan, lalu gunakan bearer tersebut untuk memanggil endpoints lainnya yang pada praktikum 9 telah di proteksi.
4. Token yang di dapat dari login, bisa digunakan untuk mengakses semua API yang diproteksi dalam sistem.

F. Github + Visual Code

1. Buat proyek di Github dengan nama **Latihan10**

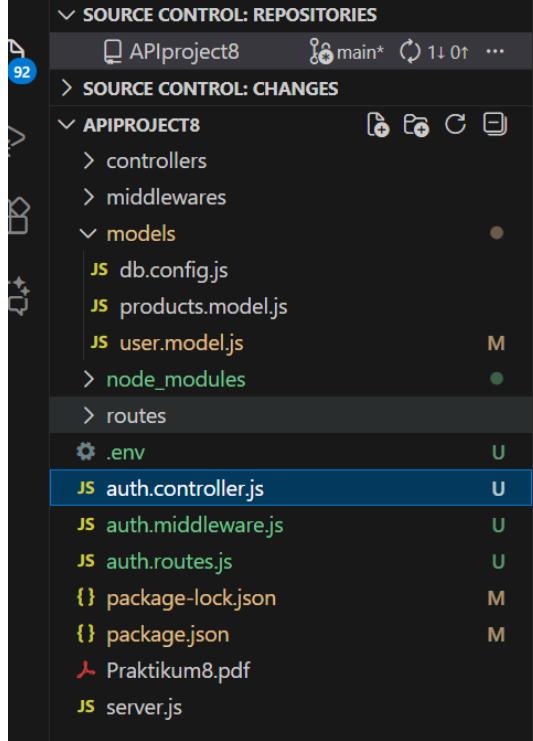
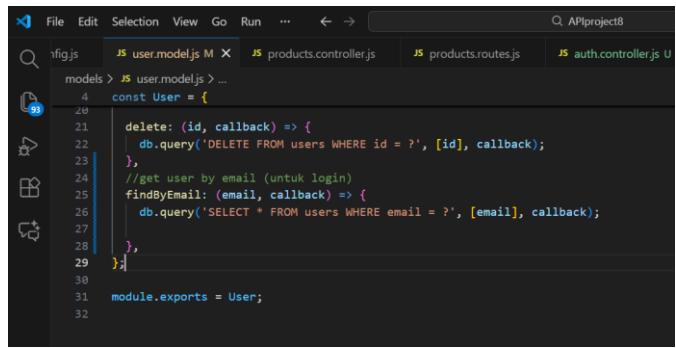
```
git init
```

```
git add
```

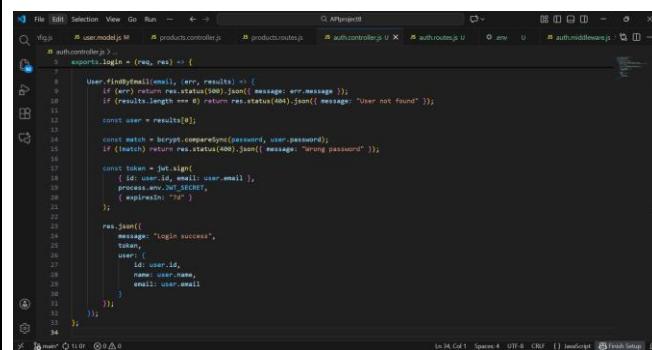
```
.
```

```
git commit -m "first commit" git branch -M main git remote add origin https://github.com/agunghakase/Latihan9.git git push -u origin main
```

Hasil Pengeroaan

No.	Instruksi	Screenshot
A.	Installasi dan Konfigurasi	
1.	Install library JWT npm install jsonwebtoken bcryptjs	<pre>C:\Users\ASUS\APIproject8>npm install jsonwebtoken bcryptjs npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@1.2.9 (node_modules\fsevents): npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@1.2.9: wanted {"os": "darwin", "arch": "any"} (current: {"os": "win32", "arch": "x64"}) npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@1.2.9 (from: node_modules\jsonwebtoken): npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@1.2.9: wanted {"os": "darwin", "arch": "any"} (current: {"os": "win32", "arch": "x64"}) npm WARN optional SKIPPING OPTIONAL DEPENDENCY: fsevents@1.2.9 (from: node_modules\bcryptjs): npm WARN notsup SKIPPING OPTIONAL DEPENDENCY: Unsupported platform for fsevents@1.2.9: wanted {"os": "darwin", "arch": "any"} (current: {"os": "win32", "arch": "x64"}) + 3 packages in 23s 28 packages are looking for funding run `npm fund` for details 3 moderate severity vulnerabilities To address all issues, run: npm audit fix</pre>
2.	Tambahkan file auth.controller.js, auth.middleware.js, dan auth.routes.js	
3.	mengisi user.model.js	

Mengisi
auth.controller.js

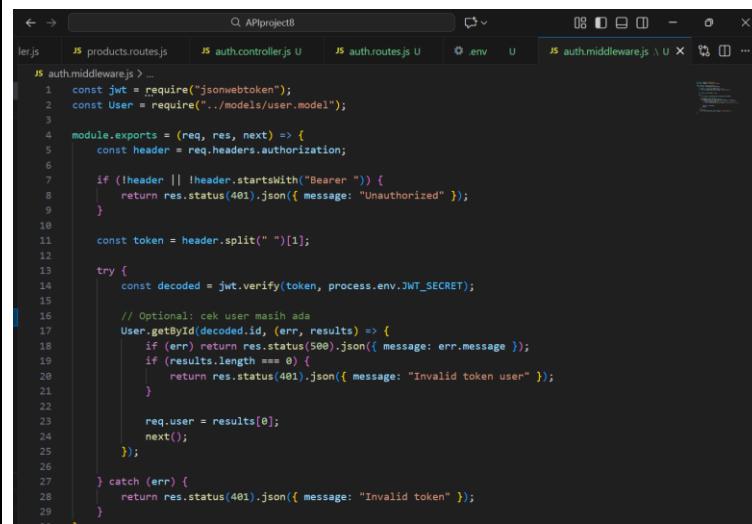


```
const express = require('express');
const router = express.Router();
const authController = require('../controllers/auth.controller');

router.post('/login', authController.login);

module.exports = router;
```

Mengisi
auth.middleware.js



```
const jwt = require("jsonwebtoken");
const User = require("../models/user.model");

module.exports = (req, res, next) => {
  const header = req.headers.authorization;

  if (!header || !header.startsWith("Bearer ")) {
    return res.status(401).json({ message: "Unauthorized" });
  }

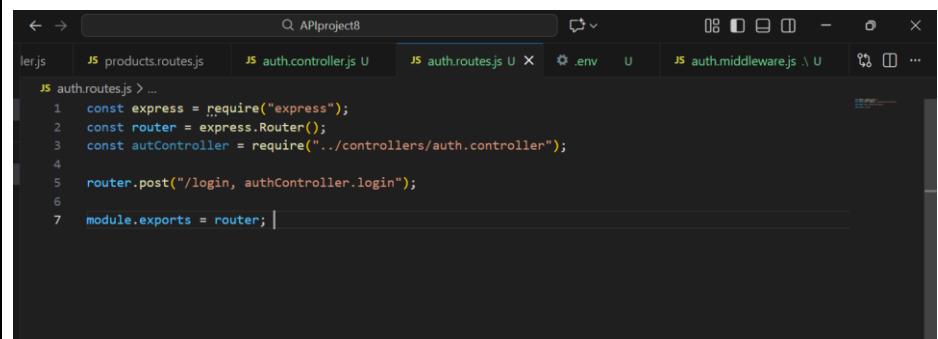
  const token = header.split(" ")[1];

  try {
    const decoded = jwt.verify(token, process.env.JWT_SECRET);

    // Optional: cek user masih ada
    User.getById(decoded.id, (err, results) => {
      if (err) return res.status(500).json({ message: err.message });
      if (results.length === 0) {
        return res.status(401).json({ message: "Invalid token user" });
      }

      req.user = results[0];
      next();
    });
  } catch (err) {
    return res.status(401).json({ message: "Invalid token" });
  }
};
```

Mengisi
auth.routes.js



```
const express = require("express");
const router = express.Router();
const authController = require("../controllers/auth.controller");

router.post('/login', authController.login);

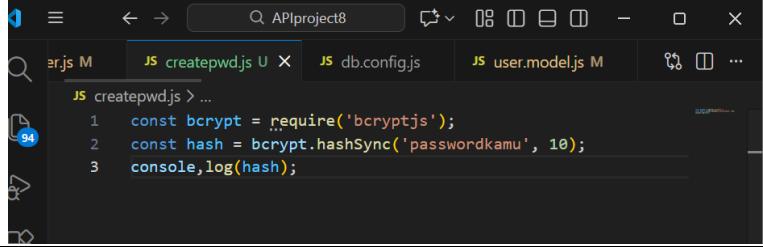
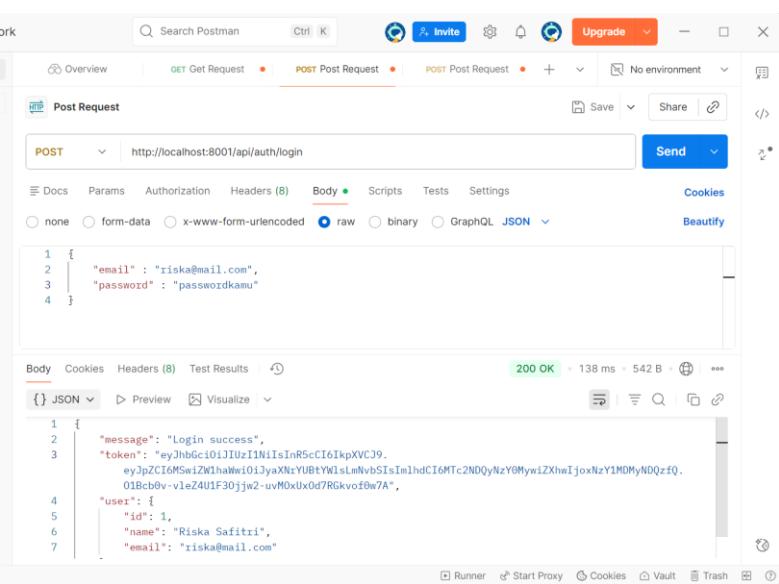
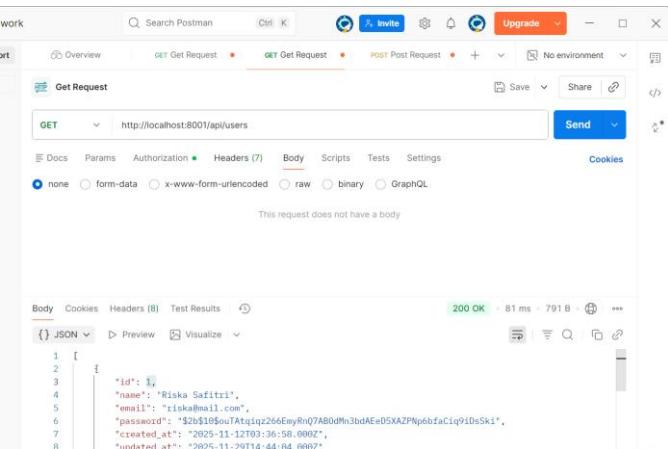
module.exports = router;
```

Menambahkan
require dotenv ke
server.js

```
require('dotenv').config();

const authRoutes = require("./routes/auth.routes");
app.use('/api/auth', authRoutes);
```

B. Github dan
Viscode

1.	Membuat file createpwd.js dan mengisinya	
2.	Mengganti passwordkamu dengan hashpassword	
3.	Memanggil API dengan endpoints api/auth/login	
4.	Memanggil endpoint lain	
5.	Link github	https://github.com/ftrnaa/latihan-8.git