Kotlin Flow: A New Hope

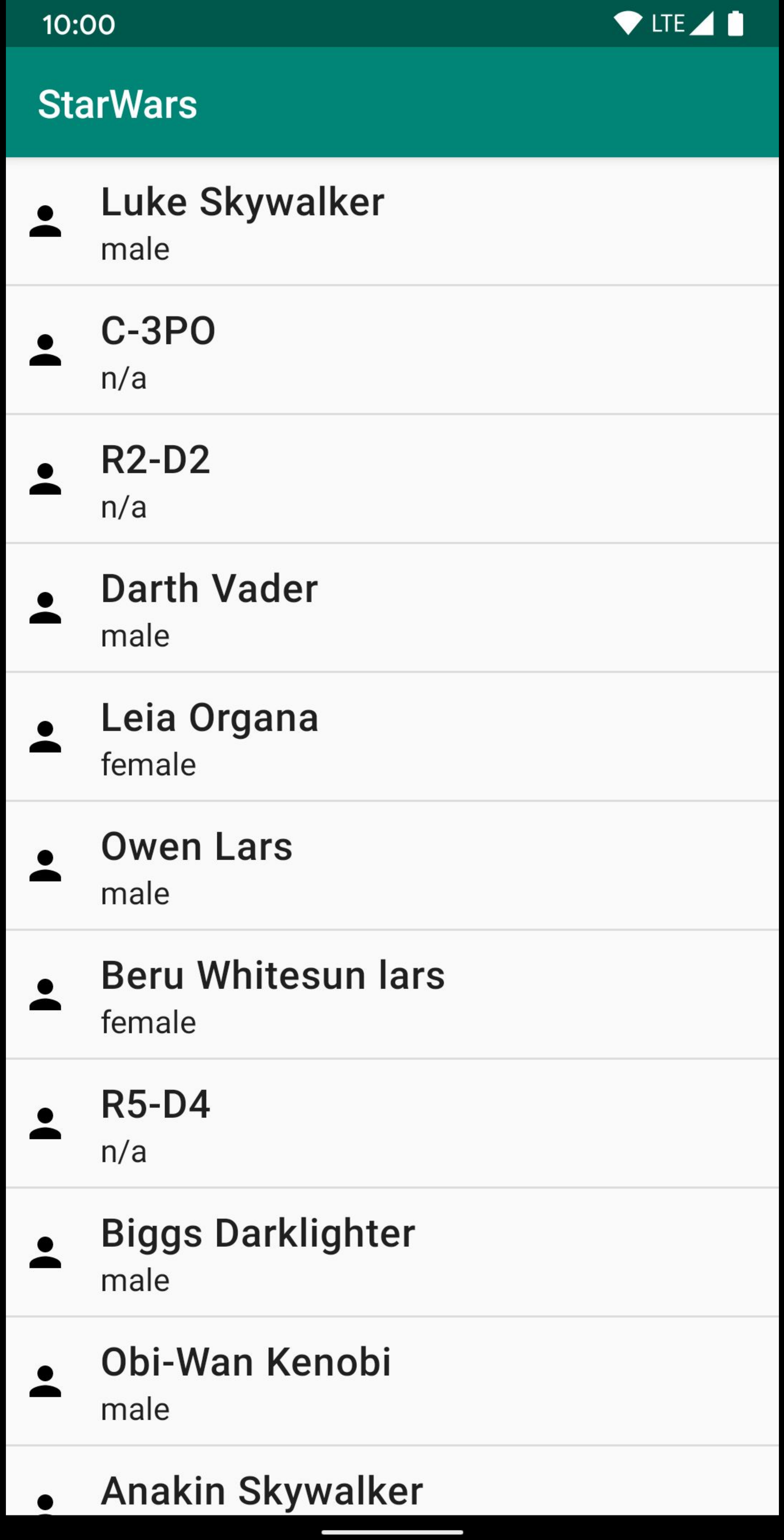
A long time ago, in a galaxy far far away….

Clone: https://github.com/shredderskelton/star-wars-flow and follow along…

“Being able to explore the existing code that uses reactive streams had given us tremendous hindsight during our design process.”

Reactive Streams and Kotlin - Roman Elizarov

https://medium.com/@elizarov/reactive-streams-and-kotlin-flows-bfd12772cda4



10:00 LTE

StarWars

Luke Skywalker
male

C-3PO
n/a

R2-D2
n/a

Darth Vader
male

Leia Organa
female

Owen Lars
male

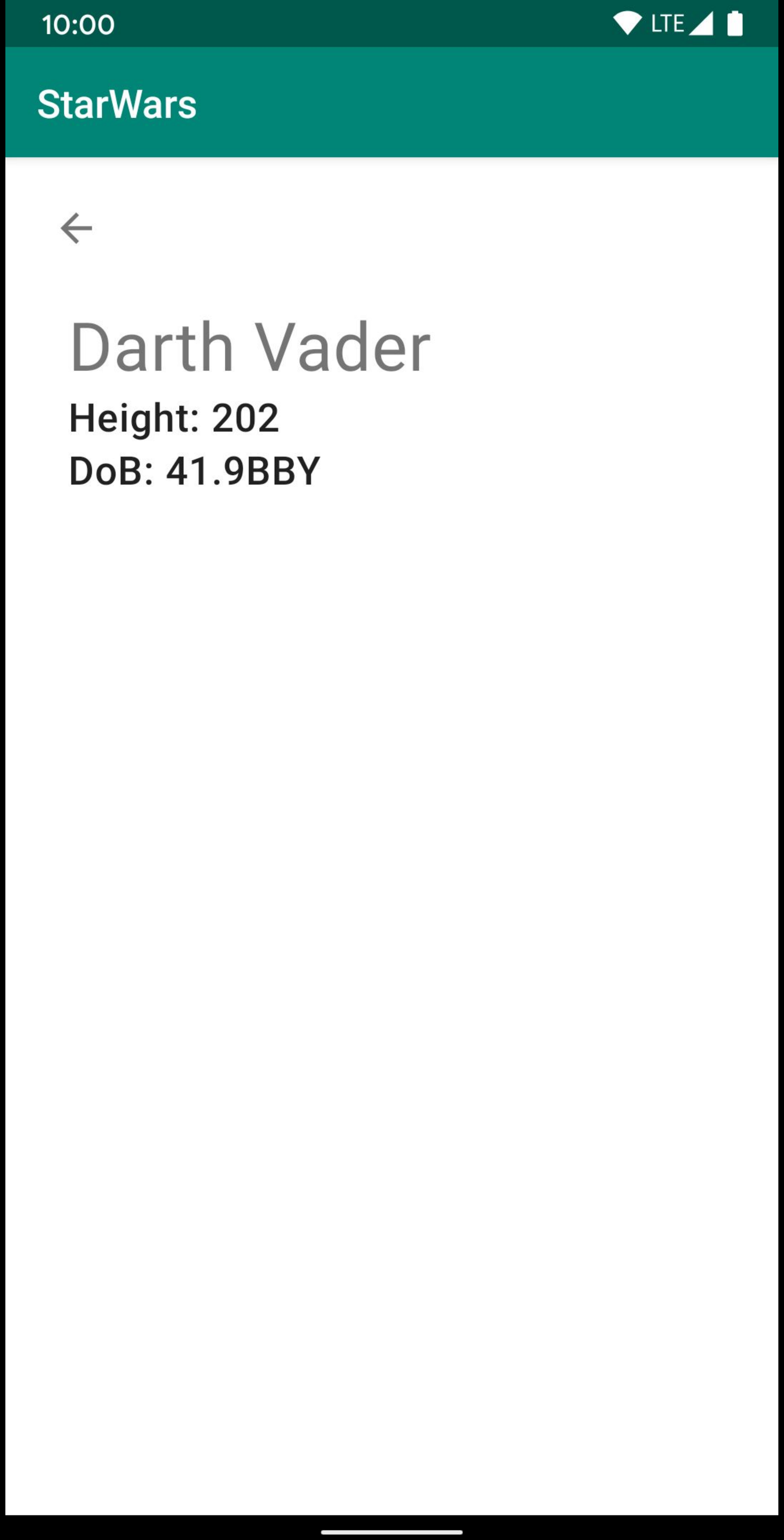
Beru Whitesun lars
female

R5-D4
n/a

Biggs Darklighter
male

Obi-Wan Kenobi
male

Anakin Skywalker



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StarWars

←

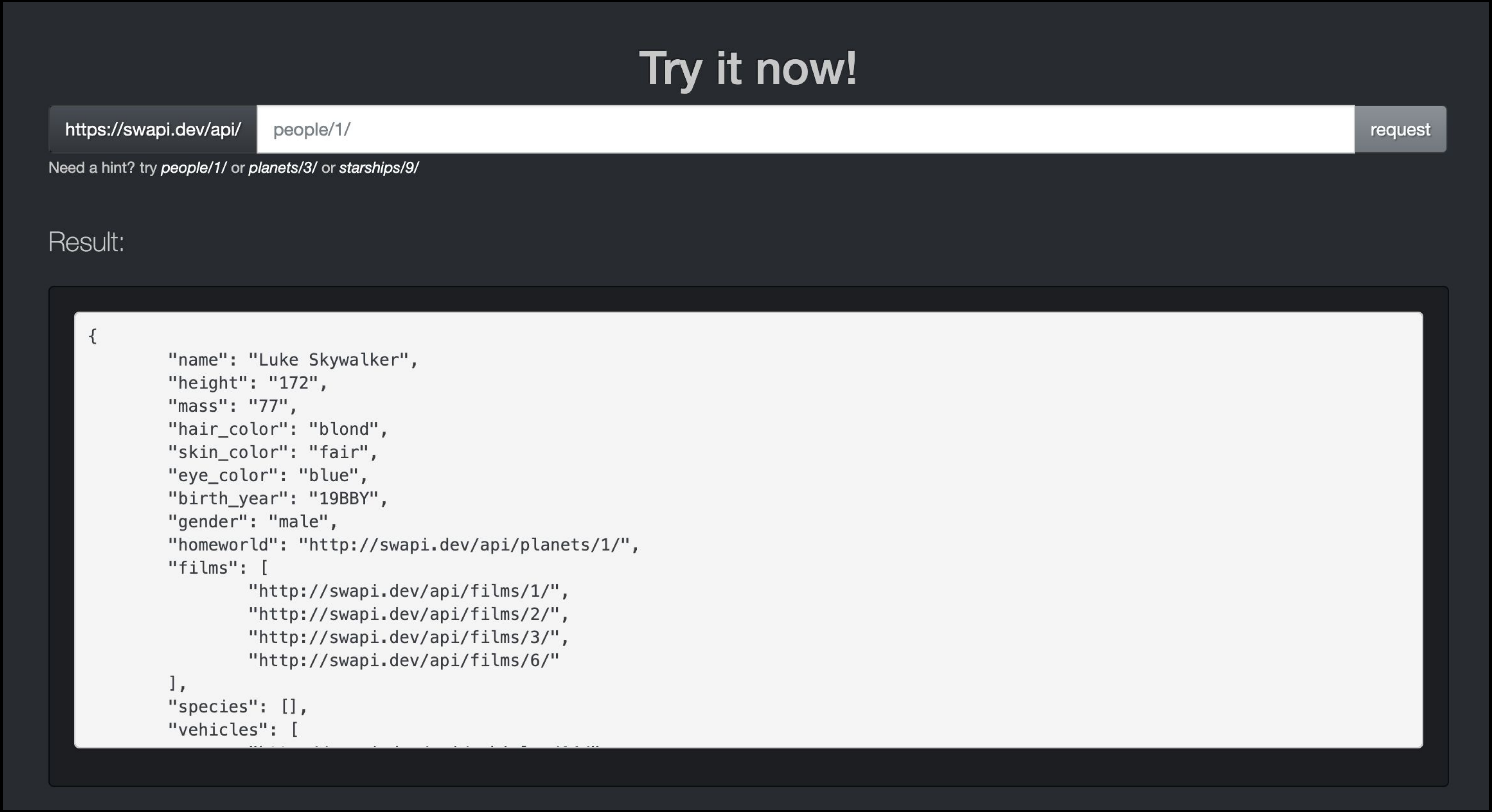
Darth Vader

Height: 202

DoB: 41.9BBY

SWAPI

The Star Wars API



Try it now!

Need a hint? try *people/1/* or *planets/3/* or *starships/9/*

Result:

```
{
        "name": "Luke Skywalker",
        "height": "172",
        "mass": "77",
        "hair_color": "blond",
        "skin_color": "fair",
        "eye_color": "blue",
        "birth_year": "19BBY",
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        "homeworld": "http://swapi.dev/api/planets/1/",
        "films": [
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                "http://swapi.dev/api/films/6/"
        ],
        "species": [],
        "vehicles": [
```

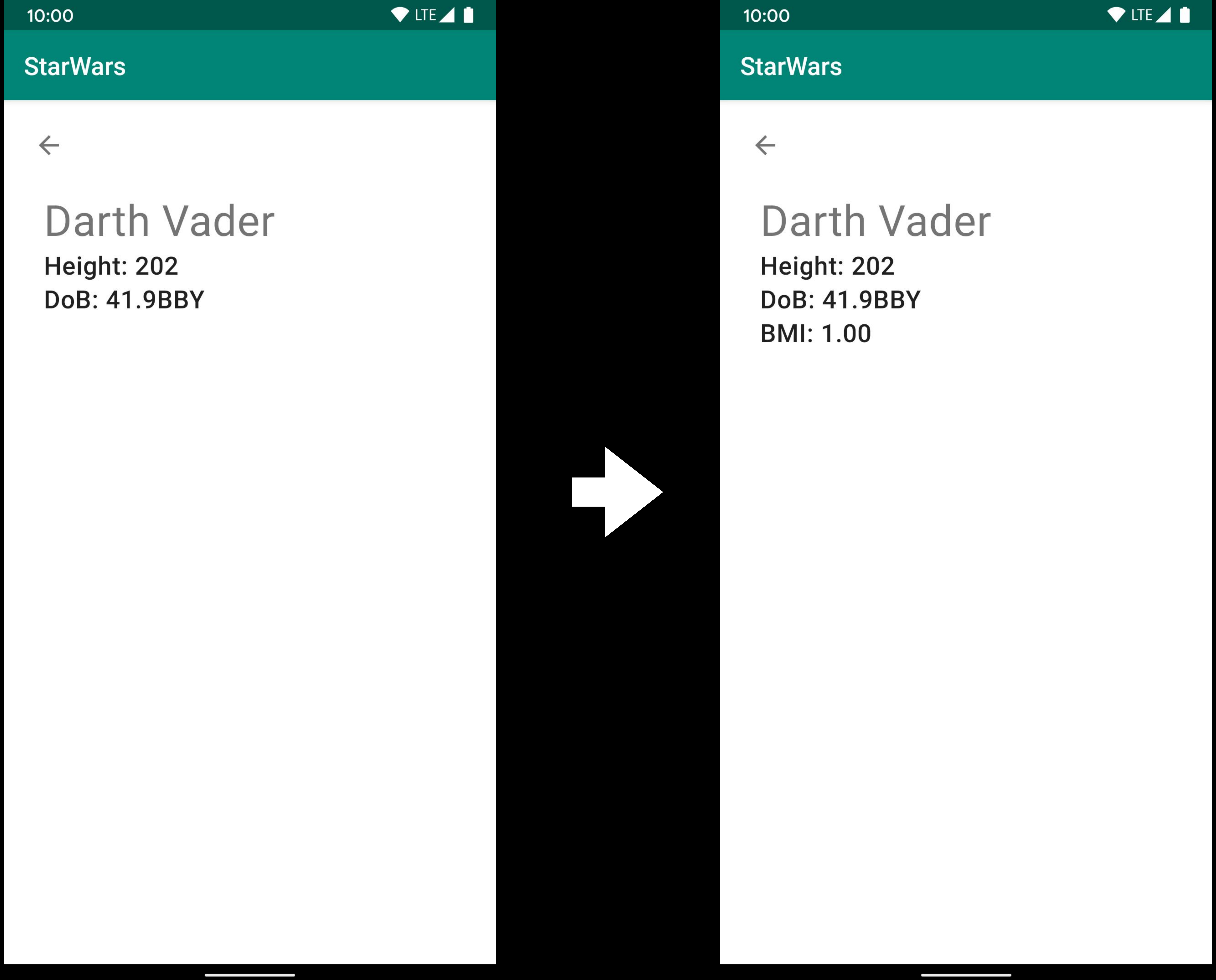
Task 1: Extend

How well can you copy and paste?

Calculate each characters Body Mass Index

BMI = weight ÷ height.

Add some fields to a DTO class and push them onto the screen via a little calculation.



Darth Vader

Height: 202

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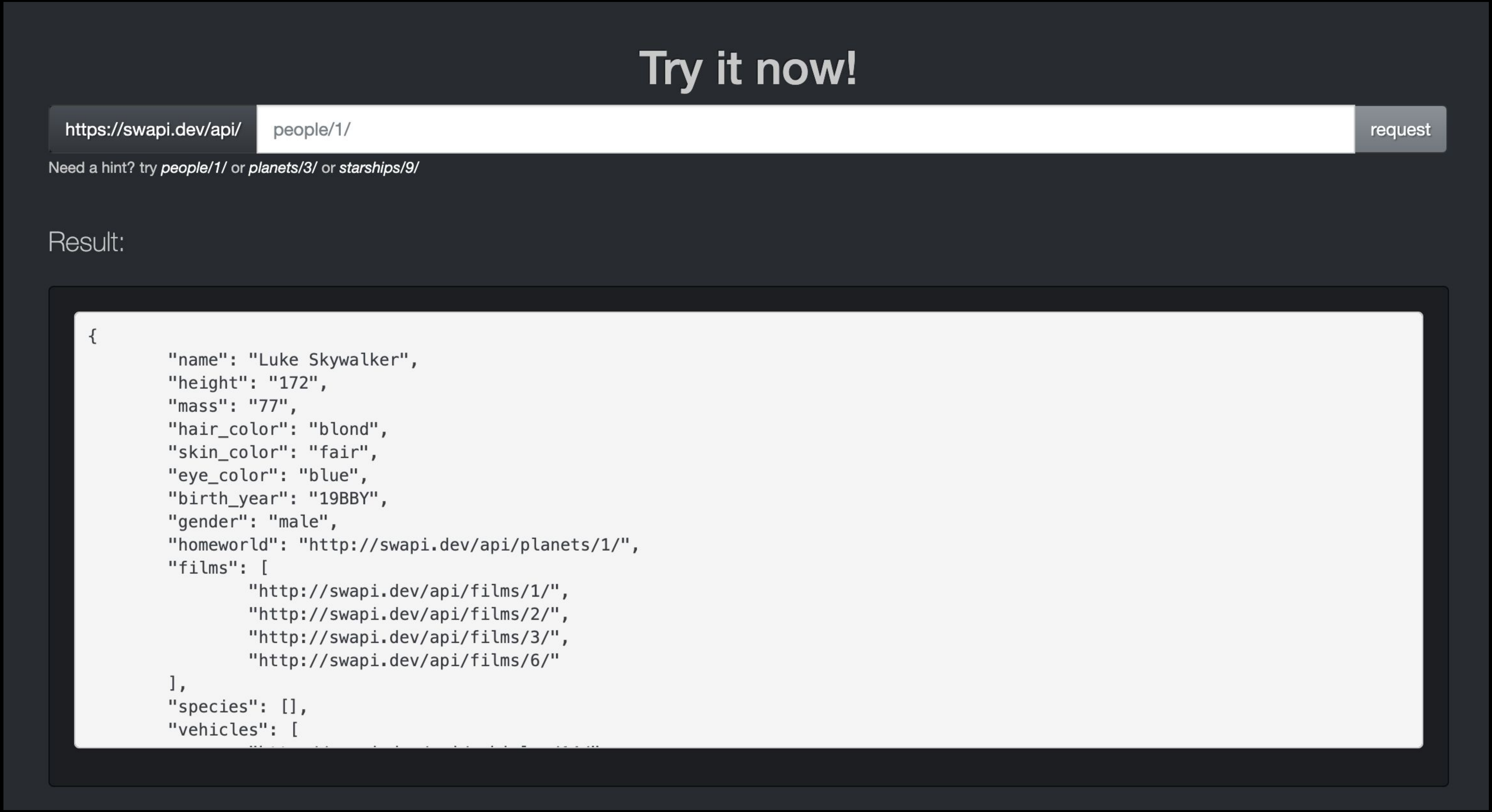
BMI: 1.00



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https://swapi.dev/api/ people/1/

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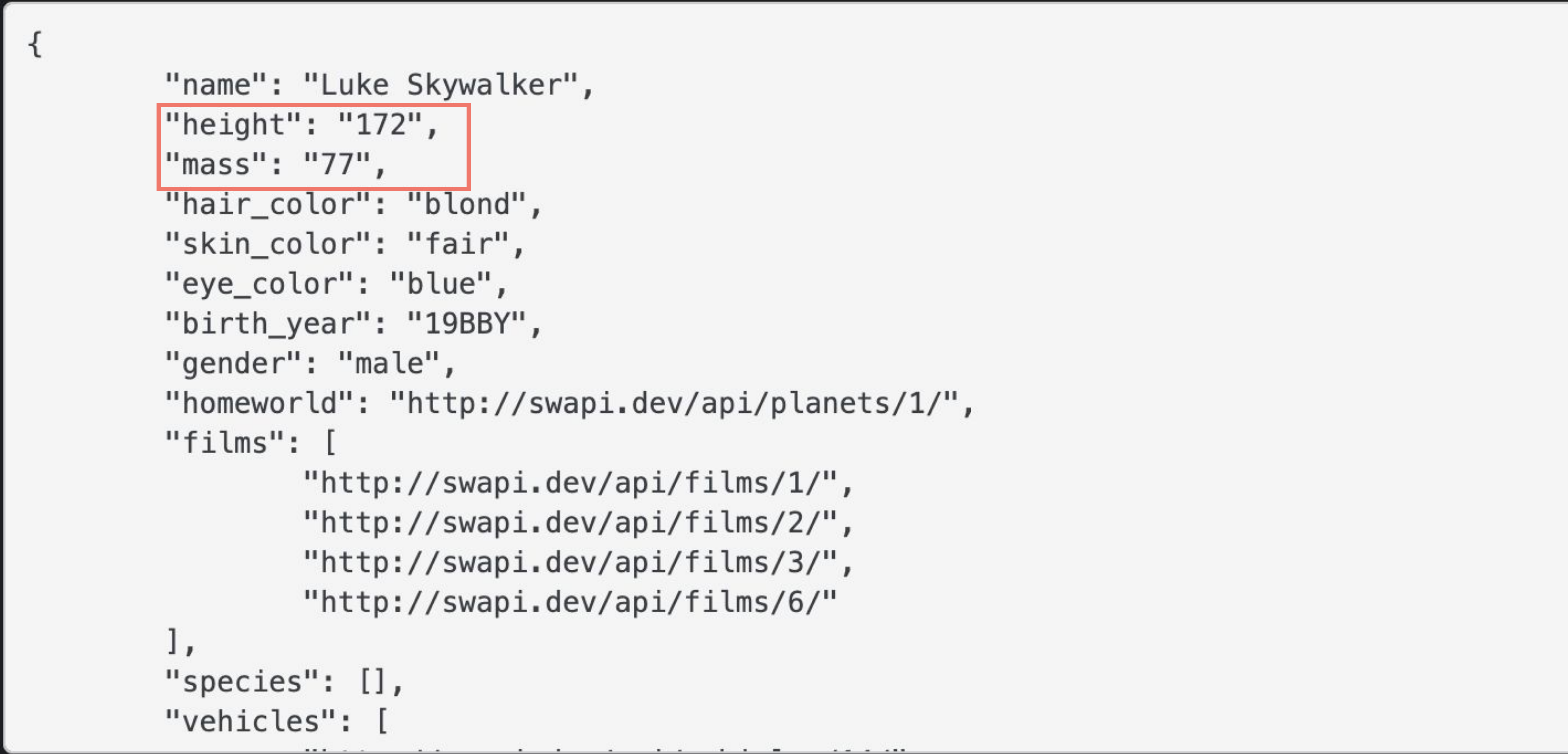

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Code

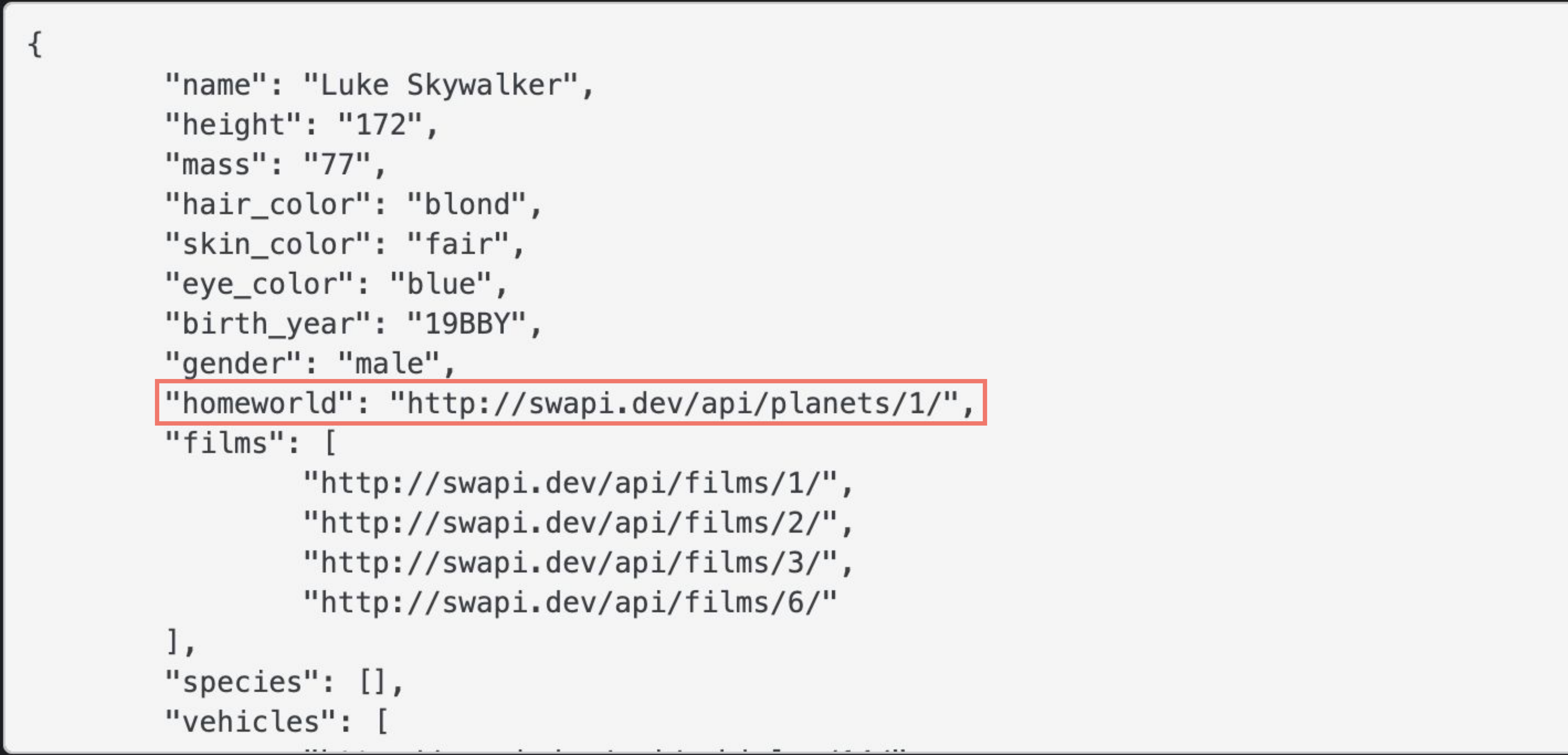
<Flow>

Task 2: flatMap

The real power of reactive patterns

Add some details about the character’s home planet to the screen.

Now each Detail screen requires two calls: GET person then GET planet.



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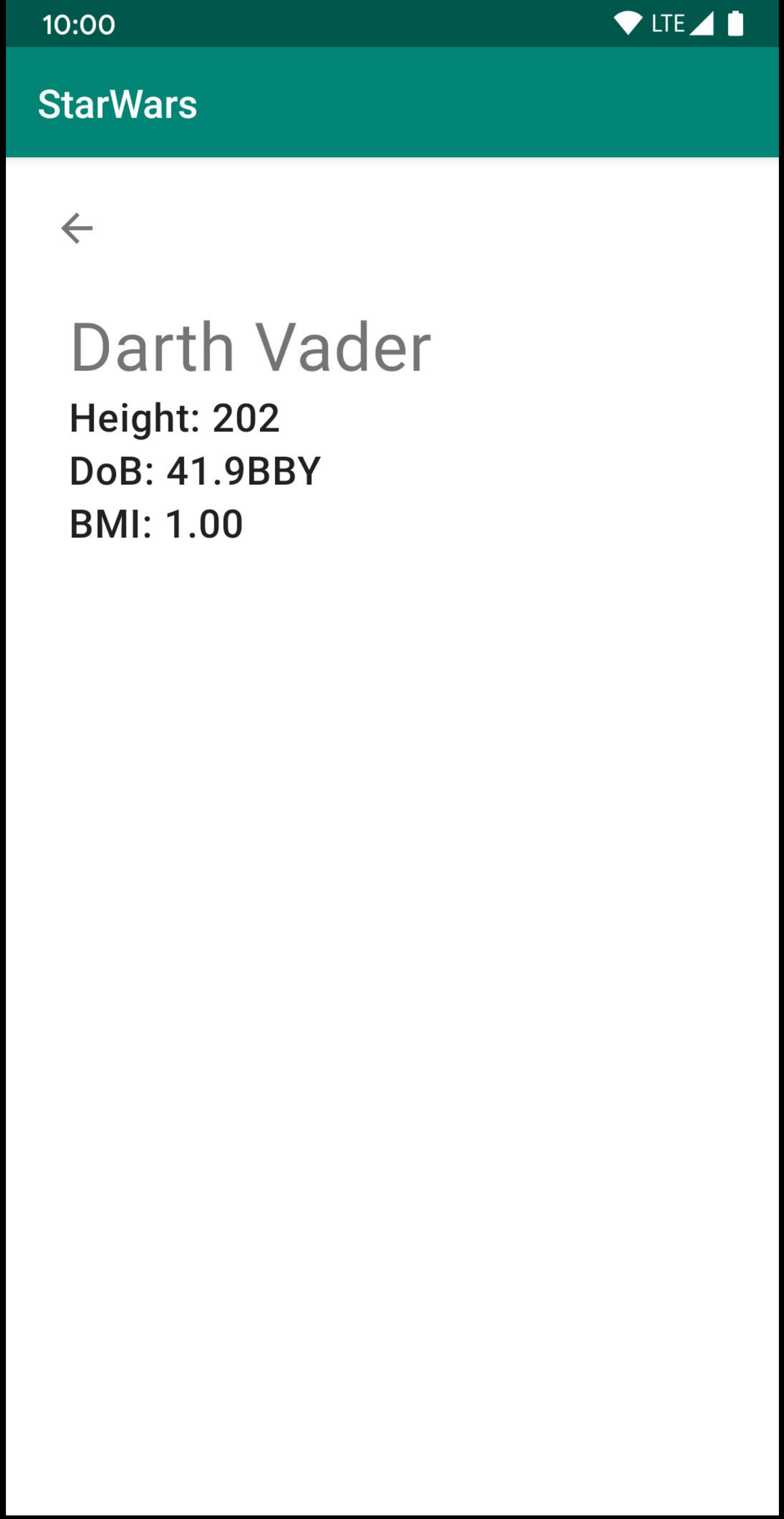

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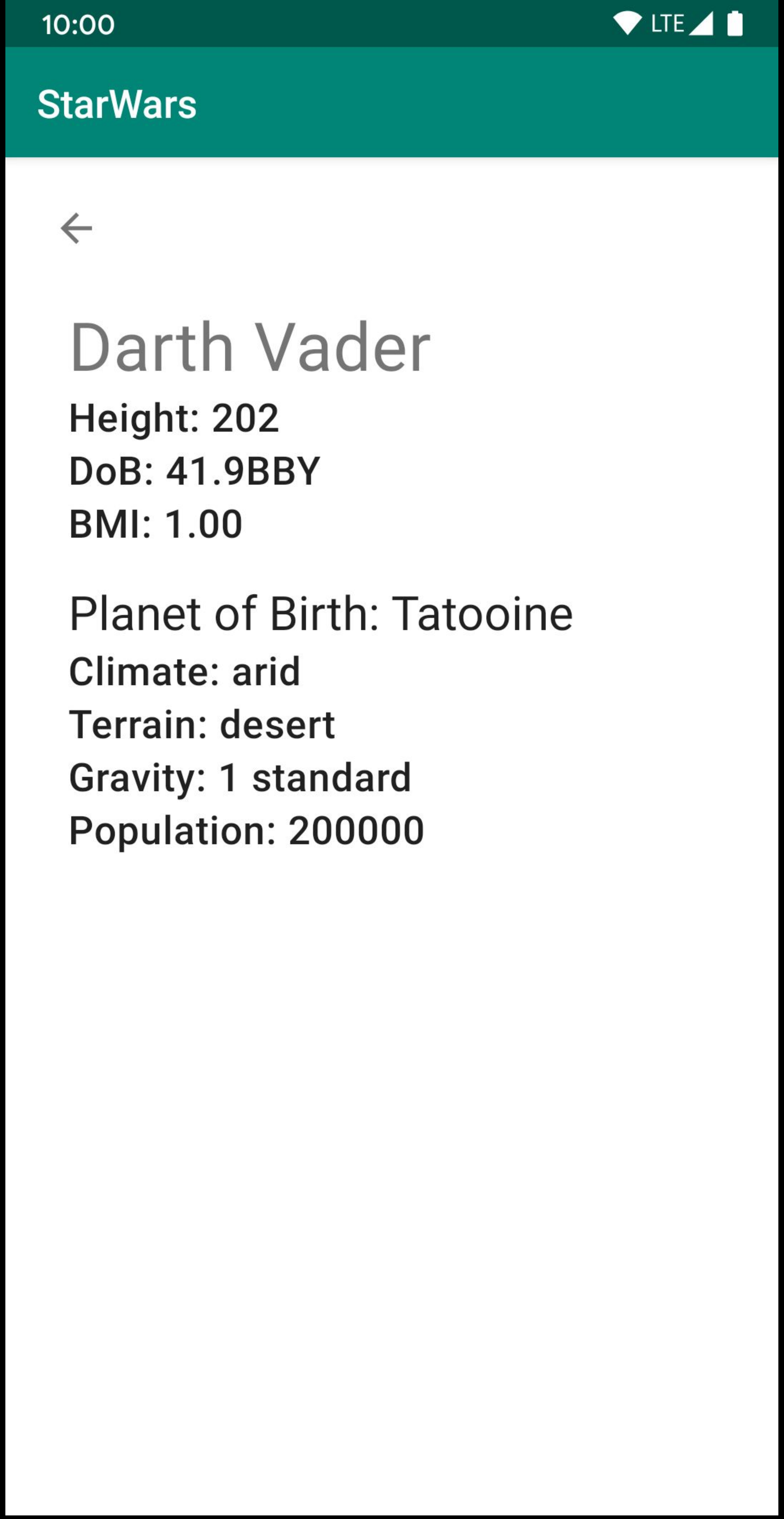

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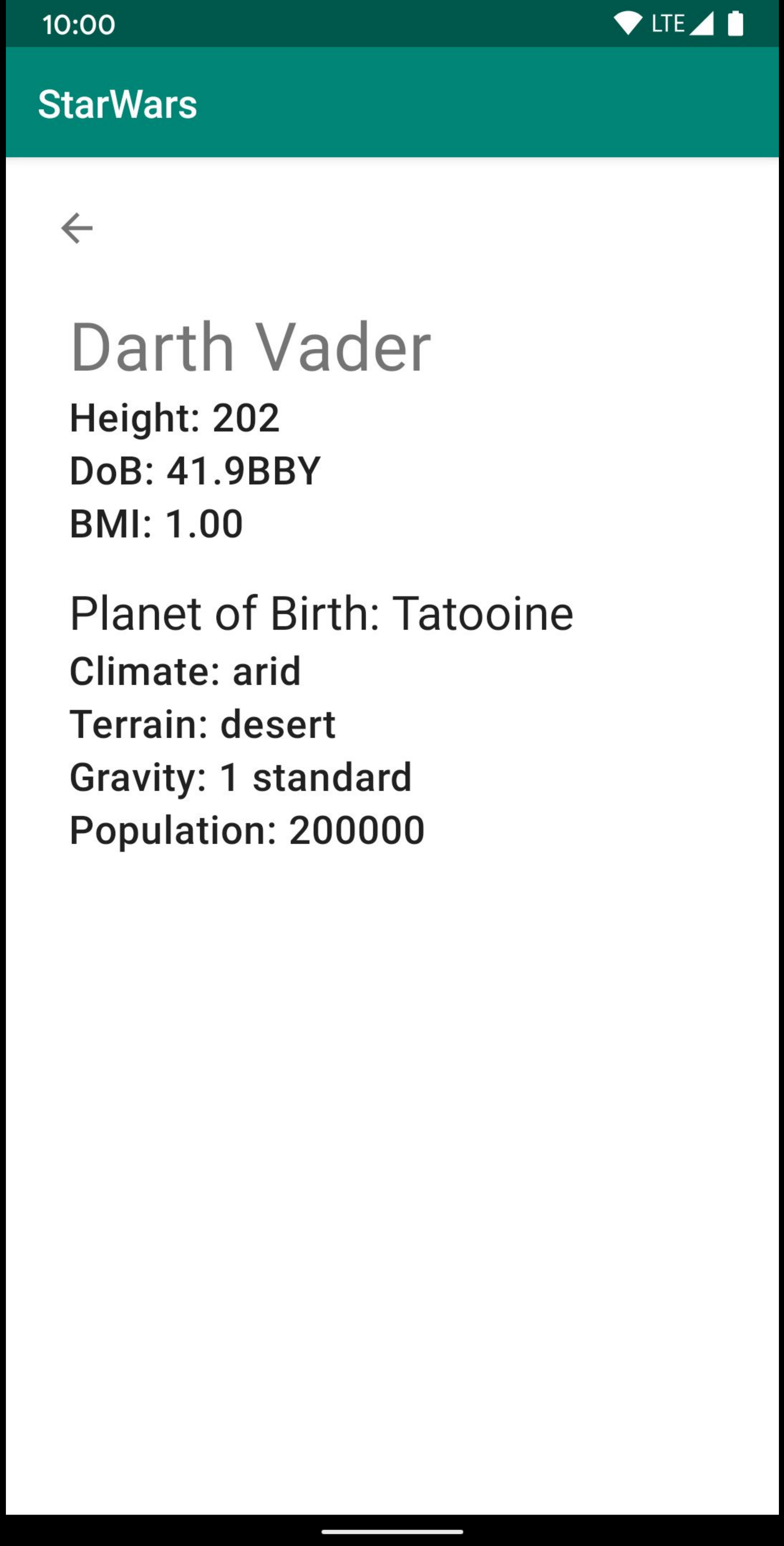
Planet of Birth: Tatooine

Climate: arid

Terrain: desert

Gravity: 1 standard

Population: 200000



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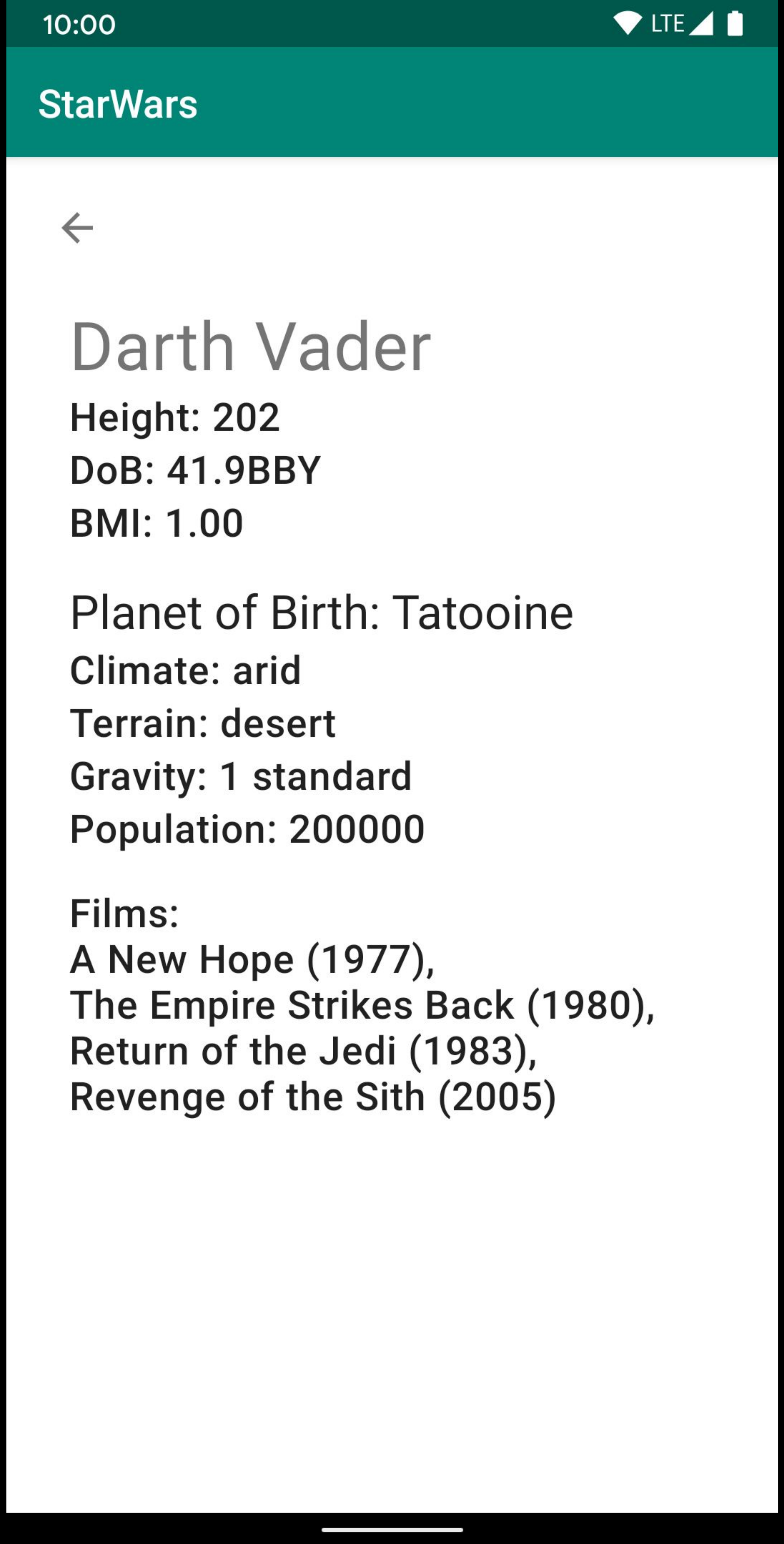

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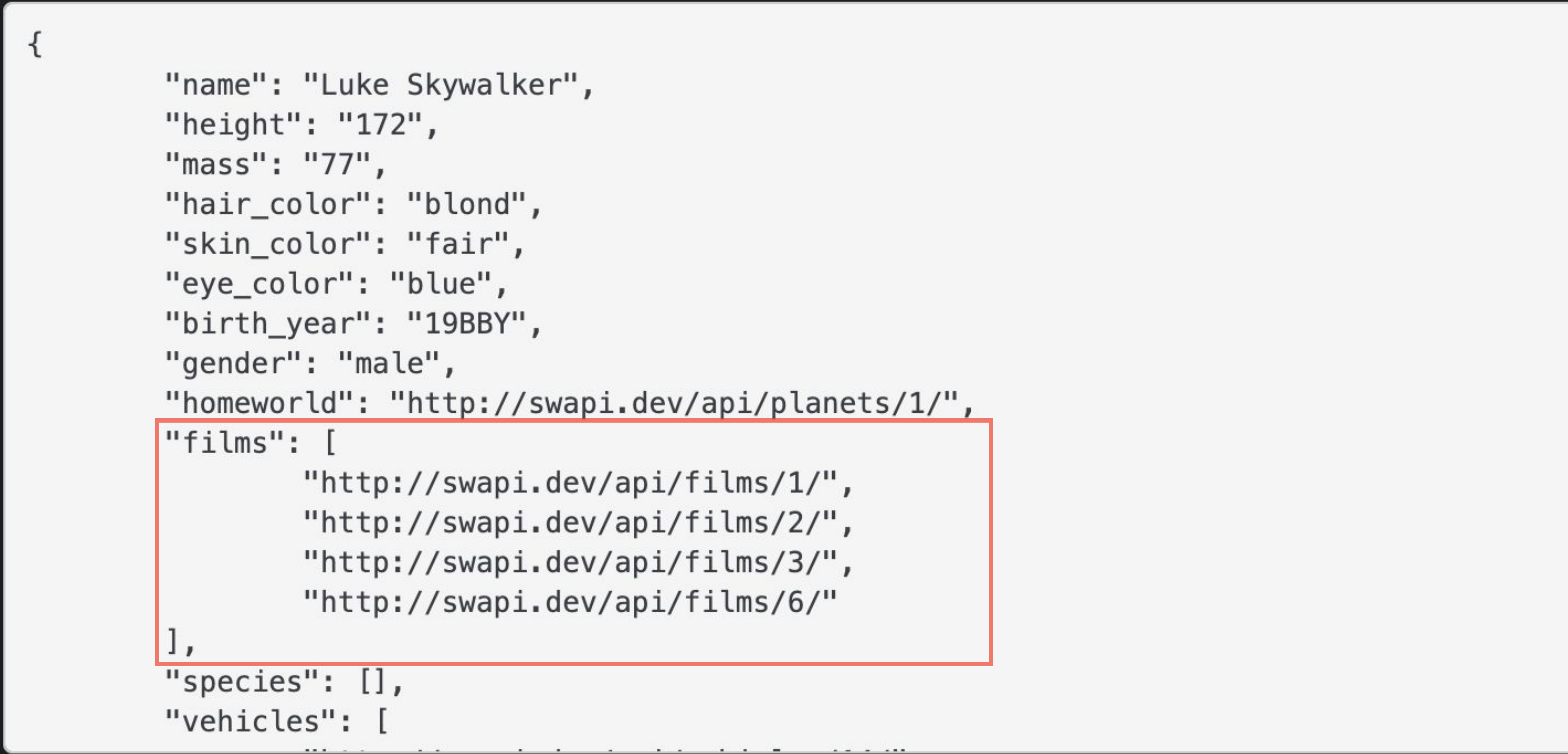
Terrain: desert
Gravity: 1 standard
Population: 200000

Films:
A New Hope (1977),
The Empire Strikes Back (1980),
Return of the Jedi (1983),
Revenge of the Sith (2005)



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```

Task 3: Scan

Where Wizards dare…

Calculate a breakdown of the films the character has starred in:

A New Hope (1977), Empire Strikes Back (1980), Return of the Jedi (1983).

The Detail screen now requires:

- GET person (1)
  - GET planet (1)
  - GET Films (n)

Code

<Flow>

Some thoughts…

- Migration: Flow interops with LiveData & RxJava.
- Testing: Use Turbine from Square.
- Exception handling: same as coroutines.

May the force be with you

… and these useful links

- Github Coroutines Repository (https://github.com/Kotlin/kotlinx.coroutines)
- Star Wars App (https://github.com/shredderskelton/star-wars-flow)
- Roman Elizarov's article (https://medium.com/@elizarov/reactive-streams-and-kotlin-flows-bfd12772cda4)
- Star Wars Open API (https://swapi.dev/)