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Web and Database Computing

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Client-side Frameworks and APIs: Introduction to Client APIs

Introduction to Web APIs

What are Web APIs

- As web applications become commonplace, the potential of connecting these different services together was recognised.
- Web APIs provide ways for us to use HTTP requests to interact with different web services without needing to render/interact with the user interface/frontend.
- Similar to libraries used when coding, but rather than specific function signatures, use specific HTTP requests.
- Due to the stateless nature of HTTP, these are commonly built using a stateless architecture, known as a REST architecture.
- Many APIs are well documented, many are not.

Client APIs; first look

There are lots of great APIs listed on
https://apilist.fun/ and https://rapidapi.com/

In this example we're looking at The Cat API.

- This website gets pictures of Cats
- They provide an API for accessing it

The Cat API

Client APIs; first look

The Cat API API Docs

DEMO

Using a Web API on the client Side

More complex APIs

- Some APIs only work server-side, others only work client-side.
- Most REST APIs can be accessed both from the client side (web browser) and server side (web server).
  - Depending on where you need to use the data will depend on whether you choose to use it from client or server.
  - Some APIs provide JavaScript libraries to abstract away the complexities of building the HTTP requests needed to use them.
- Many REST APIs require a key so they can track usage and prevent misuse of the service.

Google Calendar API

Google provides a well documented API for accessing their Calendar service

https://developers.google.com/calendar/overview

This includes libraries in several programming languages for accessing the API.

DEMO

Using the Google Calendar API for Browser/JavaScript

Summary

- Many web services and applications provide access to their systems for developers through APIs.
- REST APIs use stateless HTTP requests.
- Some more complex APIs provide JavaScript libraries to make accessing them easier.