

Mobile Application Development with Android

Development of the app: GöSchenkt

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Outline

- Motivation
- Our Idea
- App Structure
 - REST API
 - Data Flow
 - App Functionality
- Live-Demo
- Encountered Problems

Motivation

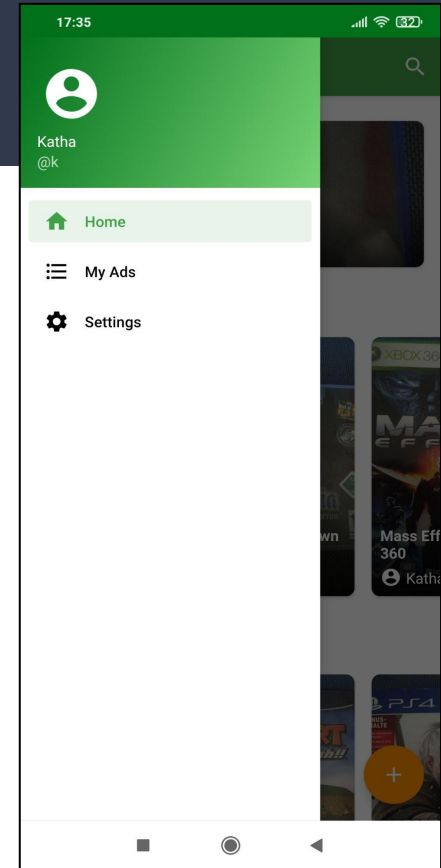
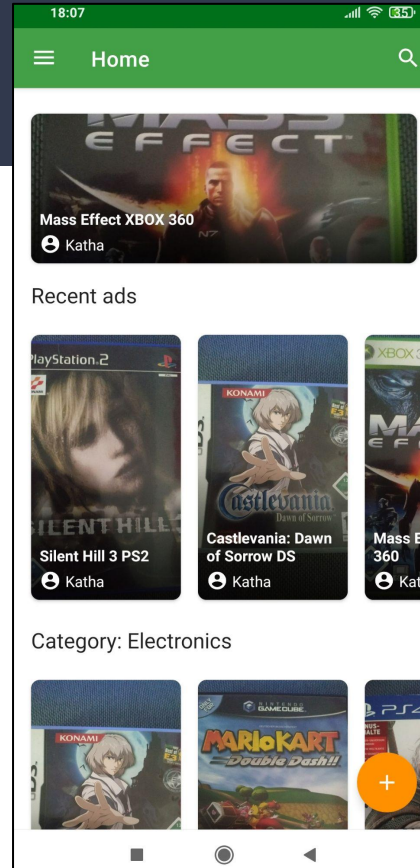
- Many students have stuff they don't need anymore
- People currently use Telegram chats for this problem
- How about we develop an app for this?
 - An app could reach more people
 - Better discoverability of stuff you want
 - Better tailored for this than messaging app

Our Idea

- People can publish their intent
- Upload and delete images
- Users will be contacted over email, telephone or Telegram
- Interesting start page
- Search and sort functionality
- Server & Login

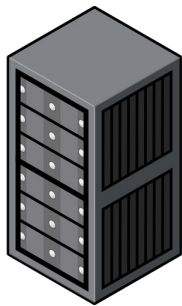
App Structure

- App targets API 26+ (Android 8.0+)
- One module divided into 3 high level packages:
 - de.androidlab.finalproject.api
 - de.androidlab.finalproject.data
 - de.androidlab.finalproject.ui
- Permissions:
 - Internet & Network
 - External Storage
- Uses the camera feature
- MainActivity with NavigationDrawer
- + 5 other activities



REST API





Django REST API
(+ Postgres database)

<https://androidlab-lenke.herokuapp.com/>

JSON over HTTPS



Retrofit Library

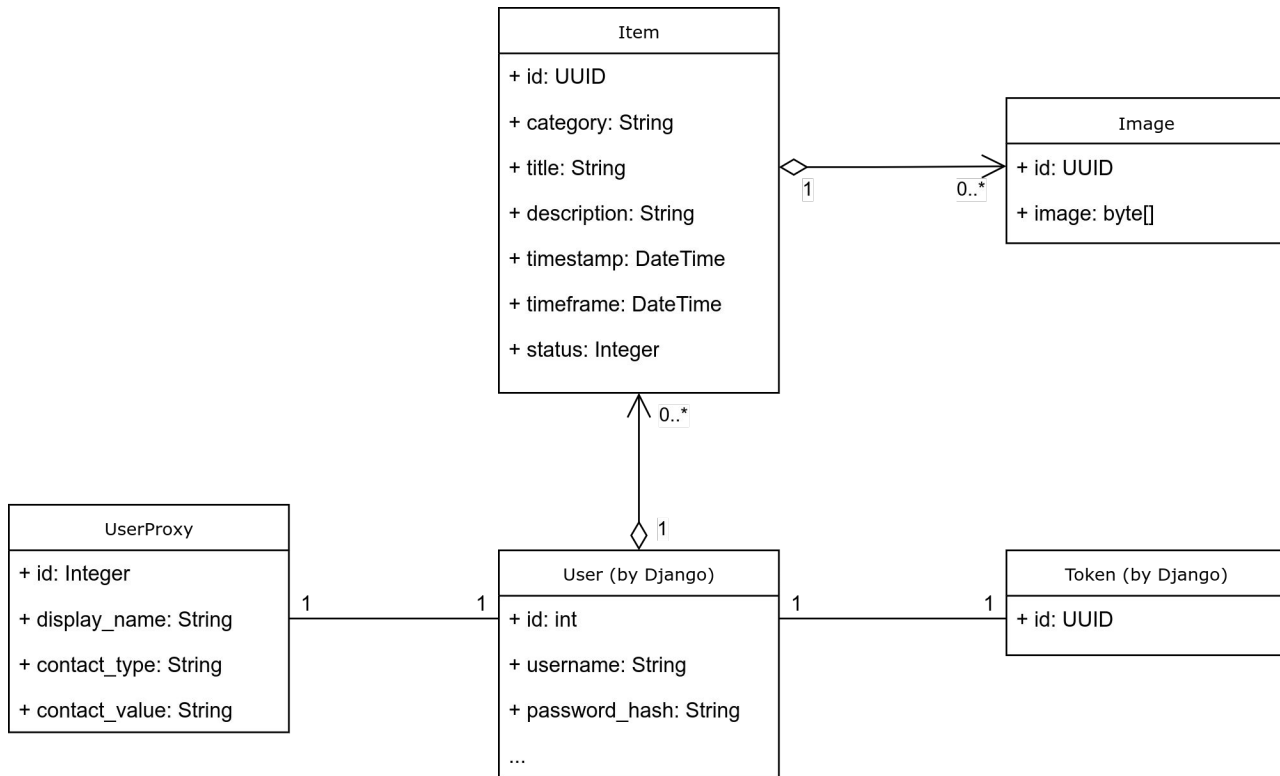
GET <https://androidlab-lenke.herokuapp.com/items>

Authorization: Token

02bdfb7c21bc44e76353c6be52160e9376648d9f

...

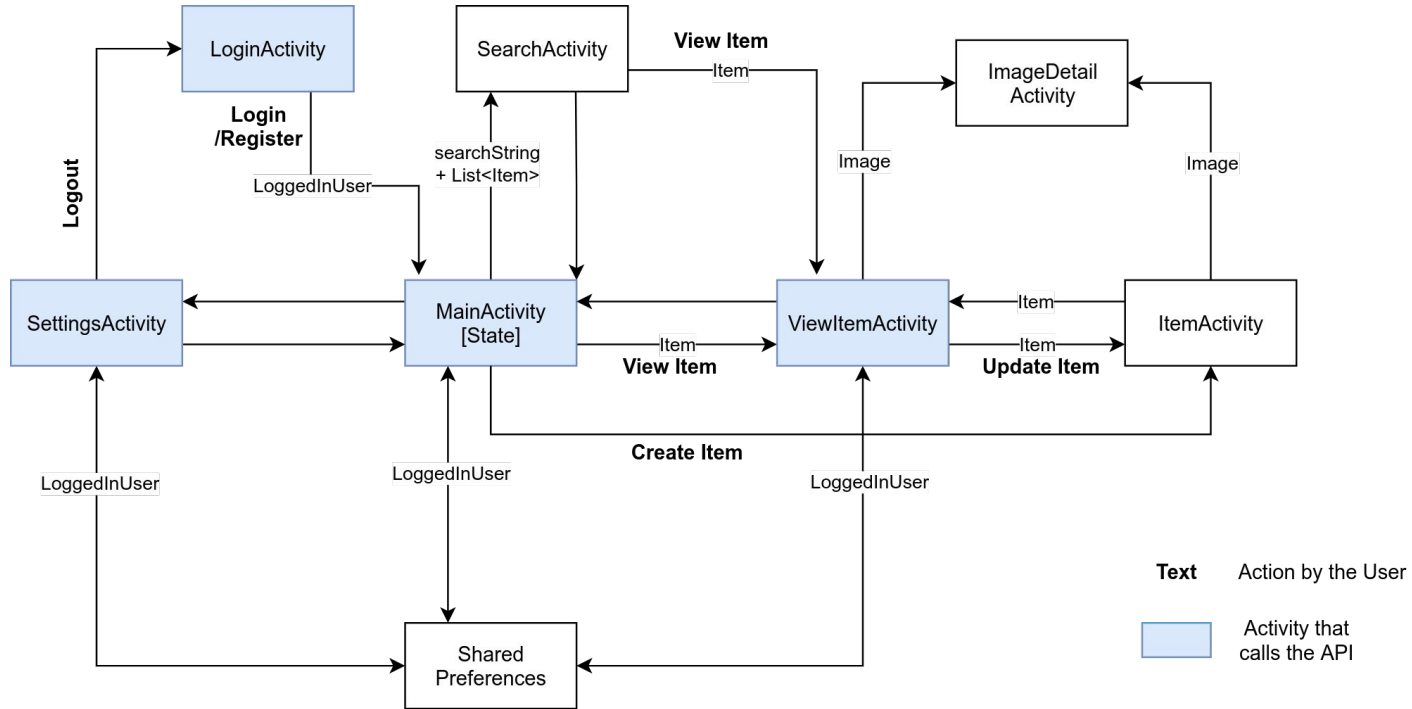
```
{
  "success": true,
  "items": [
    {
      "id": "e20c7831-810e-4719-a841-4003cba04d82",
      "user": {
        "display_name": "Katha",
        "username": "k",
        "contact_type": "EMAIL",
        "contact_value": "katha@web.de",
        "is_me": false
      },
      "category": "Others",
      "title": "Rubics Cube",
      "description": "Zu schwer, bitte gelöst zurückgeben",
      "timestamp": "2021-08-21T17:39:22.758462+02:00",
      "timeframe": "2021-08-22T17:39:01+02:00",
      "images": [
        { "id": "e984b6d3-4ecb-433c-b4ce-c256e00c1e05" }
      ],
      "status": 0
    },
    ...
  ]
}
```

Database Model

The App





23:07 98%

GöSchenkt

LOGIN REGISTER

Do you already have an account?

Username

Password

LOGIN

23:07 98%

GöSchenkt

LOGIN REGISTER

What is your full name?

Your Name

How do you want to login?

Username

Password

Confirm Password

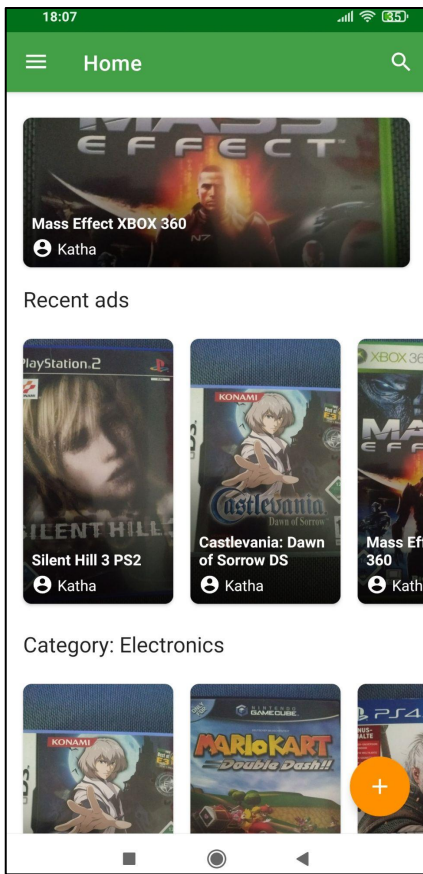
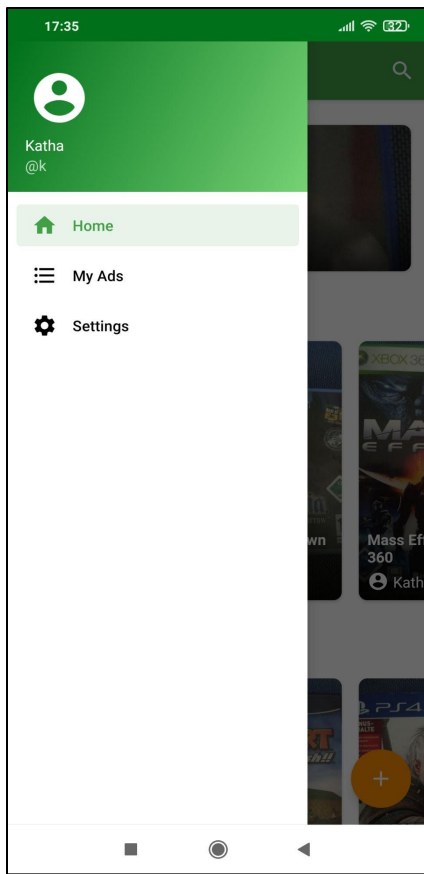
How should users contact you?

E-Mail

Contact Option

REGISTER

- Login & Register
- Input Validation
- Authentication Token saved locally



- Shows all items
 - Random featured item on top
 - Recent items below
 - All items sorted by their category
- Search Button in toolbar
- Floating Action Button to create a new item
- Navigation Drawer: My Ads and Settings

18:48

← Create Item

Enter your Title here

Category:
Furniture

Valid until:
Timeframe


CHOOSE

Description

Describe your item here

22:41

← Create Item



Title
Mario Kart Double Dash GameCube

Enter your Titel here

Category:
Electronics

Valid until:
Montag, 4. Oktober 2021

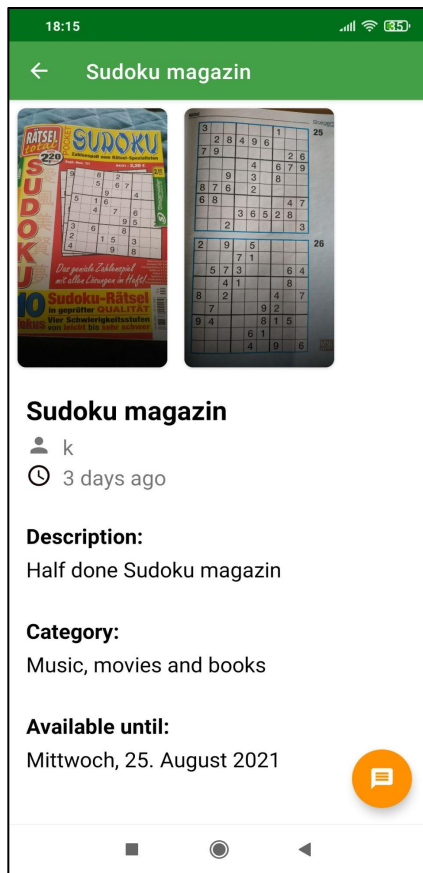
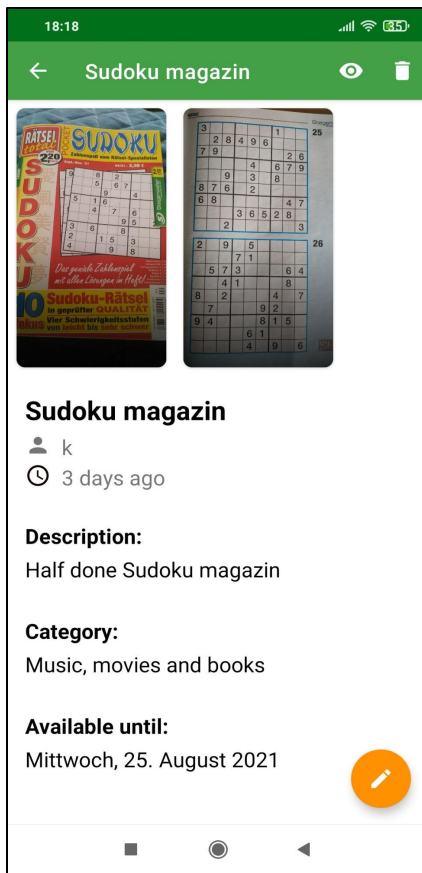
CHOOSE

Description
Good Game

Describe your item here

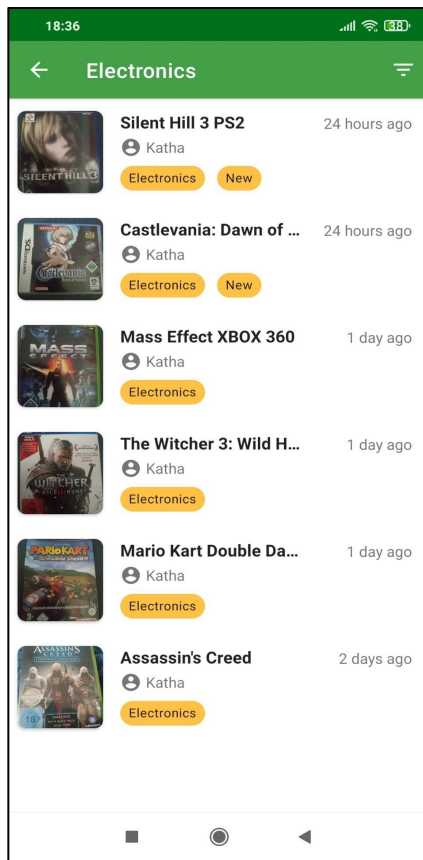
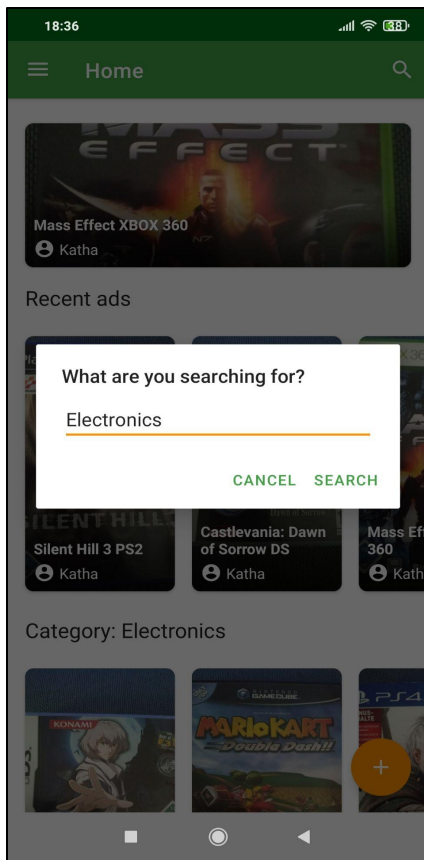
- Possibility to upload multiple images from gallery or with camera
- Title is required
- Choose between different categories
- Date tells other users how long the item will be available

Creating an item

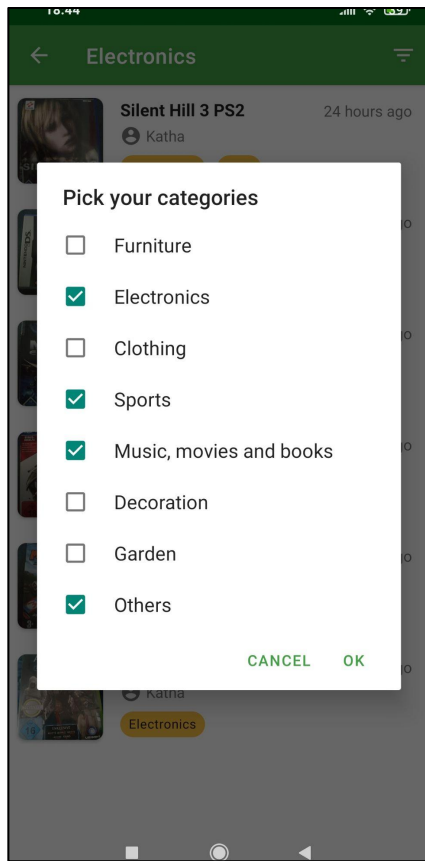
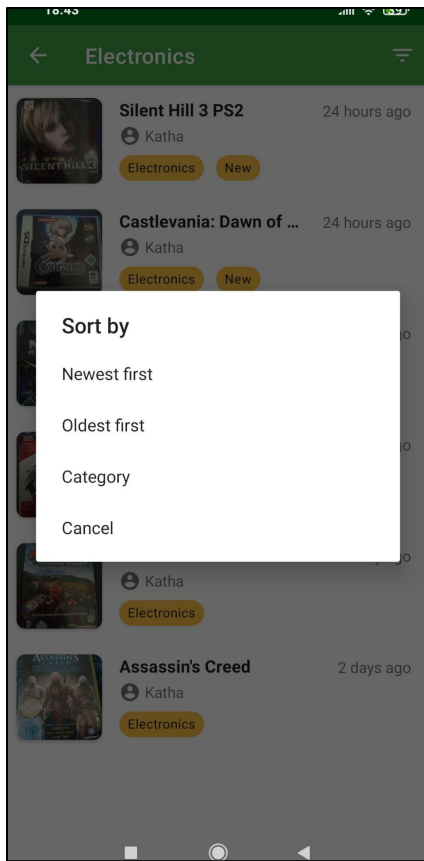


- Displays an item with username and time of upload
- Owner can:
 - edit the item
 - delete item
 - change the visibility
- Edit button calls create activity
- Other users can contact the owner
- Images can be clicked and viewed

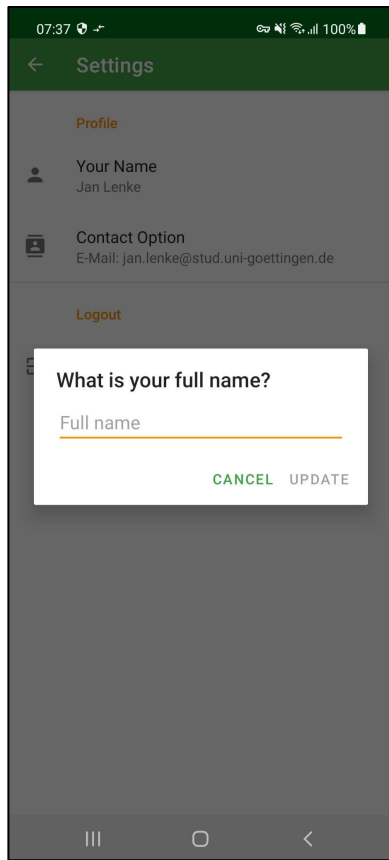
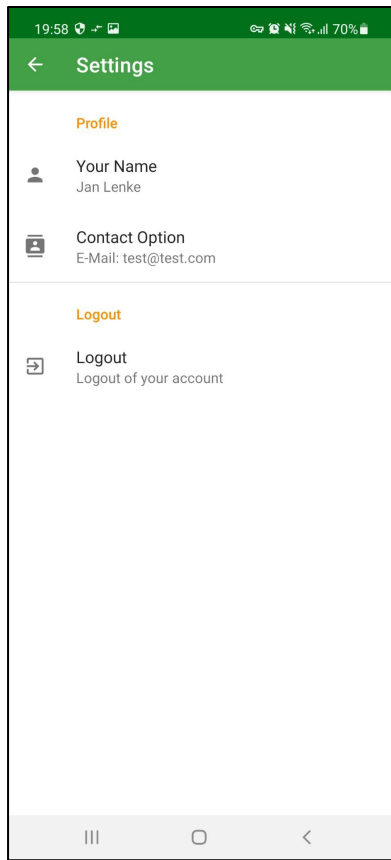
Viewing an item (Owner / Not owner)



- User can search all items
- Fuzzy Search: Shows items with similar title or category
- Filter button in the toolbar



- Sort by time or category
- Sort out certain categories that won't be displayed



- Change your full name
- Change your contact information
- Logging out

Live-Demo

Used Libraries

- **Retrofit** Performing REST API calls
- **Commons IO** Simplifying IO operations
- **Tiny** Image Compression
- **Loupe** Pinch-to-Zoom for ImageView
- **FuzzyWuzzy** Fuzzy String Matching
- **PrettyTime** Formatting differences in time

Encountered Problems

- Technical difficulties with Android Studio
- Perceived difficulty of tasks
- Limitations of the API deployment

Do you have any questions?