

# ASSIGNMENT

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Batch: 3

## Prototype REST API Design for To-Do List

### 1. RESTful API Endpoints (CRUD)

- `POST /tasks` – Create a new task
- `GET /tasks` – Get all tasks
- `GET /tasks/{id}` – Get a specific task
- `PUT /tasks/{id}` – Update a task
- `DELETE /tasks/{id}` – Delete a task

### 2. HTTP Methods Used and Why

- **POST** – Used to create a new task because it sends data to the server
- **GET** – Used to read task data without modifying it
- **PUT** – Used to update an existing task completely
- **DELETE** – Used to remove a task from the server

### 3. Unique Identification of Tasks (Without Database)

Since no database is used, the server can generate a unique ID using:

- An auto-increment counter (e.g., 1, 2, 3, ...)
- Or a UUID (Universally Unique Identifier)

These IDs are stored in memory along with the task details.

### 4. What Happens When the Server Restarts?

All task data is **lost** when the server restarts because:

- Data is stored only in memory (RAM)

- RAM is cleared when the application stops or restarts

This is acceptable for a proof-of-concept but not for production systems.

## 5. HTTP Status Codes for CRUD Operations

- **201 Created** – Task created successfully
- **200 OK** – Task retrieved or updated successfully
- **204 No Content** – Task deleted successfully
- **400 Bad Request** – Invalid input data
- **404 Not Found** – Task ID does not exist
- **500 Internal Server Error** – Server-side error