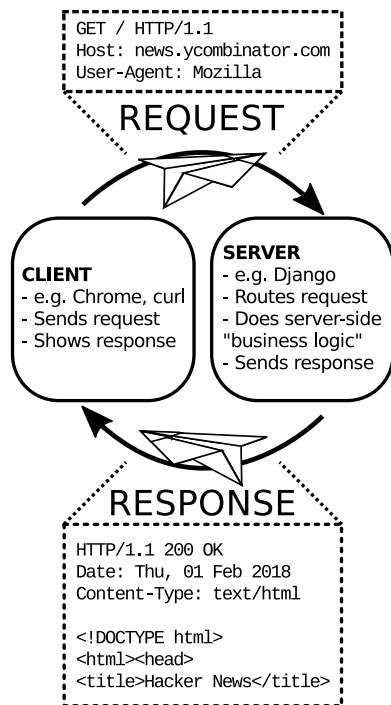


## REQUESTS &amp; RESPONSES



## TERMINOLOGY

**Protocol** An agreed-upon standard or set of "formalities" of how computers should talk to each other and exchange data

**IP address** Internet Protocol address, a "phone number" for computers

**Domain name** E.g. `google.com`, a mnemonic that's turns into the IP address of a server

**TCP** The way computers "call each other up" and send data to each other over the internet (*transmission control protocol*)

**HTTP** A protocol where a *client* uses TCP to connect and send a *request*, containing a particular *method* and *path* to a *server*, which in turn replies with a *response*.

**Headers & body** Requests and responses both are split into extra info (headers), and data (body).

**Method** The first text in the request, conventionally is one of 4 words in all caps. The backend gets to decide how to process different HTTP methods differently.

## HTTP METHODS

**GET** Fetch information without modifying anything

**POST** Create a new item

**PUT** Update an existing item

**DELETE** Delete an item

## PYTHON REQUESTS

```
import requests

url = "https://api.openaq.org" +
      "/v1/measurements" +
      "?location=Oakland"
resp = requests.get(url)
d = resp.json()
print(d["results"][0]["value"])
```

## DJANGO ROUTING

```
from django.urls import path
from django.http import HttpResponseRedirect

def hello_world(request):
    return HttpResponseRedirect(
        <h1>Hello Django World!</h1>
    )

urlpatterns = [
    path("hello-world/", hello_world),
]
```

## API TERMINOLOGY

**API** Application programming interface: The interface that software uses to communicate with other software. Some APIs are free, others might cost money.

**REST API** The most common type of API, REST APIs are based on HTTP, utilizing the different request methods to allow third party software to connect over the internet.

**API Key** A unique identifier for a user of an API (like a username).

**API Secret** Some APIs require this, basically a password for an API.

## HEROKU

```
# Test Procfile locally
pipenv shell
heroku local
```

```
# Create a new app
heroku create
```

```
# Ensure git is hooked up
git remote -v
```

```
# Deploy to Heroku via git
git push heroku master
```

```
# Check site in browser
heroku open
```

```
# Debug (view remote logs)
heroku logs
```

```
# Inspect environment variables
heroku config
```

```
# SSH into remote Heroku bash
heroku ps:exec
```

## MINIMAL DJANGO BOILER-PLATE

While insufficient for larger projects, this mini-Django boilerplate is great for tiny web apps.

**Procfile** Used by Heroku to know how to launch the server

**Pipfile** Contains PyPI dependencies.

**urls.py** Contains routing: Matches up paths to *views* which it imports from the **views.py** file.

**views.py** Contains code for templating and formatting responses to send back.