

# StepBit



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# Background

01

Quick,  
entertaining  
and pleasurable  
way to discover  
new places

02

Increase the  
popularity of  
local restaurants  
to compete with  
ESU canteen

03

Attention to the  
details

# What are the problems?

## 8 DECENT WORK AND ECONOMIC GROWTH



Target 8.9

- Promote sustainable tourism
- Promote sustainable products and culture
- Motivate people to move and explore the surroundings

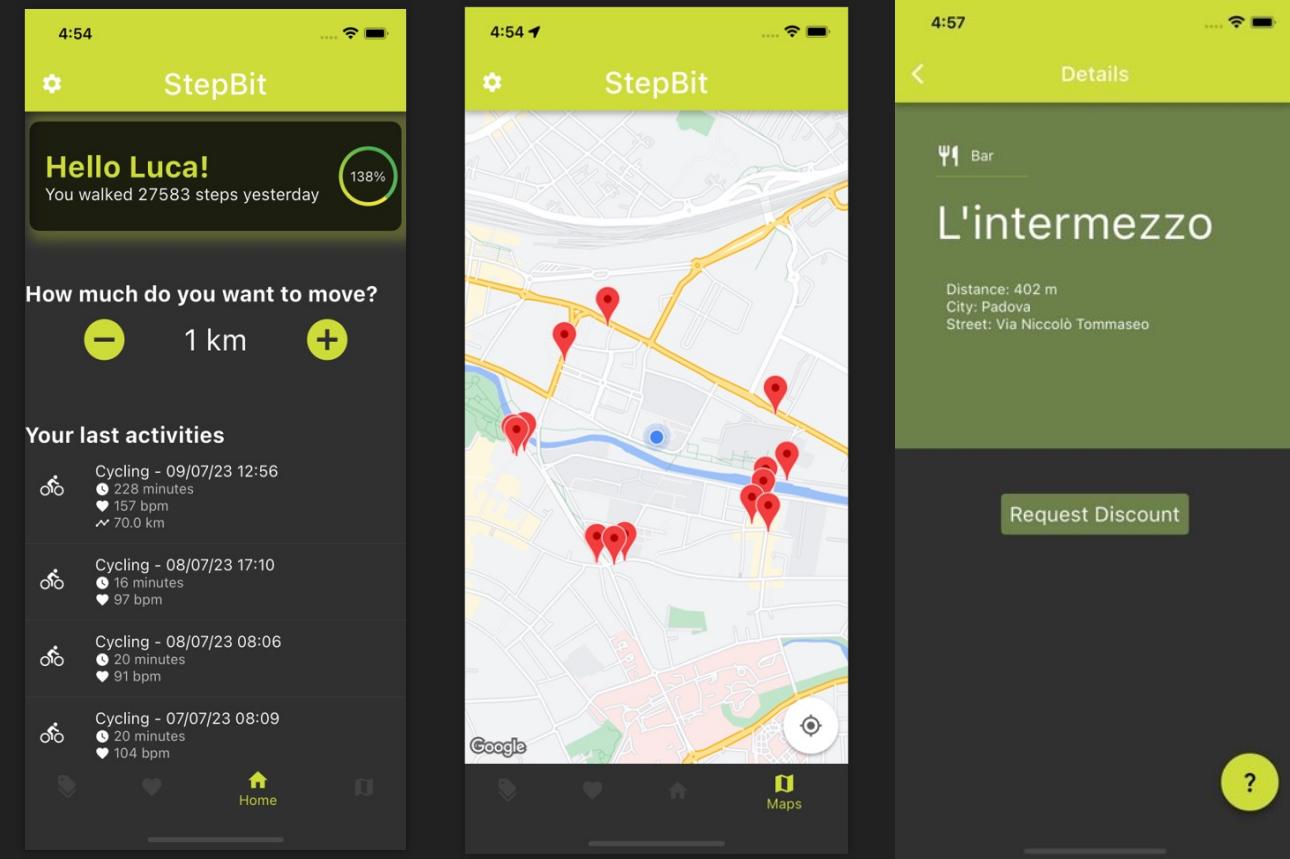


# StepBit

*Just pass by*

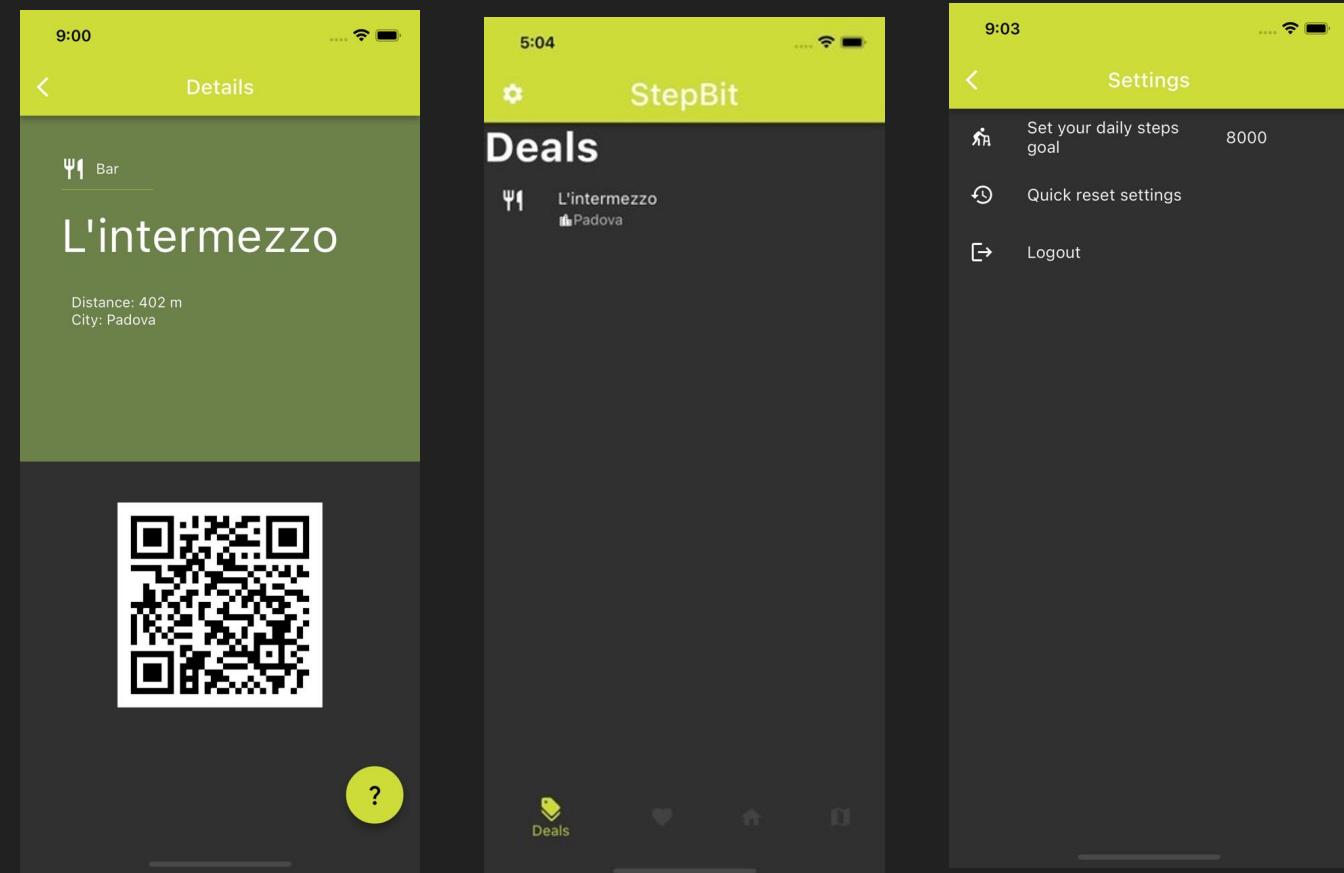
# StepBit – Core Functionalities

- Pol suggestions and directions
- Past activities overview
- Discount requests
- Moving distance selection



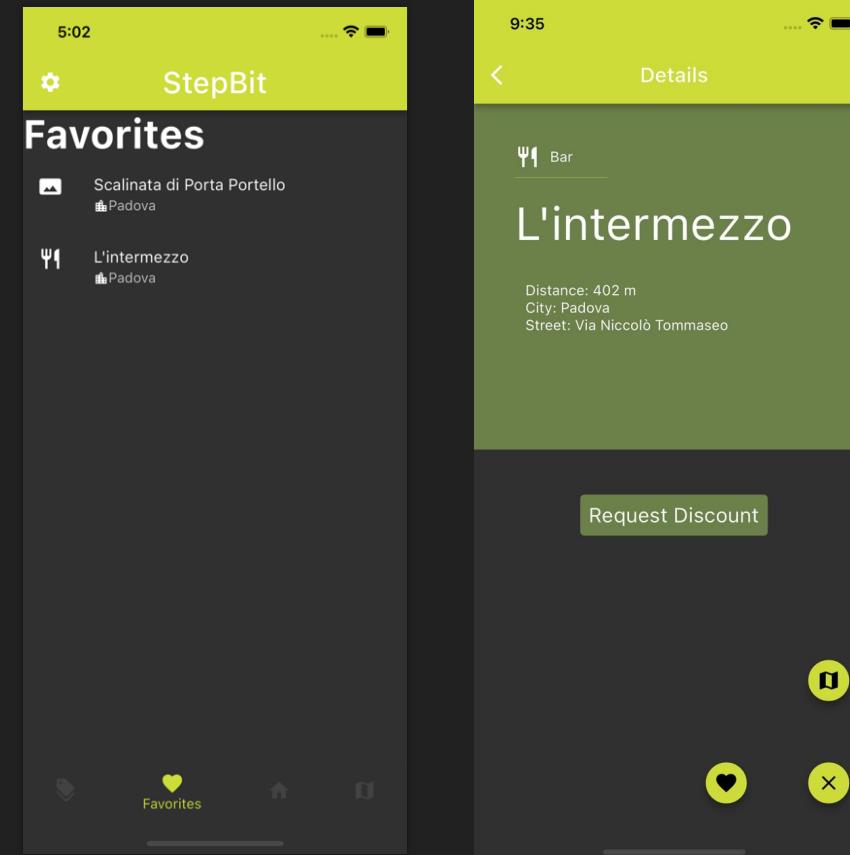
# StepBit – Additional features

- Discount visualization
- Active deals overview
- Settings (step goal selection, ecc.)



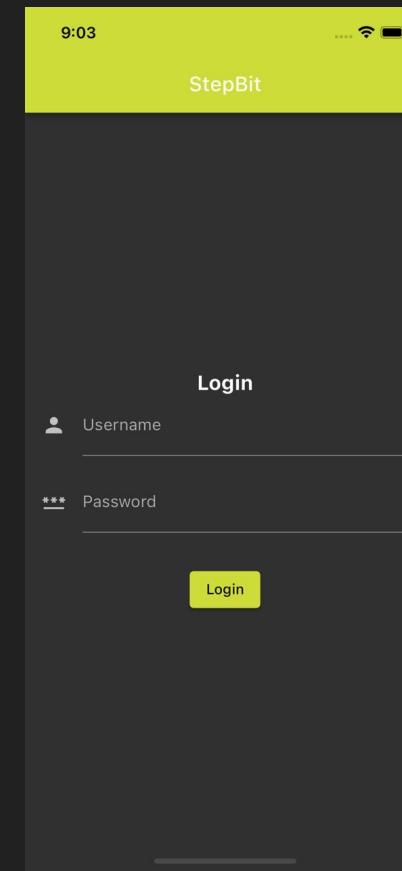
# StepBit – Additional features

- Favorite Pol saving/deletion
- Favorites overview



# User authentication & data management

- Tokens retrieved via APIs
- Tokens stored encrypted using the FlutterSecureStorage library
- Token refresh is done through the DIO library



# Data collection

We used the following APIs:

1. [impact.dei.unipd.it/bwthw](http://impact.dei.unipd.it/bwthw)
2. [overpass-api.de](http://overpass-api.de)
3. Google Maps API



- All network calls made with the DIO library
- Caching system implemented to improve performance



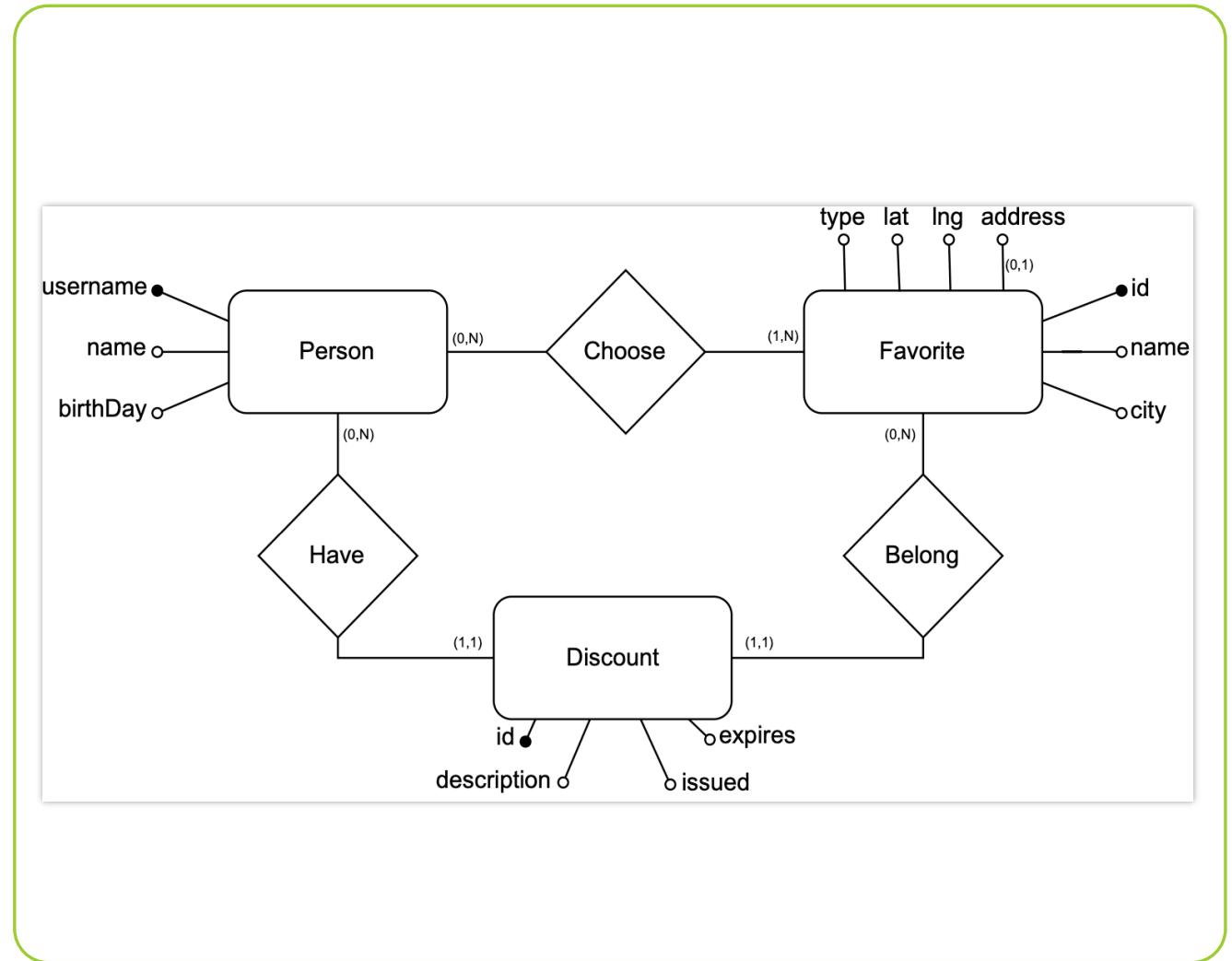
# Overpass API

POI that we are interested in:

- Attraction
- Viewpoint
- Museum
- Gallery
- Restaurant
- Bar
- Ice cream

```
[out:json][timeout:10];
(
  · node[tourism=attraction](around:500.0, 45.411327, 11.887632);
  · node[tourism=viewpoint](around:500.0, 45.411327, 11.887632);
  · node[tourism=museum](around:500.0, 45.411327, 11.887632);
  · node[tourism=gallery](around:500.0, 45.411327, 11.887632);
  · node[amenity=restaurant](around:500.0, 45.411327, 11.887632);
  · node[amenity=bar](around:500.0, 45.411327, 11.887632);
  · node[amenity=ice_cream](around:500.0, 45.411327, 11.887632);
);
out center;
```

# Data persistence



## Your last activities

 Cycling - 09/07/23 12:56  
 228 minutes  
 157 bpm  
 70.0 km

 Cycling - 08/07/23 17:10  
 16 minutes  
 97 bpm

 Cycling - 08/07/23 08:06  
 20 minutes  
 91 bpm

 Cycling - 07/07/23 08:09  
 20 minutes  
 104 bpm



Bar

# L'intermezzo

Distance: 402 m  
City: Padova  
Street: Via Niccolò Tommaseo

Hello Luca!  
Loading data...



# Data visualization

# Network cache

- While developing the app we noticed that network calls were not always fast
- Therefore, we decided to implement caching policies to reduce traffic

```
final options = CacheOptions(  
    ..store: MemCacheStore(),  
    ..policy: CachePolicy.request,  
    ..hitCacheOnErrorExcept: [401, 403],  
    ..maxStale: const Duration(days: 1),  
    ..priority: CachePriority.normal,  
    ..cipher: null,  
    ..keyBuilder: CacheOptions.defaultCacheKeyBuilder,  
    ..allowPostMethod: false,  
) // CacheOptions  
dio.interceptors.add(DioCacheInterceptor(options: options));
```

# Missing data

- Some POIs do not provide address or location data
- For this, we have used the coordinates to call another API which returns us the town and street

```
Future<String?> getCity() async {
  if (poi.getCity() != null) {
    return poi.getCity();
  }
  try {
    final placemarks = await placemarkFromCoordinates(
      poi.position.latitude, poi.position.longitude);
    return placemarks.firstOrNull?.locality;
  } catch (err) {
    return null;
  }
}
```

# Privacy



LOGIN DATA IS ENCRYPTED AND  
STORED ON THE DEVICE



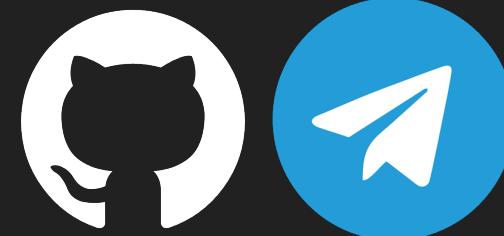
THE DATA RELATING TO STEPS,  
FAVORITES AND DISCOUNTS ARE  
PROCESSED LOCALLY

# Project management flavours

Incremental project development

Subdivided the implementation of the functionalities/scopes between members of the group

- Models, database and favorite functionalities
- Discounts and map functionalities
- User authentication, application general structure, settings



# The future

- Develop our server to better handle discounts
- Integrate the app with Google Fit and Apple HealthKit
- Implement notifications to remind the user to move
- Select POIs based on health conditions
- Light theme

# LIVE DEMO