

A dark blue horizontal bar with a lighter blue abstract shape on the left side. The text "API Design" is centered in white.

API Design

CRUD

CRUD is an acronym for:

- CREATE
- READ
- UPDATE
- DELETE

CRUD is a cycle for keeping records current and permanent, in a database for instance

REST

- REST stands for Representational State Transfer
- REST is a robust API architecture.
- REST uses HTTP protocols GET, PUT, POST, DELETE to link resources to actions within a client-server relationship.

CRUD vs REST

- Mapping CRUD principles to REST
- HTTP protocols GET, PUT, POST, DELETE and CRUD principles CREATE, READ, UPDATE, DELETE have striking similarities
- CRUD can be mapped to HTTP protocols.

API DESIGN #1

URL rules

- URLs should contain only nouns, never verbs
- Nouns should be in the plural form (`/files` instead of `/file`)
- The query part of the URL is for search and filtering (`/contacts?first_name=Anna&limit=20`)
- URLs should *not* reveal the underlying implementation (`/resources` **not** `/resources.php`).

API DESIGN #2

Data transfer

- APIs receive and send data in JSON (JavaScript Object Notation) format

API DESIGN #3

The HTTP Verbs

- **GET** is for Reading or retrieving data, the R in CRUD. Never use GET for something that can modify a resource on the server.
- **DELETE** is the D in CRUD and removes one or more resources from the server.

API DESIGN #4

The HTTP Verbs

- **PUT** affects the resource identified by the URL. PUT is confined to update operations, the U in CRUD
- **POST** sends data to the server and leaves it up to the server to do something with it. It is the most flexible verb. In the context of CRUD APIs it is typically used to Create resources, the C in CRUD

EXAMPLE

The HTTP Verbs

GET /contacts

GET /contacts?id=cID

POST /contacts

PUT /contacts?id=cID

DELETE /contacts?id=cID

API EXAMPLES

http://daw.deei.fct.ualg.pt/~a555550/LAB8_10/api/users.php

http://daw.deei.fct.ualg.pt/~a555550/LAB8_10/api/microposts.php

http://daw.deei.fct.ualg.pt/~a555550/LAB8_10/api/comments.php