Welcome, Coder

Coding, we do. Solving problem, we do. Developer, we are.

Practical Coding Session — Apple Developer Academy. 29/07/2025

Industry is CRUD

Create, Read, Update, Delete

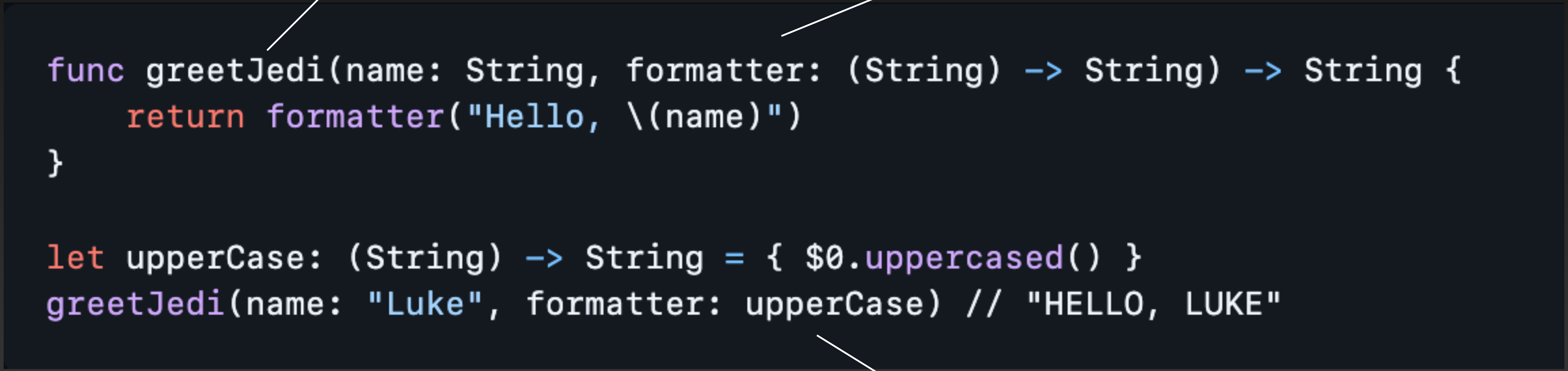
Functions are First-Class Citizens

Also known as “*Higher Order Functions*”

- Functions can be passed as an *argument* to another function

A function

Arguments (parameters)



```swift
func greetJedi(name: String, formatter: (String) -> String) -> String {
    return formatter("Hello, \(name)")
}

let upperCase: (String) -> String = { $0.uppercased() }
greetJedi(name: "Luke", formatter: upperCase) // "HELLO, LUKE"
```

Function passed as an argument

Communicating Across the Galaxy

Sending data through network

- HTTP —> XML, HTML, JSON, Byte —> We’ll explore this!
- ~~WebSocket~~
- ~~RPC~~
- ~~JSON-RPC~~
- ~~gRPC~~
- ~~GraphQL~~

REST APIs

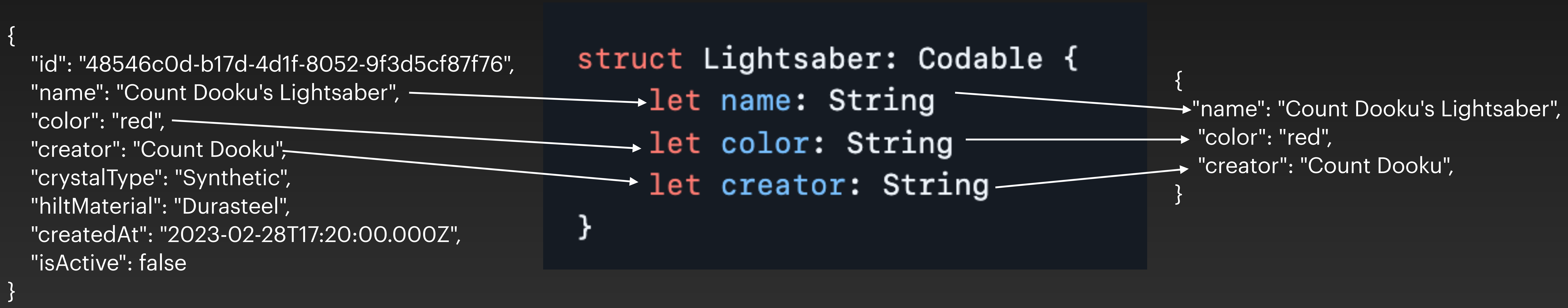
A standard to communicate through HTTP

- **Resource-based**: REST APIs use URLs to represent resources (e.g., /lightsaber/123 for a lightsaber with ID 123).
- **Stateless**: Each request contains all needed info; the server doesn’t store session state.
- **Uses HTTP**
  - GET (read)
  - POST (create)
  - PUT/PATCH (update) —> PUT: update entirely, PATCH: update partially
  - DELETE (remove)
- **Returns structured data**: Typically responds with JSON or XML.
- **Follows standard HTTP codes**: Like 200 OK, 404 Not Found, 500 Server Error.

JSON Codable

Encoder + Decoder

- APIs return raw text. We need to do decoding



```
{
    "id": "48546c0d-b17d-4d1f-8052-9f3d5cf87f76",
    "name": "Count Dooku's Lightsaber",
    "color": "red",
    "creator": "Count Dooku",
    "crystalType": "Synthetic",
    "hiltMaterial": "Durasteel",
    "createdAt": "2023-02-28T17:20:00.000Z",
    "isActive": false
}
```

```swift
struct Lightsaber: Codable {
    let name: String
    let color: String
    let creator: String
}
```

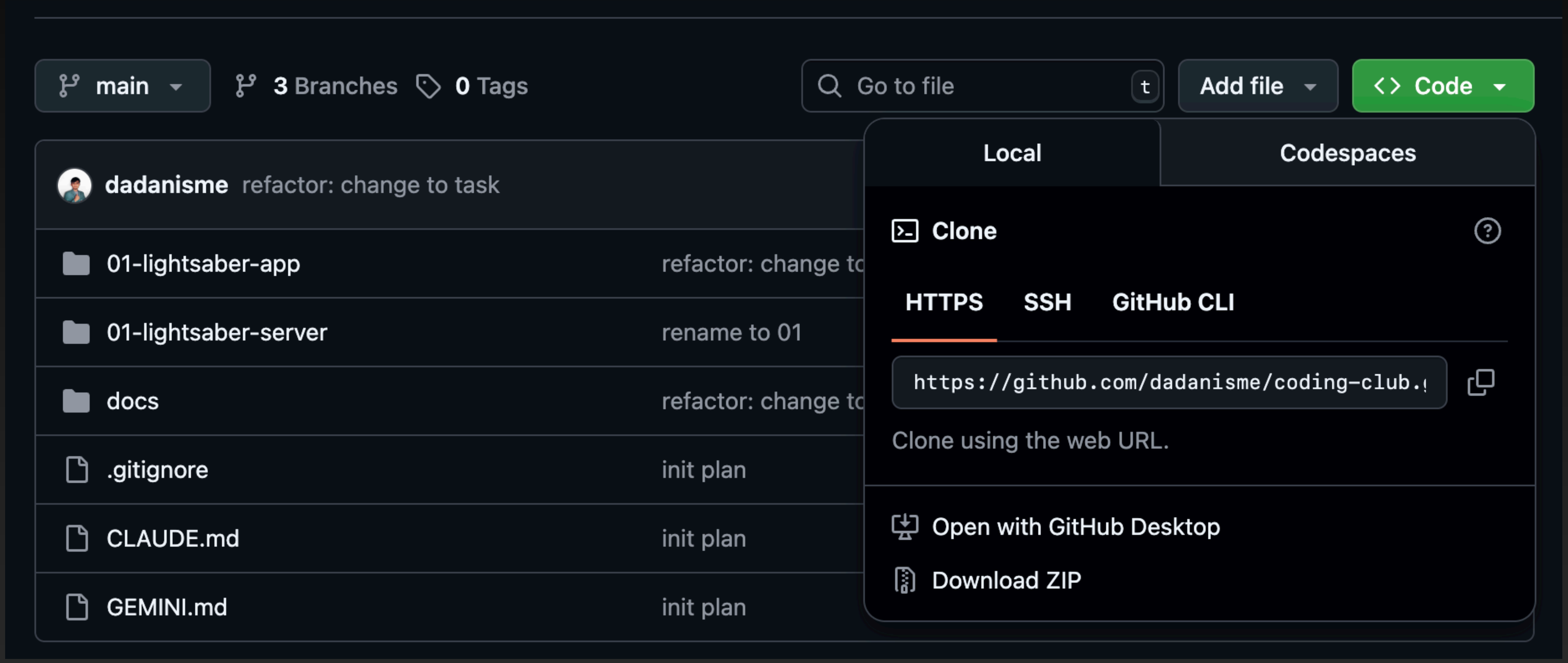
```
{
 "name": "Count Dooku's Lightsaber",
 "color": "red",
 "creator": "Count Dooku",
}
```

Decoding

Encoding

Enough. Coding, let us do.

Clone this GitHub repository



main
3 Branches 0 Tags
Go to file t
Add file
Code

dadanisme refactor: change to task

01-lightsaber-app	refactor: change to
01-lightsaber-server	rename to 01
docs	refactor: change to
.gitignore	init plan
CLAUDE.md	init plan
GEMINI.md	init plan

Local Codespaces

Clone

HTTPS SSH GitHub CLI

```
https://github.com/dadanisme/coding-club.g
```

Clone using the web URL.

Open with GitHub Desktop

Download ZIP

Clone main, then open `01-lightsaber-app` on your Xcode

https://github.com/dadanisme/coding-club

Create-RUD

Create new lightsaber

```swift
func createLightsaber(_ lightsaber: Lightsaber) {
    var request = URLRequest(url: url)
    request.httpMethod = "POST"
    request.setValue("application/json", forHTTPHeaderField: "Content-Type")
    request.httpBody = try JSONEncoder().encode(lightsaber)

    let task = URLSession.shared.dataTask(with: request) { data, response, error in
        // Handle creation response
    }

    task.resume()
}
```

C-Read-UD

Get all lightsabers data

```swift
func fetchLightsabers() {
    let url = URL(string: "\(baseURL)/lightsabers")!

    let task = URLSession.shared.dataTask(with: url) { data, response, error in
        DispatchQueue.main.async {
            // Handle response, decode JSON, update UI
        }
    }

    task.resume()
}
```

CR-Update-D

Update existing lightsaber data

CRU-Delete

Delete existing lightsaber data

The Dark Side

You need to handle errors!

- Add loading for better UX
- Tell the user when something went wrong
- Handle the error gracefully

Challenge

Filter the lightsabers!

- The endpoint `/api/lightsabers` accepts 3 query parameters:
  - `color` — filter by lightsaber's color
  - `creator` — filter by creator
  - `active` — filter by active status
- Implement in `GET` request
- Add the filtering UI accordingly

Advanced Topics

Authentication

- How does authentication work?
- Authenticating with JWT
- Make an authenticated request
- Handle when token expires
- Gracefully refreshing token & retry the request
- Redirecting unauthenticated user

QnA