DIY API

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Outline

> Motivation

> Basics of HTTP / HTTPS

> Intro to FastAPI

> Setting up a FastAPI server

> Writing some API endpoints

> Accessing endpoints from different applications

Motivation

> APIs have become a major part of my work - want to share knowledge

> Demystification

> Understand how others at NCAS use or want to use this technology

HTTPS - HyperText Transfer Protocol Secure

Hypertext ~ "text displayed on a computer display or other electronic devices with references (hyperlinks) to other text that the reader can immediately access." Mirriam Webster

For our use: text encoded data e.g. JSON, CSV, strings, HTML...

HTTPS - HyperText Transfer Protocol Secure

Transfer ~ "move from one place to another"

Protocol ~ "a rule or set of rules for a process"

Secure ~ "certain to remain safe and unthreatened"

For our use: remain private

HTTPS - HyperText Transfer Protocol Secure

*a set of **rules** to **move***

***text encoded data** from one place to another*

*in a way that it can **remain private***

Basics of HTTP / HTTPS

Client

User

Requester

Wants resources

Server

Provider

Responder

Gives resources

*Both **processes** on physical systems…*

instances of running programs

Basics of HTTP / HTTPS

Client

Server

instances of running programs

Basics of HTTP / HTTPS

Anatomy of a request using...

cURL: make http/https requests from the command line

nslookup: match domain names to ip addresses and vice versa

Basics of HTTP / HTTPS

Exercise

On the command line, enter the command

curl -v http://wikipedia.org

The lines beginning with an * show ip address resolution

The lines beginning with > show client's messages

The lines beginning with < show the server's reply

Basics of HTTP / HTTPS

Exercise

Use nslookup to find out what the ip address for the hostname wikipedia.com is, does this agree with the one we saw in curl?

Use nslookup to find the hostname for the ip address used by curl, does this agree with the one that we typed in our request?

Anatomy of an HTTP request

Address: domain name

Method: GET, POST, PUT, DELETE...

Body: JSON...

Headers: ...