

Backend Engineer Intern Assignment

Objective:

The goal of this assignment is to build a **To-Do List API** with **Node.js**, **Express**, and **PostgreSQL**. The API should allow users to perform CRUD operations on tasks, and a **Cron Job** should be implemented to check for new tasks every 5 minutes, sending a reminder or email notification if tasks are added.

At the end of the assignment, you will need to deliver a **fully functional Backend** that is hosted and tested with **Postman**.

Deliverables:

- Fully functional **To-Do List API** hosted on a server (e.g., Heroku, DigitalOcean, or any hosting service of your choice).
- Complete **Postman collection** for testing all CRUD operations and the Cron job functionality.

Timeline: 2 Days

CRUD API Endpoints:

- **Create Task:** Set up a **POST /tasks** endpoint to add new tasks.
- **Read All Tasks:** Set up a **GET /tasks** endpoint to retrieve all tasks.
- **Read Single Task:** Set up a **GET /tasks/:id** endpoint to retrieve a specific task.
- **Update Task:** Set up a **PUT /tasks/:id** endpoint to update an existing task.
- **Delete Task:** Set up a **DELETE /tasks/:id** endpoint to remove a task from the database.

3. Testing the Endpoints:

- Use **Postman** to test all the CRUD operations and ensure the endpoints work as expected (create, read, update, delete tasks).

Cron Job Implementation and Final Testing

1. Cron Job Setup:

- Implement a **Cron Job**. This job will run every **5 minutes**.
- The job should check if new tasks have been added (tasks with a recent **created_at** timestamp) and send a notification email (or log a message) to indicate that new tasks have been added.
- Use email services to send an email reminder.

2. Hosting the Backend:

- Host the Backend on **AWS**.

3. Documentation :

- Write a brief **README.md** file that includes:
 - Instructions for setting up and running the project.
 - How to test the API using **Postman**.
 - Overview of the Cron job functionality and how it checks for new tasks every 5 minutes.

Final Deliverables

- **Hosted API** with fully functional CRUD operations.
- **Postman Collection** with tests for all API endpoints and Cron job behavior.

- **README.md** with setup instructions and usage details.
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Bonus (Optional):

- **Authentication:** Add JWT-based authentication to secure API endpoints.
 - **Error Handling:** Implement improved error handling for missing parameters, invalid data, etc.
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Evaluation Criteria:

- **Functionality:** The API should perform all CRUD operations as expected.
 - **Cron Job:** The Cron job should work every 5 minutes, checking for new tasks and sending notifications.
 - **Postman Tests:** The Postman collection should cover all API endpoints and Cron job behavior.
 - **Code Quality:** The code should be clean, well-organized, and easy to understand.
 - **Deployment:** The API should be hosted and accessible publicly.
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