

# APIs & REST

- Application Program Interface
- An API for a website is code that allows two software programs to communicate with each other.
- The API spells out the proper way for a developer to write a program requesting services
- The developer creates the API on the server and allows the client to talk to it.

- REST API / RESTFul API
- Is an API based on REpresentational State Transfer
- REST:
  - An architectural style and approach to communications often used in web services development.
  - Determines how the API looks like
  - It is a set of rules that developers follow when they create their API
  - One of these rules states that you should be able to get a piece of data (called a resource) when you link to a specific URL.
- Each URL is called a request while the data sent back to you is called a response.

- GET to retrieve a resource;
  - PUT to change the state of or update a resource, which can be an object, file or block;
  - POST to create that resource; and
  - DELETE to remove it.
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- These actions are used to perform four possible actions: Create, Read, Update and Delete (CRUD)

- GET read/inbox/messages – Retrieves the list of all message under inbox
- GET read/inbox/messages/10 – Reads 10th message in inbox
- POST create/inbox/folders – Create a new folder under inbox
- DELETE Delete/spam/messages – Delete all the messages under spam folder
- PUT folders/inbox/subfolder – Update the information relating to the subfolder under inbox.

- The endpoint: Or route, is the url you request for
  - <https://api.github.com> ->  
<https://docs.github.com/en/rest/overview/resources-in-the-rest-api>
  - <https://api.twitter.com> ->  
<https://developer.twitter.com/en/docs/twitter-api/migrate/twitter-api-endpoint-map>
- The method: determines the resource you're requesting for
- The headers: Headers are used to provide information to both the client and server. They are used for many purposes, such as, authentication and providing information about the body content.
- The data (or body): Contains information you want to be sent to the server. This option is only used with POST, PUT, PATCH or DELETE requests.

- Code: A standard set of possible numbers with a predefined meaning
  - 200+ means the request has succeeded.
  - 300+ means the request is redirected to another URL
  - 400+ means an error that originates from the client has occurred
  - 500+ means an error that originates from the server has occurred
- Message/Content/Body: The detail of the given response, usually in json format