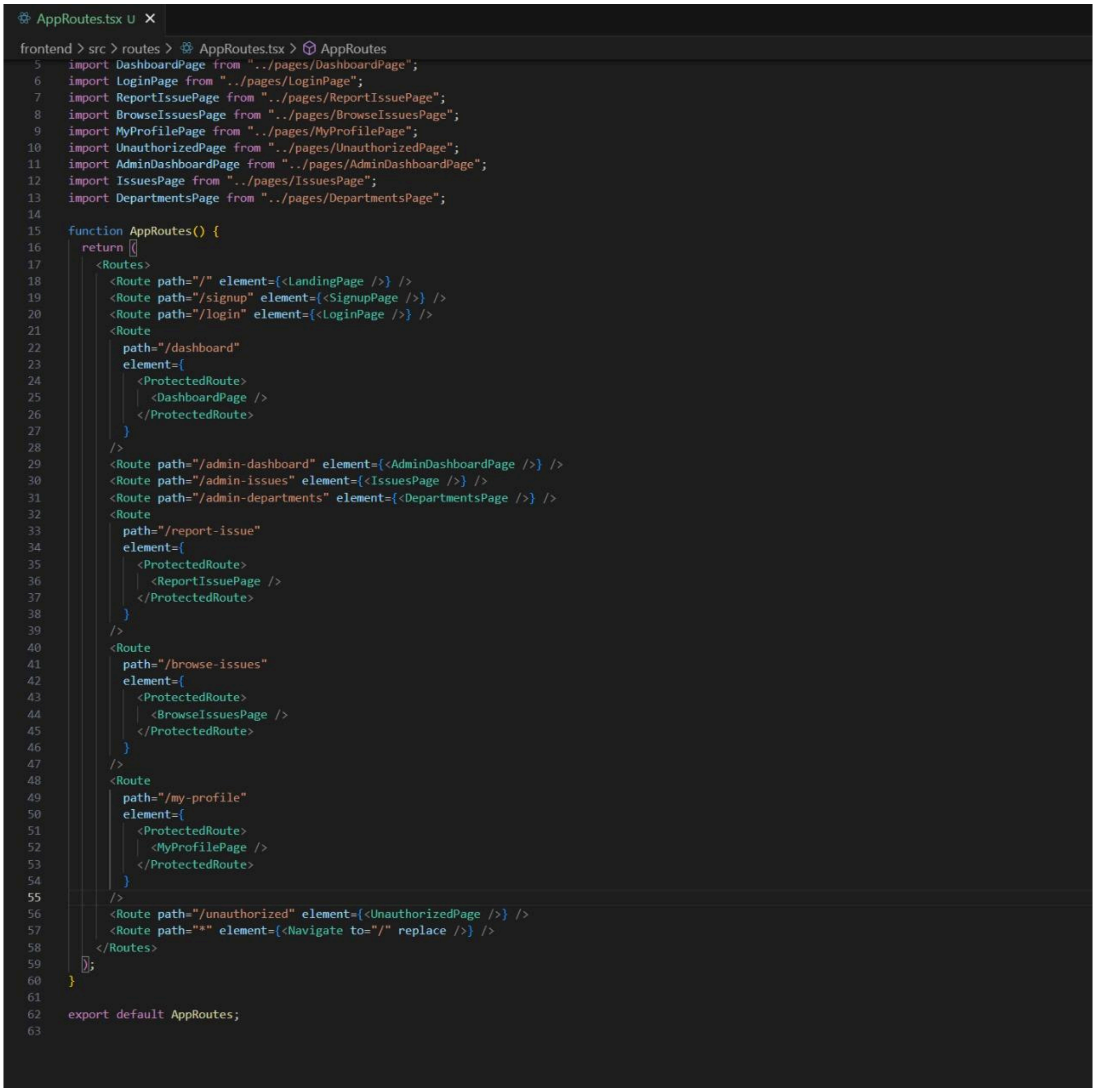
Code:

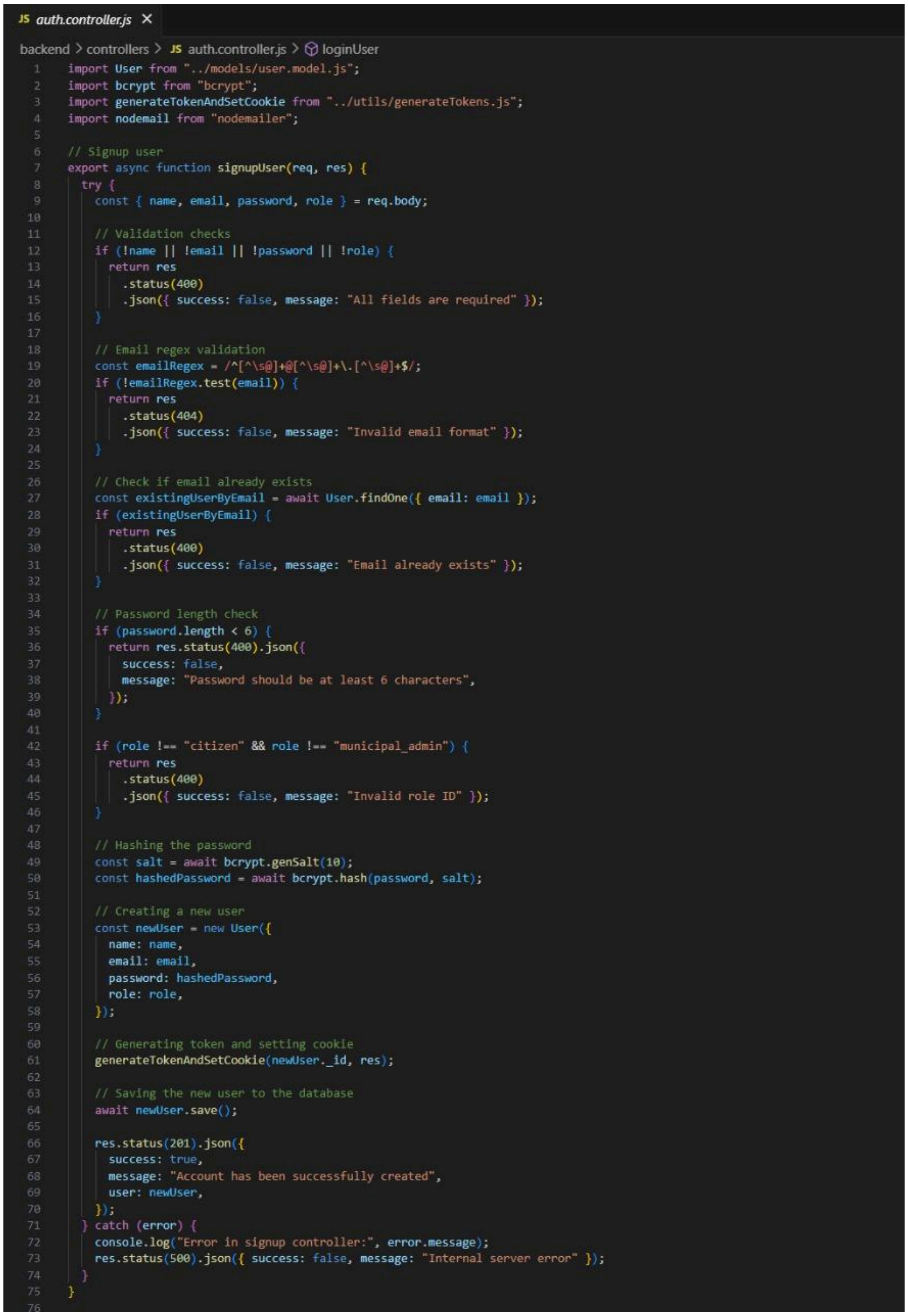
1)App.tsx(main route file)



```tsx
import DashboardPage from "../pages/DashboardPage";
import LoginPage from "../pages/LoginPage";
import ReportIssuePage from "../pages/ReportIssuePage";
import BrowseIssuesPage from "../pages/BrowseIssuesPage";
import MyProfilePage from "../pages/MyProfilePage";
import UnauthorizedPage from "../pages/UnauthorizedPage";
import AdminDashboardPage from "../pages/AdminDashboardPage";
import IssuesPage from "../pages/IssuesPage";
import DepartmentsPage from "../pages/DepartmentsPage";

function AppRoutes() {
  return (
    <Routes>
      <Route path="/" element={<LandingPage />} />
      <Route path="/signup" element={<SignupPage />} />
      <Route path="/login" element={<LoginPage />} />
      <Route
        path="/dashboard"
        element={
          <ProtectedRoute>
            <DashboardPage />
          </ProtectedRoute>
        }
      />
      <Route path="/admin-dashboard" element={<AdminDashboardPage />} />
      <Route path="/admin-issues" element={<IssuesPage />} />
      <Route path="/admin-departments" element={<DepartmentsPage />} />
      <Route
        path="/report-issue"
        element={
          <ProtectedRoute>
            <ReportIssuePage />
          </ProtectedRoute>
        }
      />
      <Route
        path="/browse-issues"
        element={
          <ProtectedRoute>
            <BrowseIssuesPage />
          </ProtectedRoute>
        }
      />
      <Route
        path="/my-profile"
        element={
          <ProtectedRoute>
            <MyProfilePage />
          </ProtectedRoute>
        }
      />
      <Route path="/unauthorized" element={<UnauthorizedPage />} />
      <Route path="*" element={<Navigate to="/" replace />} />
    </Routes>
  );
}

export default AppRoutes;
```

Fig 1. Routing logic for roles

2)Auth controller



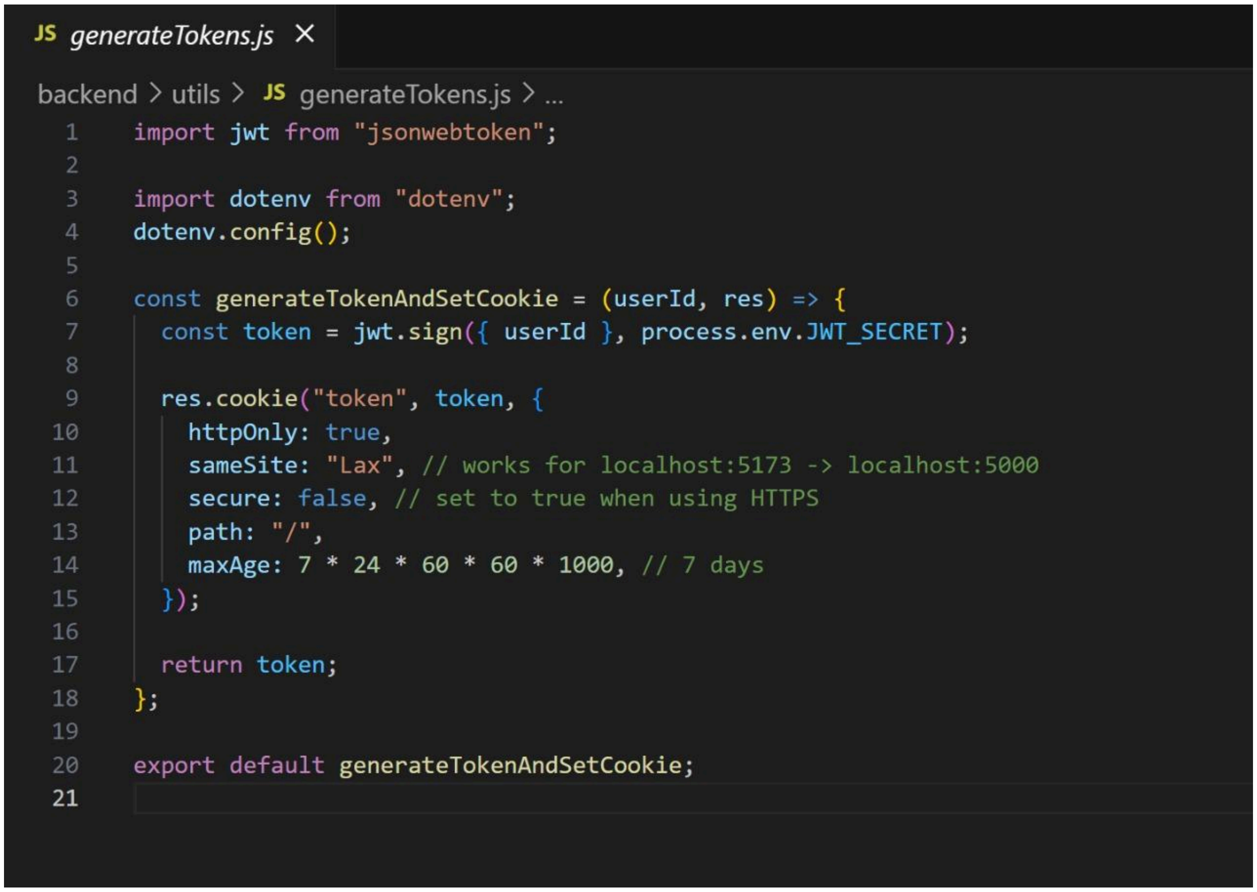
auth.controller.js

backend > controllers > auth.controller.js > loginUser

```javascript
import User from "../models/user.model.js";
import bcrypt from "bcrypt";
import generateTokenAndSetCookie from "../utils/generateTokens.js";
import nodemail from "nodemailer";

// Signup user
export async function signupUser(req, res) {
  try {
    const { name, email, password, role } = req.body;

    // Validation checks
    if (!name || !email || !password || !role) {
      return res
        .status(400)
        .json({ success: false, message: "All fields are required" });
    }

    // Email regex validation
    const emailRegex = /^[^\s@]+@[^\s@]+\.[^\s@]+$/;
    if (!emailRegex.test(email)) {
      return res
        .status(404)
        .json({ success: false, message: "Invalid email format" });
    }

    // Check if email already exists
    const existingUserByEmail = await User.findOne({ email: email });
    if (existingUserByEmail) {
      return res
        .status(400)
        .json({ success: false, message: "Email already exists" });
    }

    // Password length check
    if (password.length < 6) {
      return res.status(400).json({
        success: false,
        message: "Password should be at least 6 characters",
      });
    }

    if (role !== "citizen" && role !== "municipal_admin") {
      return res
        .status(400)
        .json({ success: false, message: "Invalid role ID" });
    }

    // Hashing the password
    const salt = await bcrypt.genSalt(10);
    const hashedPassword = await bcrypt.hash(password, salt);

    // Creating a new user
    const newUser = new User({
      name: name,
      email: email,
      password: hashedPassword,
      role: role,
    });

    // Generating token and setting cookie
    generateTokenAndSetCookie(newUser._id, res);

    // Saving the new user to the database
    await newUser.save();

    res.status(201).json({
      success: true,
      message: "Account has been successfully created",
      user: newUser,
    });
  } catch (error) {
    console.log("Error in signup controller:", error.message);
    res.status(500).json({ success: false, message: "Internal server error" });
  }
}
```

Fig 2. Logic of role based authentication

3)JWT token generation



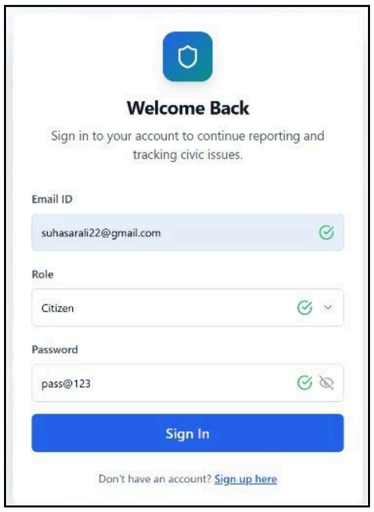
generateTokens.js

backend > utils > generateTokens.js > ...

```javascript
import jwt from "jsonwebtoken";

import dotenv from "dotenv";
dotenv.config();

const generateTokenAndSetCookie = (userId, res) => {
  const token = jwt.sign({ userId }, process.env.JWT_SECRET);

  res.cookie("token", token, {
    httpOnly: true,
    sameSite: "Lax", // works for localhost:5173 -> localhost:5000
    secure: false, // set to true when using HTTPS
    path: "/",
    maxAge: 7 * 24 * 60 * 60 * 1000, // 7 days
  });

  return token;
};

export default generateTokenAndSetCookie;

```

Fig 3. generation of jwt

Output:



Welcome Back

Sign in to your account to continue reporting and tracking civic issues.

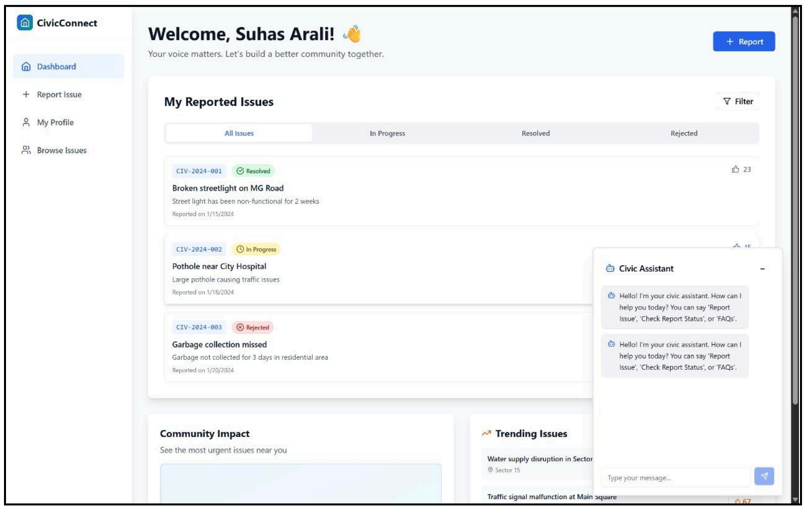
Email ID: suhasarali22@gmail.com

Role: Citizen

Password: pass@123

Sign In

Don't have an account? Sign up here



CivicConnect

Dashboard
Report Issue
My Profile
Browse Issues

Welcome, Suhas Arali! 👋

Your voice matters. Let's build a better community together.

+ Report

My Reported Issues

Filter

All Issues | In Progress | Resolved | Rejected

CIV-2024-001 Resolved 23
Broken streetlight on MG Road
Street light has been non-functional for 2 weeks
Reported on 1/15/2024

CIV-2024-002 In Progress
Pothole near City Hospital
Large pothole causing traffic issues
Reported on 1/18/2024

CIV-2024-003 Rejected
Garbage collection missed
Garbage not collected for 3 days in residential area
Reported on 1/20/2024

Civic Assistant

Hello! I'm your civic assistant. How can I help you today? You can say 'Report Issue', 'Check Report Status', or 'FAQs'.

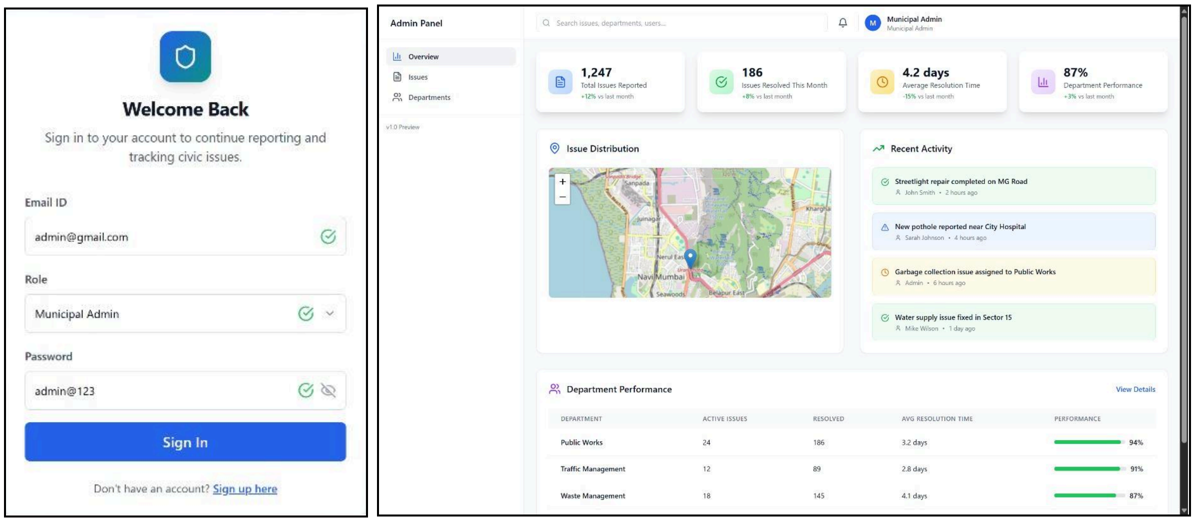
Hello! I'm your civic assistant. How can I help you today? You can say 'Report Issue', 'Check Report Status', or 'FAQs'.

Type your message...

Community Impact
See the most urgent issues near you

Trending Issues
Water supply disruption in Sector
Sector 15
Traffic signal malfunction at Main Square

Fig 1.citizen role dashboard



Welcome Back

Sign in to your account to continue reporting and tracking civic issues.

Email ID: admin@gmail.com

Role: Municipal Admin

Password: admin@123

Don't have an account? Sign up here

1,247 Total Issues Reported +12% vs last month

186 Issues Resolved This Month +8% vs last month

4.2 days Average Resolution Time -15% vs last month

87% Department Performance +3% vs last month

Issue Distribution

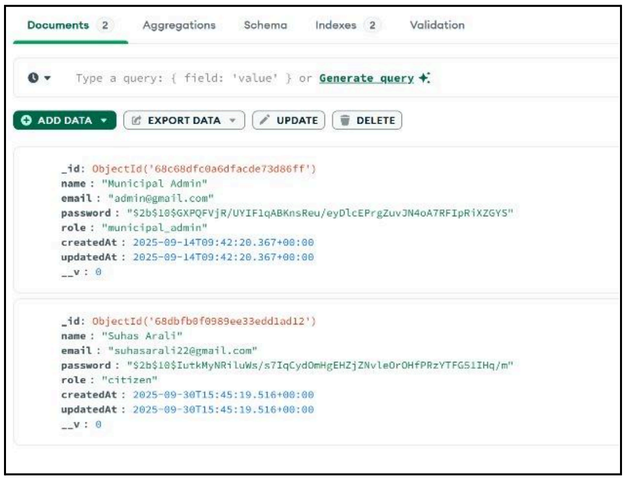
Recent Activity

- Streetlight repair completed on MG Road — John Smith • 2 hours ago
- New pothole reported near City Hospital — Sarah Johnson • 4 hours ago
- Garbage collection issue assigned to Public Works — Admin • 6 hours ago
- Water supply issue fixed in Sector 15 — Mike Wilson • 1 day ago

Department Performance

| DEPARTMENT | ACTIVE ISSUES | RESOLVED | AVG RESOLUTION TIME | PERFORMANCE |
|---|---|---|---|---|
| Public Works | 24 | 186 | 3.2 days | 94% |
| Traffic Management | 12 | 89 | 2.8 days | 91% |
| Waste Management | 18 | 145 | 4.1 days | 87% |

Fig 2. Admin role dashboard



```
_id: ObjectId('68c68dfc0a6dfacde73d86ff')
name : "Municipal Admin"
email : "admin@gmail.com"
password : "$2b$10$GXPQFVjR/UYIF1qABKnsReu/eyDlcEPrgZuvJN4oA7RFIpRiXZGYS"
role : "municipal_admin"
createdAt : 2025-09-14T09:42:20.367+00:00
updatedAt : 2025-09-14T09:42:20.367+00:00
__v : 0
```

```
_id: ObjectId('68dbfb0f0989ee33edd1ad12')
name : "Suhas Arali"
email : "suhasarali22@gmail.com"
password : "$2b$10$IutkMyNRiluWs/s7IqCydOmHgEHZjZNvleOrOHfPRzYTFG51IHq/m"
role : "citizen"
createdAt : 2025-09-30T15:45:19.516+00:00
updatedAt : 2025-09-30T15:45:19.516+00:00
__v : 0
```

Fig 3.authentication data