

API Components

1. Endpoint

- It's a specific URL where the API can be accessed by a client to perform a certain action
 - Acts as the communication touchpoint between the client and the server
 - Usually include path parameters and query parameters
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2. Request

- Message sent by a client to the API to ask for information or perform an operation

Key components of a request:

- **Method:** Specifies the type of operation (e.g., GET, POST, PUT, DELETE)
- **Headers:** Provide metadata about the request, such as content type
- **Body:** Contains the data being sent to the server

Example (POST request):

```
POST /users HTTP/1.1
Host: api.example.com
Content-Type: application/json
Authorization: Bearer token123

{
  "name": "John Doe",
  "email": "john.doe@example.com"
}
```

3. Response

- Message sent back by the API after processing a client's request

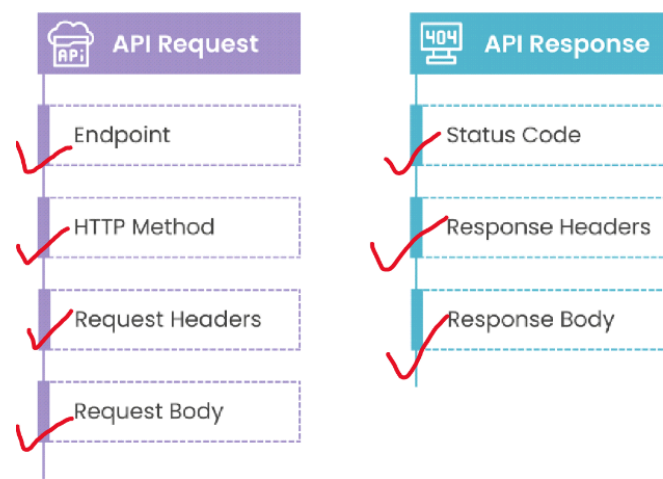
Key components of a response:

- **Status Code:** Indicates the outcome of the request (e.g., success, error)
- **Headers:** Metadata about the response, such as content type or caching instructions
- **Body:** The actual data being returned, typically in JSON, XML

Example Response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "id": 123,
  "name": "John Doe",
  "email": "john.doe@example.com"
}
```



4. Rate Limiting and Quotas

- Mechanisms to control the number of requests a client can make within a specified time
- Mainly to prevent abuse and ensure fair usage

Headers for implementation:

- **X-RateLimit-Limit:** Maximum requests allowed
- **X-RateLimit-Remaining:** Requests remaining in the current window
- **Retry-After:** Time to wait before retrying