

Backend Overview: QC Evaluation Tool Pro

This document explains how the backend of the QC Evaluation Tool Pro works, in simple terms for non-developers.

What is the Backend?

The backend is the part of the application that runs on the server. It stores data, handles user accounts, checks permissions, and sends emails. It is like the “brain” of the system, working behind the scenes.

Main Features

1. User Accounts & Login

- **Register:** New users can be added to the system.
- **Login:** Users log in with their email and password.
- **User Roles:** There are different types of users:
 - **Admin:** Full control over the system.
 - **Manager:** Can manage records and users.
 - **QC Agent:** Can create and review QC records.
 - **Agent:** Can see their own records and feedback.
- **Profile:** Every user has a profile with their details.

2. QC Records (Audit Data)

- **Create Record:** QC Agents, Managers, and Admins can add new QC records (audits).
- **View Records:** Users can see records based on their role:
 - Admins, Managers, QC Agents: See all records.
 - Agents: See only their own records.
- **Update & Delete:** Records can be updated or deleted by users with the right permissions.
- **Dashboard Stats:** The backend provides summary data for dashboards (like average scores, trends, etc).

3. Authentication & Security

- **Login Security:**
 - When you log in, the system gives you a special “token” (like a digital key) to prove who you are.
 - You must include this token in your requests to access protected data.

- **Role Checks:**
 - The system checks your role before allowing you to do certain actions (like deleting a user or record).
 - If you don't have permission, you'll get an error message.

4. Email Notifications

- **Welcome Email:** When a new user is created, they get an email with their login details.
- **QC Score Report:** Agents receive emails with their QC scores and feedback.
- **Rework Request:** If an agent's score is too low, they get an email asking them to fix their work and resubmit.
- **All emails are sent automatically and are styled for clarity.**

5. Other Technical Details

- **Database:** All data is stored in a secure database (MongoDB).
- **CORS:** The backend only allows requests from the official frontend website for security.
- **Health Check:** There is a special link to check if the server is running.
- **Error Handling:** If something goes wrong, the backend sends a clear error message.

How Does It Work?

1. **User logs in** → Gets a token (digital key).
2. **User makes a request** (like viewing records) → Sends the token with the request.
3. **Backend checks the token** and the user's role.
4. **If allowed:** The backend sends the requested data or performs the action.
5. **If not allowed:** The backend sends an error message.
6. **When needed:** The backend sends emails to users (for new accounts, scores, or rework requests).

Who Should Read This?

- **Managers/Leads:** To understand what happens when you add users or records.
- **Agents:** To know how your data and feedback are managed.
- **Anyone curious** about how the "server side" of the QC Evaluation Tool Pro works.

For more details, ask your technical team or see the code in the `Backend/` folder.