Lab.
Pemrograman Mobile

android

Pertemuan 7

android

Learning Objectives

- API
    - REST API
- Retrofit

Pert. 6
Retrofit

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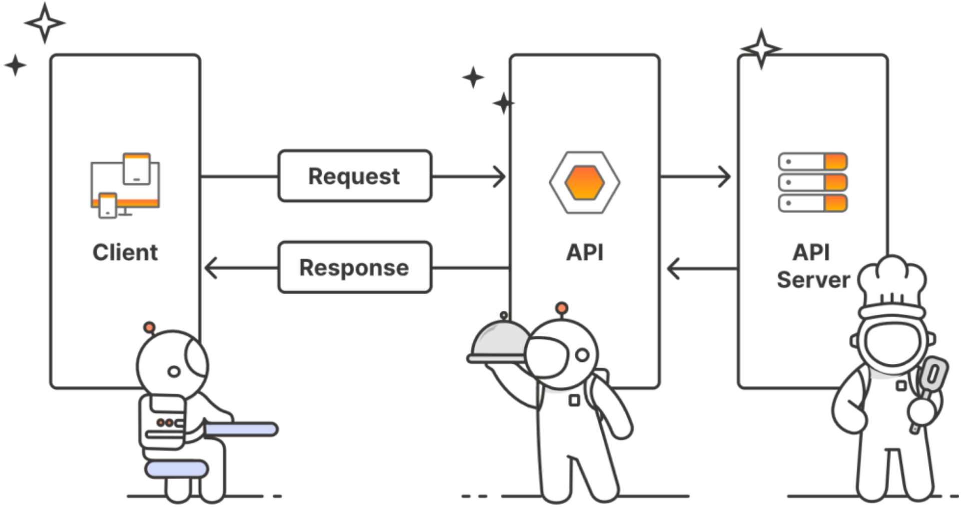
API

An **API**, or Application Programming Interface, is a set of rules and protocols that allows different software applications to communicate with each other. It defines the methods and data formats that applications can use to request and exchange information. **APIs** enable developers to access the functionality of other software components, services, or platforms without needing to understand their internal workings.

In order to better understand this process, it can be useful to think of **APIs** like restaurants. In this metaphor, the customer is like the user, who tells the waiter what she wants. The waiter is like an **API**, receiving the customer's order and translating it into easy-to-follow instructions for the kitchen—sometimes using specific codes or abbreviations that the kitchen staff will recognize. The kitchen staff is like the API server because it creates the order according to the customer's specifications and gives it to the waiter, who then delivers it to the customer.



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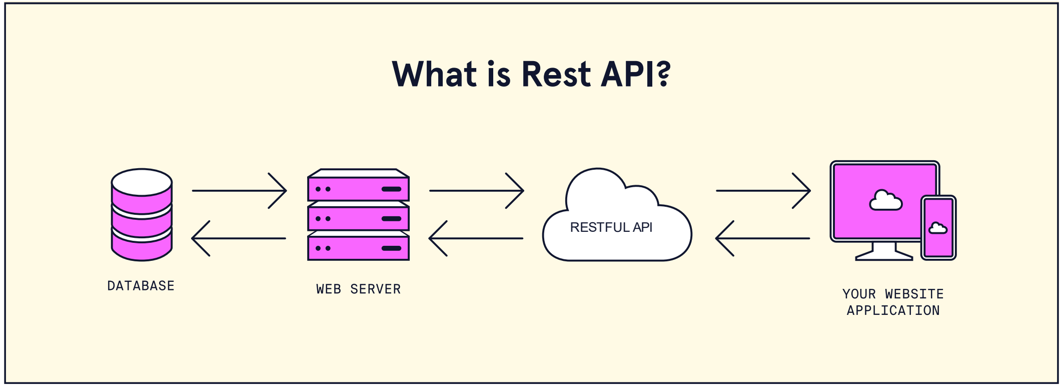
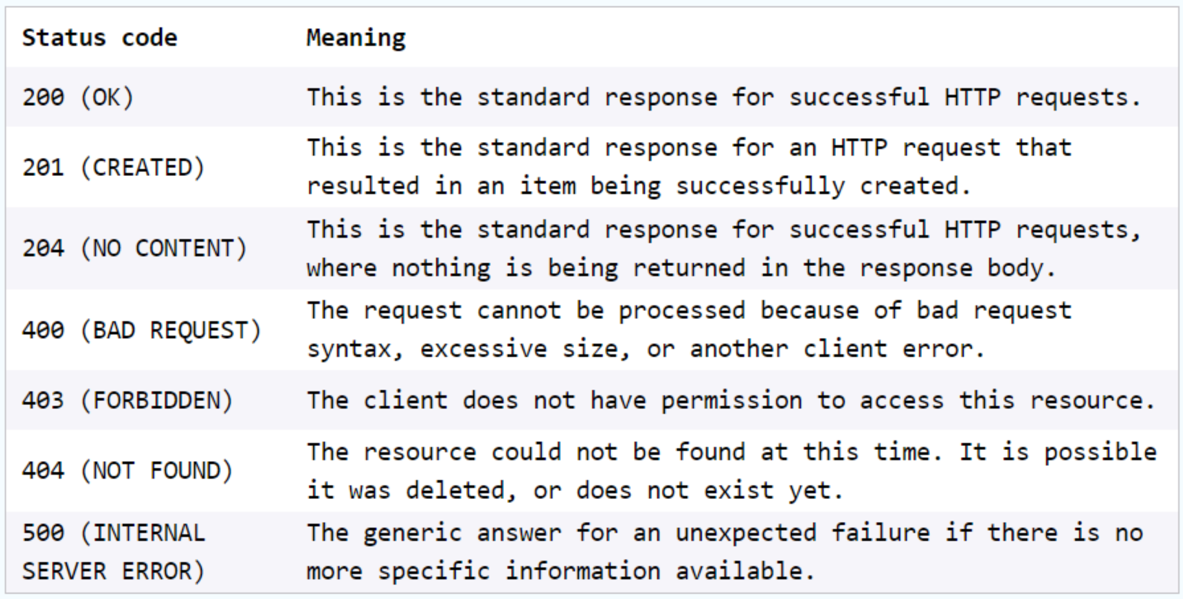
REST

REST, or **REpresentational State Transfer**, is an architectural style for providing standards between computer systems on the web, making it easier for systems to communicate with each other. **REST API** can be used by any site or application no matter what language it is written in because the requests are based on the universal HTTP protocol, and the information is usually returned in the JSON format that almost all of the programming languages can read.



Response Codes

Responses from the server contain status codes to alert the client to information about the success of the operation.



Status code	Meaning
200 (OK)	This is the standard response for successful HTTP requests.
201 (CREATED)	This is the standard response for an HTTP request that resulted in an item being successfully created.
204 (NO CONTENT)	This is the standard response for successful HTTP requests, where nothing is being returned in the response body.
400 (BAD REQUEST)	The request cannot be processed because of bad request syntax, excessive size, or another client error.
403 (FORBIDDEN)	The client does not have permission to access this resource.
404 (NOT FOUND)	The resource could not be found at this time. It is possible it was deleted, or does not exist yet.
500 (INTERNAL SERVER ERROR)	The generic answer for an unexpected failure if there is no more specific information available.

Response Codes

Responses from the server contain status codes to alert the client to information about the success of the operation.

For each HTTP verb, there are expected status codes a server should return upon success:

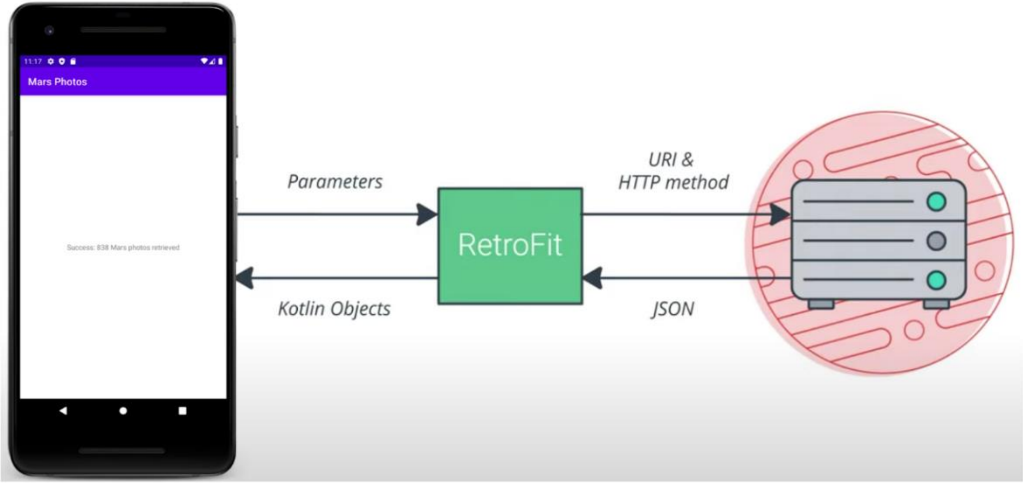
- GET — return 200 (OK)
- POST — return 201 (CREATED)
- PUT — return 200 (OK)
- DELETE — return 204 (NO CONTENT) If the operation fails, return the most specific status code possible corresponding to the problem that was encountered.

Retrofit

Retrofit is a type-safe HTTP client for Android and Java developed by Square. It makes it easy to consume RESTful APIs in your Android application. This library is very useful for making network requests as it handles the creation of HTTP requests, parsing of responses, error handling, and much more.

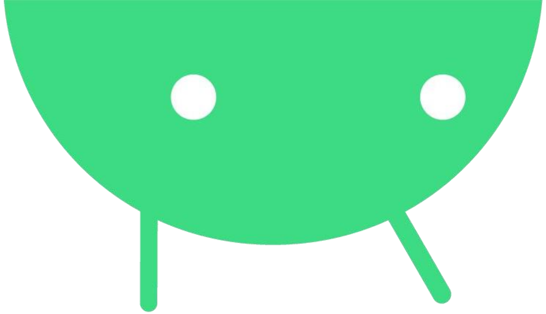
- Retrofit Android is dead simple to use. It essentially lets you treat API calls as simple Java method calls, so you only define which URLs to hit and the types of the request/response parameters as Java classes.

- The entire network call + JSON/XML parsing is completely handled by it (with help from Gson for JSON parsing), along with support for arbitrary formats with pluggable serialization/deserialization.



To work with Retrofit we basically need the following three classes:

- A model class which is used as a JSON model
- An interface that defines the HTTP operations needs to be performed
- Retrofit.Builder class: Instance which uses the interface defined above and the Builder API to allow defining the URL endpoint for the HTTP operations. It also takes the converters we provide to format the Response.



Any Question?

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