# CHEAT HERO

# **RESTful API Design Cheatsheet**

A quick reference guide covering the essential principles, methods, and best practices for designing RESTful APIs.



# **Core Principles**

Key Concepts	Architectural Constraints	
<b>REST (Representational State Transfer):</b> An architectural style for building networked applications, relying on a stateless, client-server communication	<b>Client-Server:</b> Separation of concerns; clients and servers can evolve independently.	
protocol, typically HTTP.	Stateless: No client context is stored on the server between requests.	
<b>Resource:</b> A key abstraction of information. It can be a document, image, service, or a collection of other resources.	Cacheable: Responses should be cacheable to improve performance.	
Representation: The format in which a resource is transferred (e.g., JSON, XML).   Stateless: Each request from client to server must contain all of the information necessary to understand the request, and cannot take advantage of any stored context on the server.	Uniform Interface: Standardized interaction via HTTP methods.	
	<b>Layered System:</b> Client cannot ordinarily tell whether it is connected directly to the end server, or to an intermediary along the way.	
	transferring executable code.	
<b>Uniform Interface:</b> REST relies on a uniform and predefined interface for interacting with resources.		

## **HTTP Methods**

Common N	Yethods		
GET	Retrieve a resource. Should be a safe and idempotent operation.	An operation is idempotent if performing it once has the same effect as performing it multiple times. (GET), (PUT), (DELETE), and (HEAD) should be idempotent	
POST	Create a new resource. May result in a new resource URI.		
PUT	Update an existing resource. Replaces the entire resource.	Example: Deleting a resource using <b>DELETE</b> multiple times should still result in the resource being gone after the first deletion.	
PATCH	Partially modify a resource. Applies partial updates.		
DELETE	Delete a resource.		
OPTIONS	Describe the communication options for the target resource.		
HEAD	Same as GET, but only transfers the status line and header section.		

#### **Resource Design**

#### URI Design

Use nouns to represent resources, not verbs. E.g., /users) instead of /getUsers).	/users /users/{userId}	Collection of users. A specific user.	
Use hierarchical URIs to represent relationships. E.g., /users/{userId}/posts).	/users/{userId}/posts	Posts by a specific user.	
Use plural nouns for collections. E.g., /users .	/posts/{postld}	A specific post.	
Avoid using file extensions in URIs. Content negotiation should be used instead (Accept header).			
Use hyphens (-) to improve readability in URIs. E.g., /blog-posts.			

**URI** Examples

# **Status Codes & Response Handling**

#### Common Status Codes

200 OK	Successful request.
201 Created	Resource created successfully.
204 No Content	Request processed successfully, but no content to return.
400 Bad Request	Invalid request format or parameters.
401 Unauthorized	Authentication required.
403 Forbidden	The server understands the request, but refuses to authorize it.
404 Not Found	Resource not found.
500 Internal Server Error	Generic server error.

## **Content Negotiation**

indicating the format of the response.

Use the Accept header in the request to specify the desired response format (e.g., application/json, application/xml).
Use the <b>Content-Type</b> header in the request to specify the format of the request body.
The server should respond with the appropriate <b>Content-Type</b> header