

## Internship Program: Backend Development Task

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### Task Title: API Development with Database Integration

#### Introduction:

In this task, interns will develop a backend API that performs CRUD (Create, Read, Update, Delete) operations on a database. The goal is to build a RESTful API that interacts with a MySQL database, allowing data manipulation through API endpoints.

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#### Technologies to Use:

- **Programming Language:** Python
  - **Database Option:** MySQL
  - **Libraries & Tools:**
    - Flask / FastAPI (for building API endpoints)
    - SQLAlchemy (for ORM-based database interaction)
    - MySQL Connector (for direct database connection)
    - Postman (for API testing)
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#### Task Explanation:

1. **Understanding RESTful APIs and Databases:**
  - Learn about REST architecture and how APIs interact with databases.
  - Understand the basic structure of MySQL and how to create tables.
2. **Setting Up the API and Database:**
  - Install MySQL and create a database for storing user data.
  - Use Flask or FastAPI to develop API routes.
3. **Implementing CRUD Operations:**
  - **Create:** Add new records to the database via API.
  - **Read:** Retrieve records using GET requests.
  - **Update:** Modify existing records using PUT/PATCH requests.
  - **Delete:** Remove records from the database using DELETE requests.
4. **Testing and Documentation:**
  - Use Postman or curl to test API endpoints.
  - Document the API endpoints with descriptions and example requests.

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**Conclusion:**

This task will provide interns with hands-on experience in backend development, API creation, and database management. By building a CRUD API, they will understand how modern web applications handle data.

**Deliverables:**

- Source code in a GitHub repository (or shared via a zip file).
- A short report/documentation explaining API endpoints and database schema.
- Screenshots or Postman collection showcasing API functionality.
- A demonstration video (if possible) showcasing API interactions.

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Good luck! Happy coding! 🚀