WHEN YOU VISIT GOOGLE.COM...

CLIENT AND WEB SERVER

Client
Your Computer

Server
Google.com

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HTTP Request →

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← Response data

HTTP REQUEST SEMANTICS

Server can interpret HTTP requests in any way it desires

Need a standard meaning for a request; what is being requested, and what type of response should be returned?

Common request types: GET, POST, PUT, DELETE

We'll focus on GET and POST

HTTP GET REQUEST

Format: `GET /some/path`

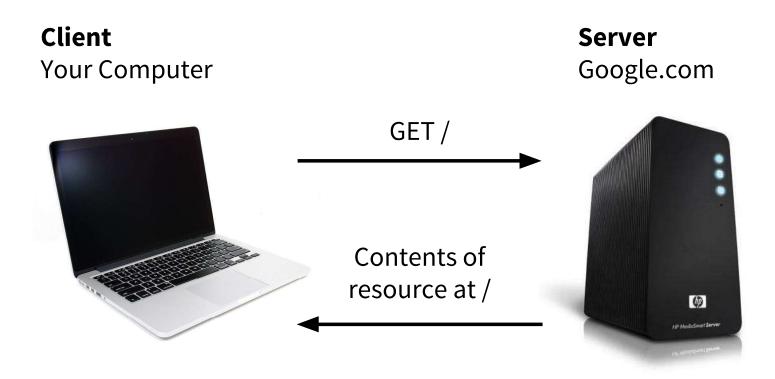**Semantics:**

Retrieve me the resource at /some/path

Example uses:

Viewing web pages

Making searches (e.g. Google, Bing)

Accessing files (PDFs, movies, PowerPoints, etc.)

GET REQUEST

Client
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GET /

Contents of
resource at /

HTTP POST REQUEST

Format: POST /some/path

Semantics:

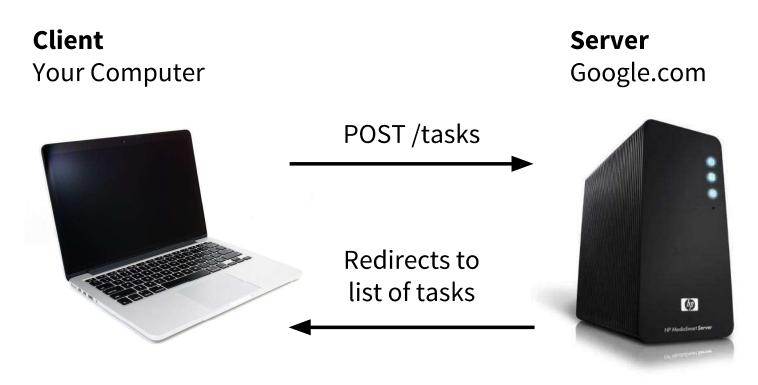Create/update/delete a resource corresponding to /some/path

Example uses:

Submitting forms

Creating/updating new posts/comments (e.g. Facebook)

Registering a user (e.g. Twitter)

Deleting an action item (e.g. Todoist, Wunderlist, etc.)

GET REQUEST

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POST /tasks

Redirects to
list of tasks

Creates task

COMMON RESPONSE STATUS CODES

Class 2xx: success!

200 - "OK, here is the resource."

Class 3xx: redirect

301 - "The resource has been permanently moved to /some/other/path."

302/303 - "The resource has been temporarily moved to /some/other/path."

COMMON RESPONSE STATUS CODES

Class 4xx: client error

403 - "The request you made is forbidden."

404 - "Resource can't be found."

Class 5xx: server error

500 - "Internal server error."

REQUEST PARAMETER PASSING

Want to send data along with our requests; e.g.

    Search query

    Username and password to log in

    Text to post on Facebook wall

GET requests: embed parameters into URL; one common way to do this is called query string:

```
GET /path?param1=value1&param2=value2
```

POST requests: put parameters into request body, usually in query string or other structured format (e.g. JSON)

CURL UTILITY

Command-line tool used for making HTTP requests

Allows for GET, POST, parameter passing, and more

GET request:
```
curl "www.yelp.com"
curl "www.yelp.com/search?find_desc=restaurant"
```

POST request:
```
curl --data "param1=value1&param2=value2"
      "www.google.com"
```

GOOGLE MAPS API

API Reference: <https://developers.google.com/maps/documentation/imageapis/>

```
curl "http://maps.googleapis.com/maps/api/staticmap?center=Stanford,CA&zoom=12&size=400x400" > map.jpg
```

```
curl "http://maps.googleapis.com/maps/api/staticmap?center=Berkeley,CA&zoom=8&size=512x512&maptype=satellite" > map.jpg
```