RESTful Networking for iOS

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Overview

- What is REST?
- Sample iOS App
    - Users, Posts & Comments
    - Debugging
- Frameworks & Libraries
- Summary & Links
- Questions

What is REST?

- **REST** stands for "Representational State Transfer"
- Web services to access and manipulate data using a predefined set of **stateless** operations.
- Uses standard HTTP or HTTPS connections and request methods.

HTTP Request Methods

- Two most common are **GET** and **POST**.
  - **GET** for downloading web data.
  - **POST** for uploading web data.
- Other HTTP Request Methods commonly used in REST are:
  - **PUT**
  - **PATCH**
  - **DELETE**

Create Read Update Delete (CRUD)

CRUD	RESTful HTTP Request Method
Create	POST, PUT
Read	GET
Update	PUT, PATCH
Delete	DELETE

- Create
  - POST – When you **don't** know the new resource's identifier.
  - PUT – When you **do** know the new resource's identifier.

- Update
  - PUT – When you are updating the **entire** resource.
  - PATCH – When you are updating only **part** of a resource.

JavaScript Object Notation (JSON)

- Human-readable text format used to represent key-value object and array data.

- Most commonly used RESTful data format.

- JSONPlaceholder - http://jsonplaceholder.typicode.com/
  - Fake Online REST API for Testing and Prototyping

- Examples
  - List of Posts - http://jsonplaceholder.typicode.com/posts
  - Single Post - http://jsonplaceholder.typicode.com/posts/1
  - List of Users - http://jsonplaceholder.typicode.com/users

Sample Application
Users, Posts & Comments

- Gets and displays a list of user names, displays user details.
- Gets and displays a list of user post titles, displays post bodies.
- Gets and displays a list of post comments.
- Create new posts.
- Delete posts.

Debugging

- Charles Web Debugging Proxy
  - https://www.charlesproxy.com/
- Caching
  - iOS handles it for you by default, but you can override as needed.

Frameworks & Libraries

- URLSession
  - Part of Apple's Foundation framework.
  - Replaced the deprecated NSURLConnection.
- Alamofire
  - Built on top of URLSession, removes the need for a lot of boilerplate code.
  - Great JSONSerialization abstraction. (Not applicable when using Codable.)
- Moya
  - Built on top of Alamofire.
  - Even higher level of abstraction.
  - Requires you to fully define your web services, including sample test data.

Code Demo

Summary

- REST – Representational State Transfer
- CRUD – Create, Read, Update, Delete
- JSON – JavaScript Object Notation
- Frameworks & Libraries
  - URLSession
  - Alamofire
  - Moya

Choose Your Own ~~Adventure~~ Level of Abstraction

"All abstractions hide something. Some may hide too much for you, or hide too little. Some will be perfect, just for you. But no abstraction is perfect for everyone." - @samnewman

Links

- URLSession
  - https://developer.apple.com/documentation/foundation/urlsession
- Alamofire
  - https://github.com/Alamofire/Alamofire
- Moya
  - https://github.com/Moya/Moya
- Charles Web Debugging Proxy
  - https://www.charlesproxy.com/
- JSONPlaceholder
  - http://jsonplaceholder.typicode.com/

Questions?