Insights From a Spring Boot Leisure Project For Everyday Developer Life

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TALENTS

Abstract

Insights From a Spring Boot Leisure Project for Everyday Developer Life

New gadgets and slow mobile apps tempt many a developer to spend the Christmas holidays reverse engineering, hacking and coding to put their world back together.

Join a motivated developer on his journey to successfully implement his idea. Along the way, he is surprised at how much or how little effort is involved in each step, and what he learns along the way. We dive into the world of Android apps, Spring Boot, Buildpacks, GitHub Actions, Docker containers, GraphQL and API breaking changes.

A thriller in three acts.

Insights

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⚠️ WARNING:

This is a work of fiction. Any similarities to real-life events or persons are purely coincidental. The information, names, characters, places and incidents are the product of the author's imagination. Readers should regard the story as entertainment and not as representative of any real events or persons.

Introduction

Patrick Baumgartner

Technical Agile Coach @ 42talents

My focus is on the development of software solutions *with* humans.

Coaching, Architecture, Development, Reviews, and Training.

Lecturer @ Zurich University of Applied Sciences ZHAW

@patbaumgartner

How do you learn new things for work or in general? 👨‍💻

Does it only happen during working hours? ⏳

How do you prepare for future tasks? 🔮

Agenda

Agenda

- Getting a new toy (device)
- The pain caused
- Trying to find a solution
- DIY
- The (current) result
- More pain
- Lessons learned (for work)

Meet the Developer

Meet the Developer

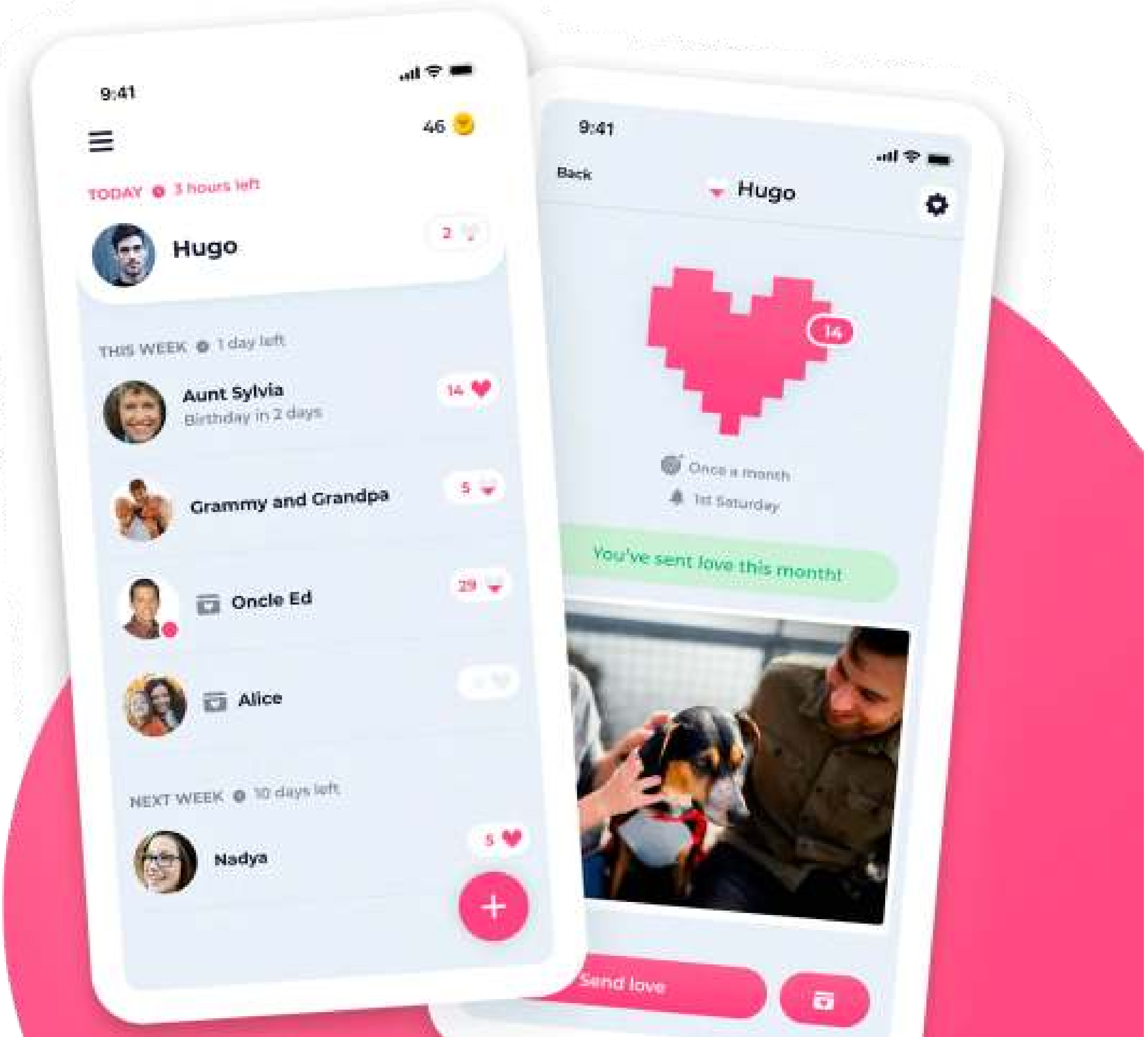
- Problem Solver, Software Developer and Architect
- Loves a challenge and learning new things
- Has a family and a full-time job
- Tinkering around Christmas is possible
- Got a new toy (gadget) for Christmas 🎁

Getting a New Toy (Gadget)

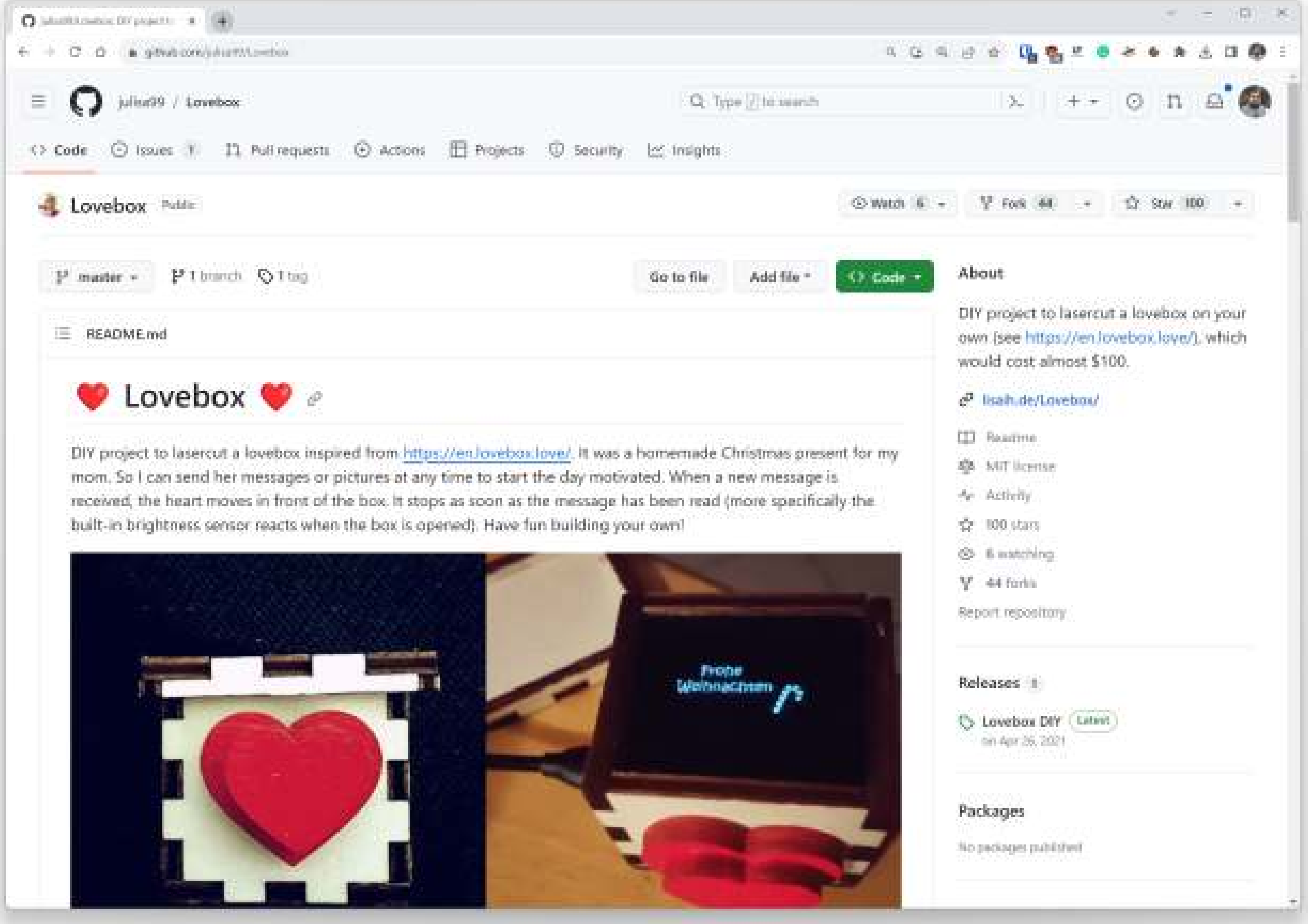
I love you!

Happy Mother's Day

The Pain


9:41
46
TODAY 3 hours left
Hugo
2
THIS WEEK 1 day left
Aunt Sylvia
Birthday in 2 days
14
Grammy and Grandpa
5
Oncle Ed
29
Alice
NEXT WEEK 10 days left
Nadya
5
+
9:41
Back
Hugo
14
Once a month
1st Saturday
You've sent love this month!
Send love

How Can I Fix This?



❤️ Lovebox ❤️

DIY project to lasercut a lovebox inspired from https://en.lovebox.love/. It was a homemade Christmas present for my mom. So I can send her messages or pictures at any time to start the day motivated. When a new message is received, the heart moves in front of the box. It stops as soon as the message has been read (more specifically the built-in brightness sensor reacts when the box is opened). Have fun building your own!

About

DIY project to lasercut a lovebox on your own (see https://en.lovebox.love/), which would cost almost $100.

lisaih.de/Lovebox/

- Readme
- MIT license
- Activity
- 100 stars
- 6 watching
- 44 forks

Report repository

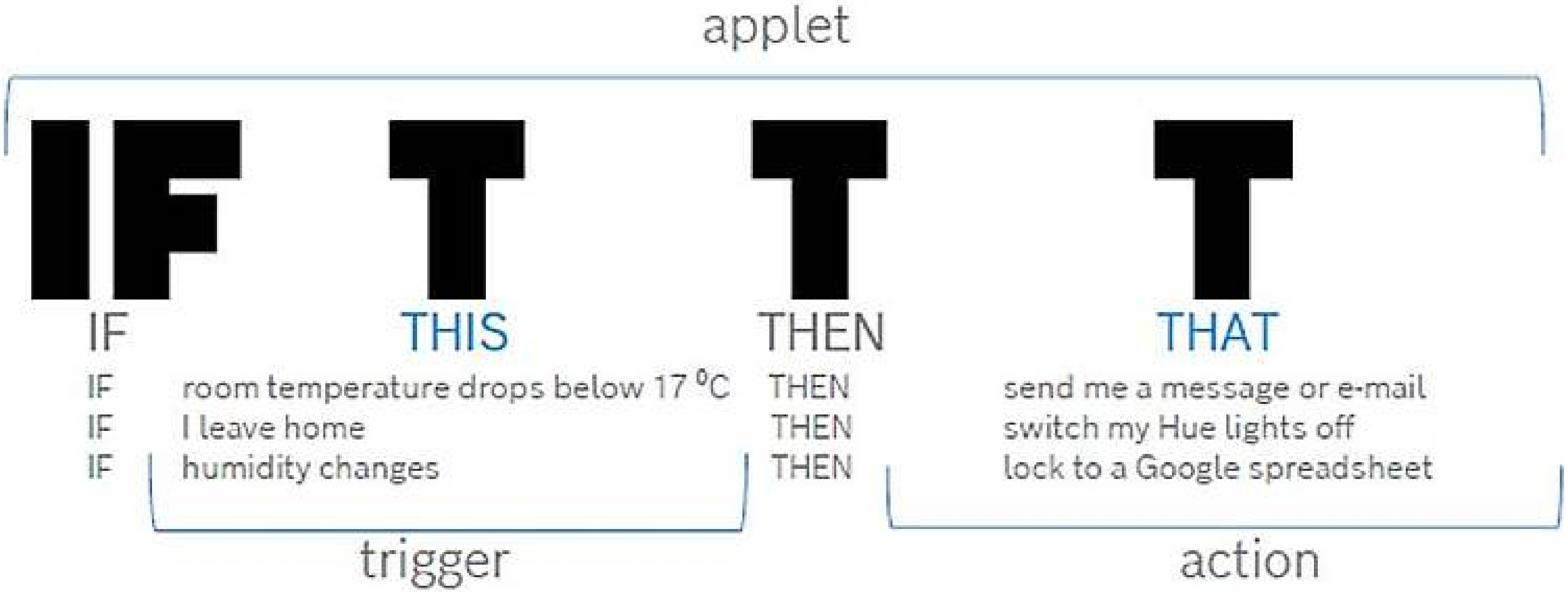
Releases 1

Lovebox DIY Latest
on Apr 26, 2021

Packages

No packages published

📞 🏬 📧



applet

IFTTT

IF THIS THEN THAT

IF room temperature drops below 17 °C THEN send me a message or e-mail

IF I leave home THEN switch my Hue lights off

IF humidity changes THEN lock to a Google spreadsheet

trigger

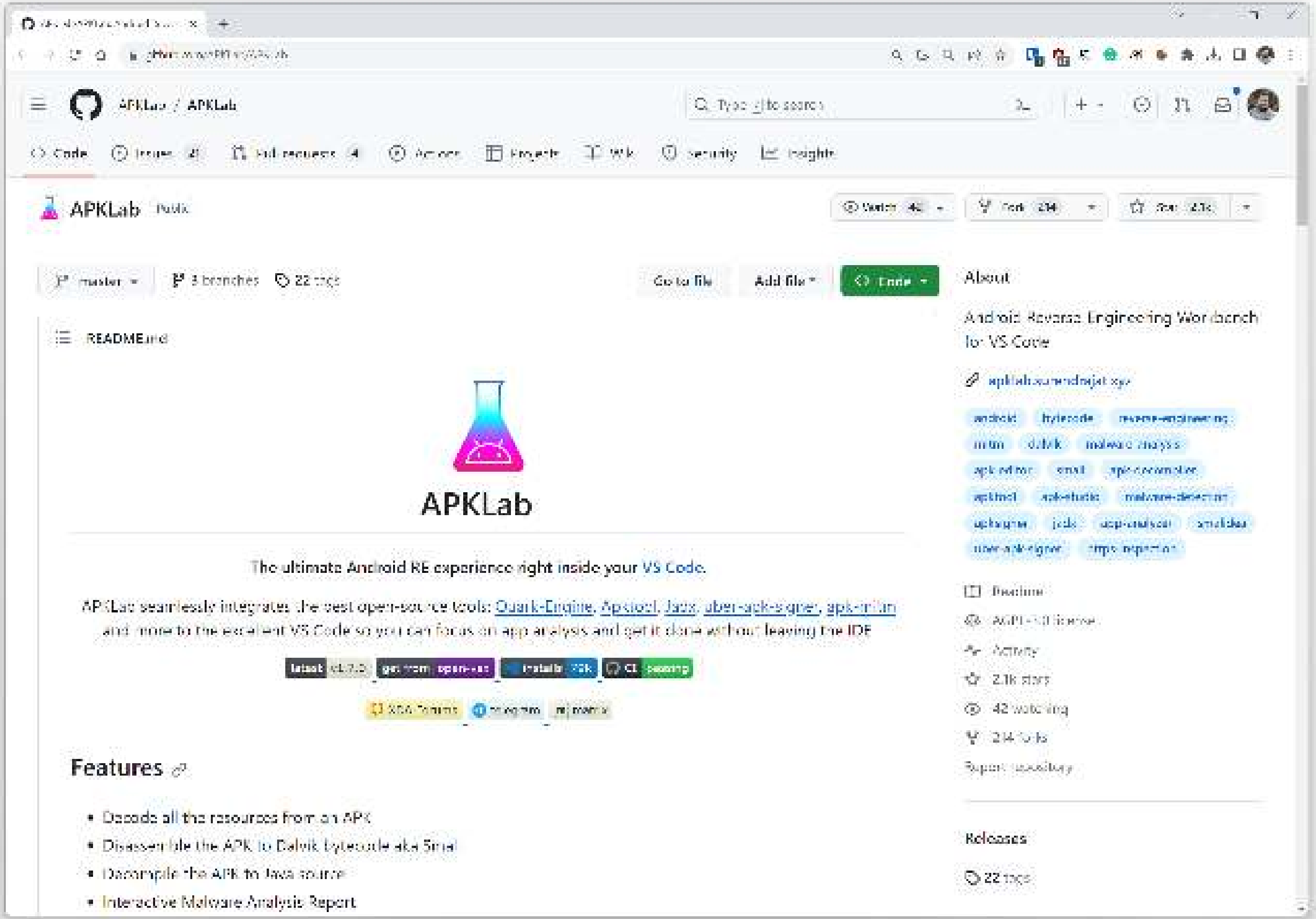
action

DIY

Cracking the Mobile App

(Reverse Engineering)

- Decoding the APK
- … some other steps
- Unpinning the certificate
- … some other steps
- Repackaging the APK



APKLab

The ultimate Android RE experience right inside your VS Code.

APKLab seamlessly integrates the best open-source tools: Quark-Engine, Apktool, Jadx, uber-apk-signer, apk-mitm and more to the excellent VS Code so you can focus on app analysis and get it done without leaving the IDE.

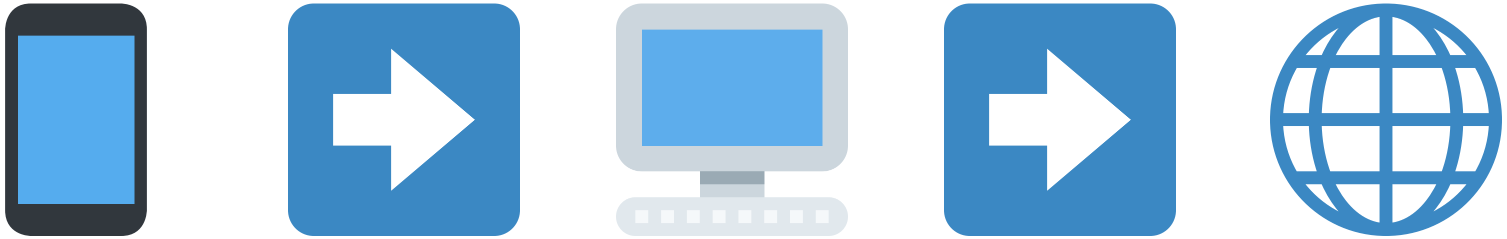
Features

- Decode all the resources from an APK
- Disassemble the APK to Dalvik bytecode aka Smali
- Decompile the APK to Java source
- Interactive Malware Analysis Report

About

Android Reverse Engineering Workbench for VS Code

apklab.surendrajat.xyz



Login Request

```
curl --location --request POST 'https://app-api.loveboxlove.com/v1/auth/loginWithPassword' \
--header 'accept: application/json' \
--header 'content-type: application/json' \
--header 'host: app-api.loveboxlove.com' \
--data-raw '{
    "email": "my@email.com",
    "password": "mySecret"
}'
```

```
{
  "_id": "42c61f261f399d0016350b7f",
  "firstName": "FirstName",
  "email": "my@email.com",
  "token": "exJhbGcpOiJIVzI1NipsInR5cCI6IkpXVDj9
  .eyJ1c2xySwFiOiI2MWM5LWYzNjFhMzk5YzAwMTYzNTBhN2YiLCJpYXQiFjE22DAVNmQwNTL9
  .qlsvp_roqCu4MFwBMwNZu2eyImFGjogvNeR4tkoTLPe"
}
```

Creating a Server App

- Spring Boot
- Spring HTTP Interface Client (RestClientAdapter)
- Telegrambots Spring Boot Starter
- Imgscalr
- OCI (Docker) Container
- Using the Lovebox GraphQL API

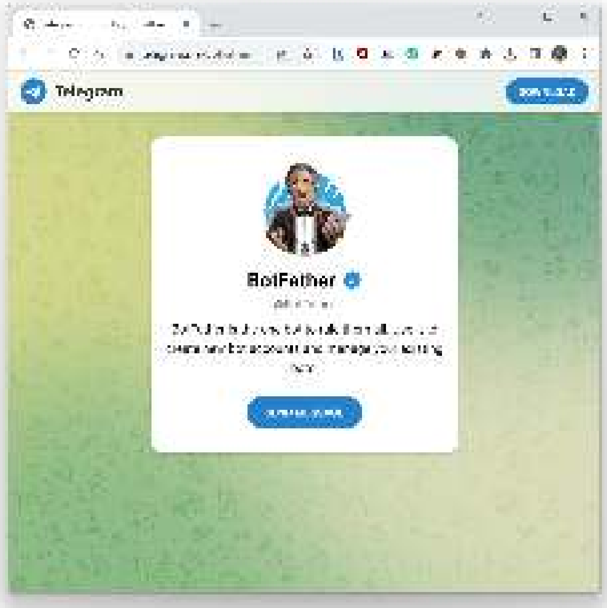
Spring Boot Application

```java
@EnableScheduling @EnableFeignClients @SpringBootApplication
@EnableConfigurationProperties({LoveboxRestClientProperties.class, LoveboxBotProperties.class})
@Import(TelegramBotStarterConfiguration.class)
public class LoveboxTelegramSenderApplication {

    public static void main(String[] args) {
        SpringApplication.run(LoveboxTelegramSenderApplication.class, args);
    }
}
```

```java
@Component
public class YourBotName extends TelegramLongPollingBot { ... }
```

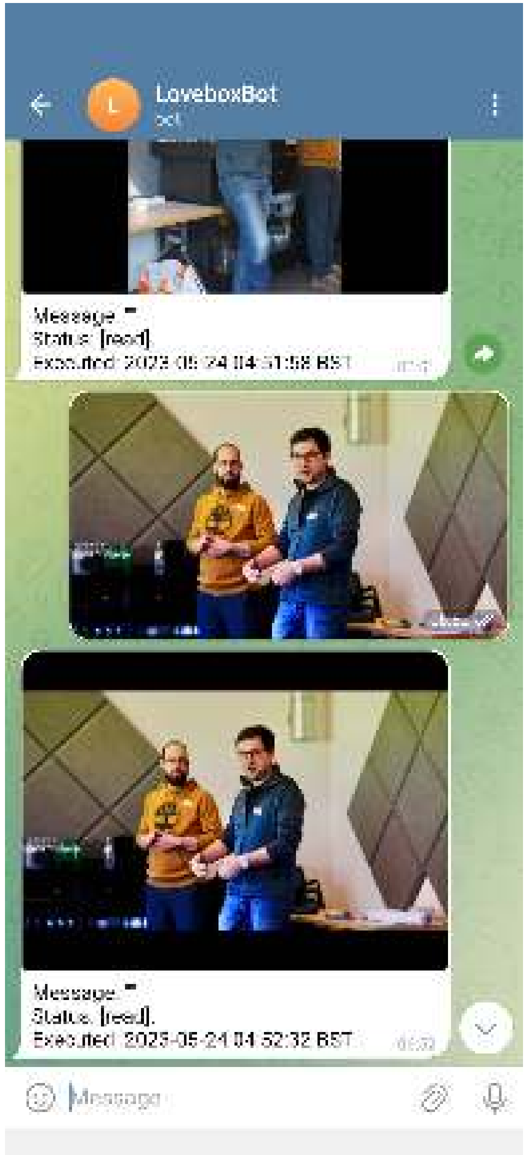
```xml
<dependency>
    <groupId>org.telegram</groupId>
    <artifactId>telegrambots-spring-boot-starter</artifactId>
    <version>6.9.7.1</version>
</dependency>
```

Setting Up the Telegram Bot



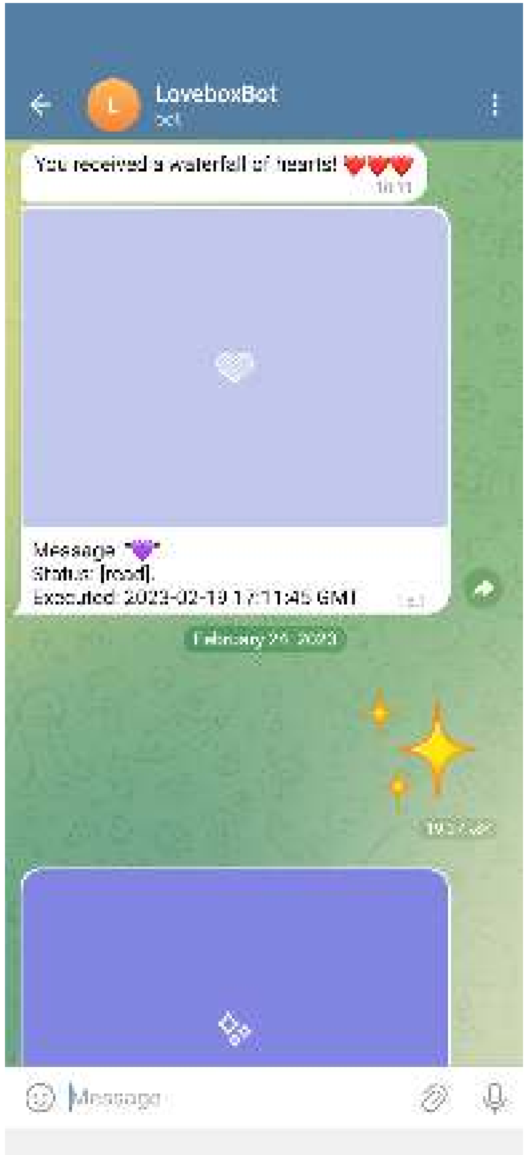
- Contact `@Botfather`
- Create a chatbot with `/newbot` .
- Get the bot's username and token

The (Current) Result



Message: ""
Status: [read].
Executed: 2023-05-24 04:51:58 BST

Message: ""
Status: [read].
Executed: 2023-05-24 04:52:32 BST

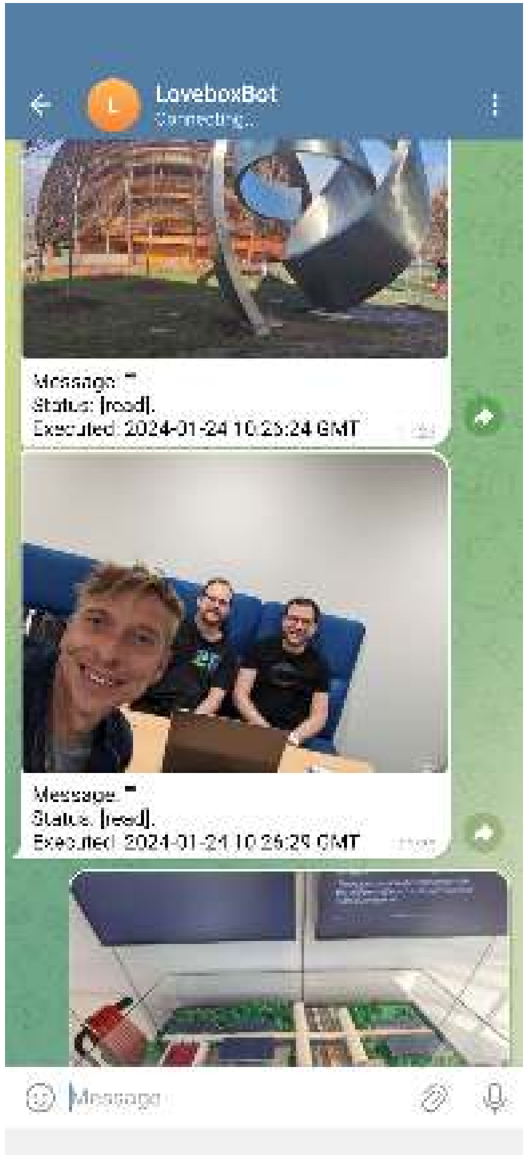


You received a waterfall of hearts! ❤️❤️❤️

18:11

Message: "💜"
Status: [read].
Executed: 2023-02-19 17:11:45 GMT

February 26, 2023



Message: ""
Status: [read].
Executed: 2024-01-24 10:25:24 GMT

Message: ""
Status: [read].
Executed: 2024-01-24 10:25:29 GMT

Where to Host the App?

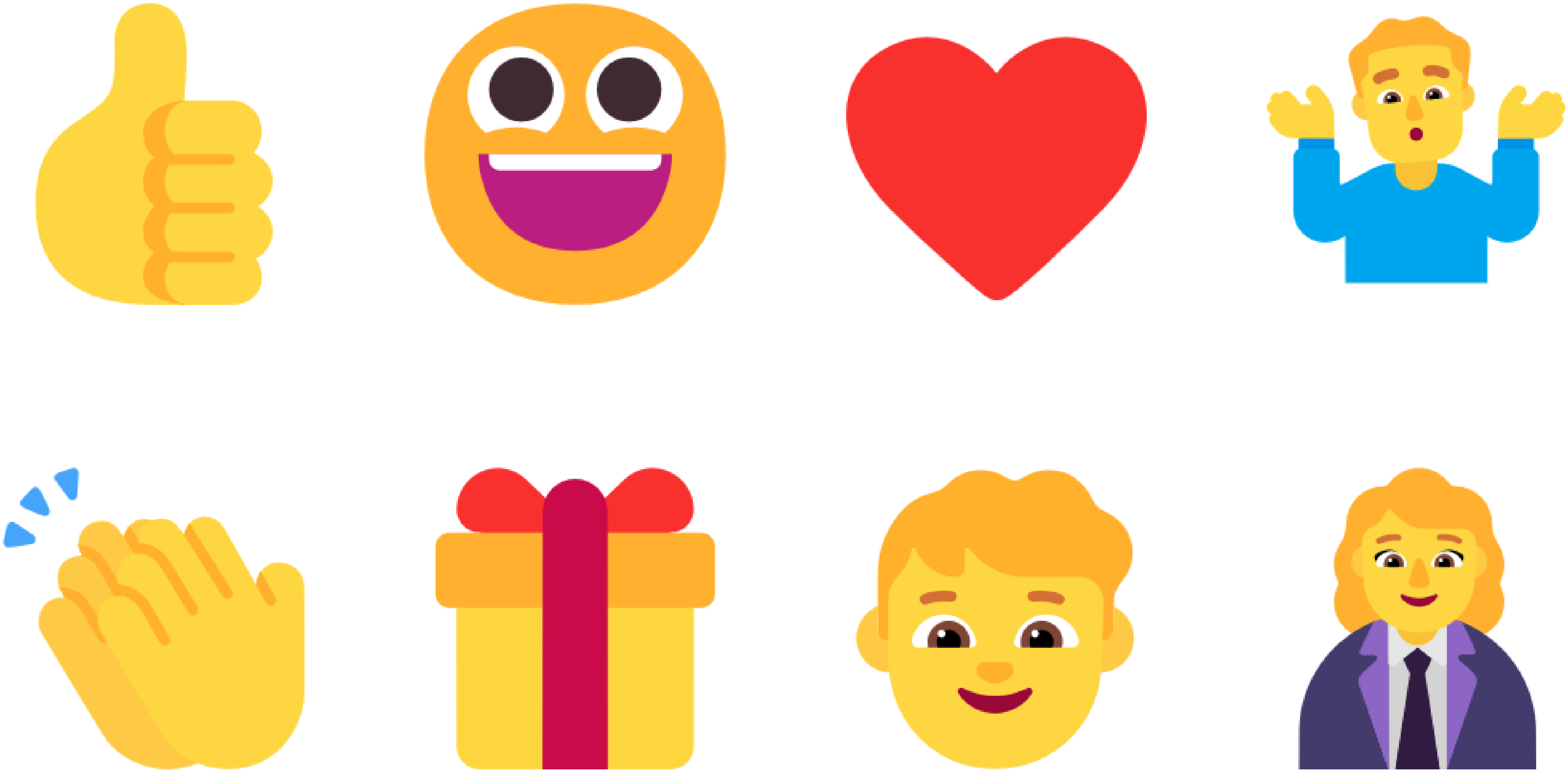
aws

STATUS
DISK 1
DISK 2
DISK 3
DISK 4
Synology
DS423+

Buildpacks.io

docker

2 Nights of Debugging

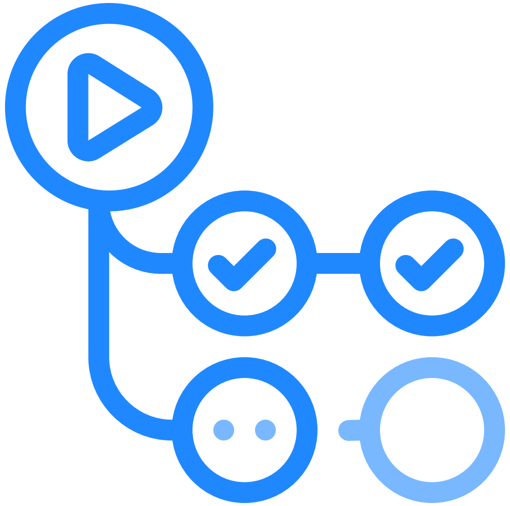


Patching Buildpack Run-Image

```
FROM paketobuildpacks/run-jammy-base:latest

USER root

## Idea from: https://blog.adoptopenjdk.net/2021/01/prerequisites-for-font-support-in-adoptopenjdk/
RUN apt-get update \
  && apt-get install -y --no-install-recommends \
    wget \
    fontconfig \
  && rm -rf /var/lib/apt/lists/*

# Install Noto Emoji Manually
RUN mkdir -p /usr/share/fonts/truetype/noto \
    && cd /usr/share/fonts/truetype/noto \
    && wget https://github.com/googlefonts/noto-emoji/raw/9a5261d871451f9b5183c93483cbd68ed916b1e9/fonts/NotoEmoji-Regular.ttf \
    && fc-cache -fv

USER cnb
```

Build Pipeline

GitHub Actions



- Checkout
- Login to DockerHub
- Build and push patched Buildpack run-image
- Set up JDK 21
- Build the application artifact with Maven
- Build and push the container image for the app

Dependency Updates with Dependabot

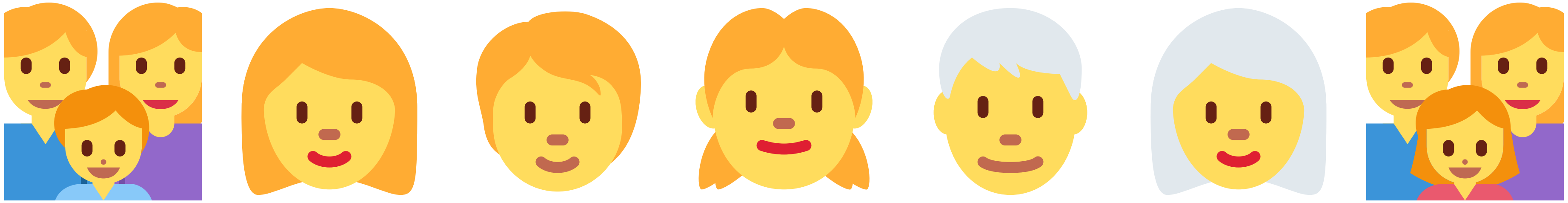
- Updating GitHub Actions
- Updating Maven dependencies

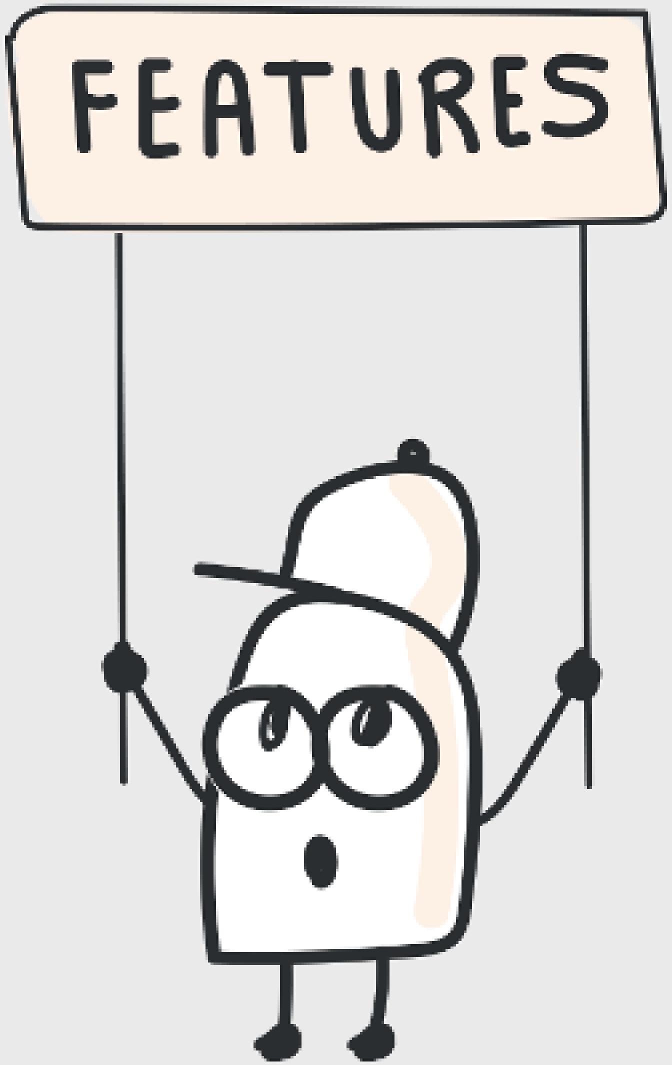
Automated Deployment with Watchtower

- Polling container updates from DockerHub
- Cron runs by default every 24 hours
- Update images and restart containers
- Everything runs on my NAS!

There is absolutely no need to have K8s running! 🤣

The NEW Product




FEATURES

UPDATE...

More Pain

More Pain …

- No contribution accepted (Telegram starter)
- API changes (Lovebox GraphQL)
- Java and Spring Boot Updates
- New & better ways of doing things

Product Improvements

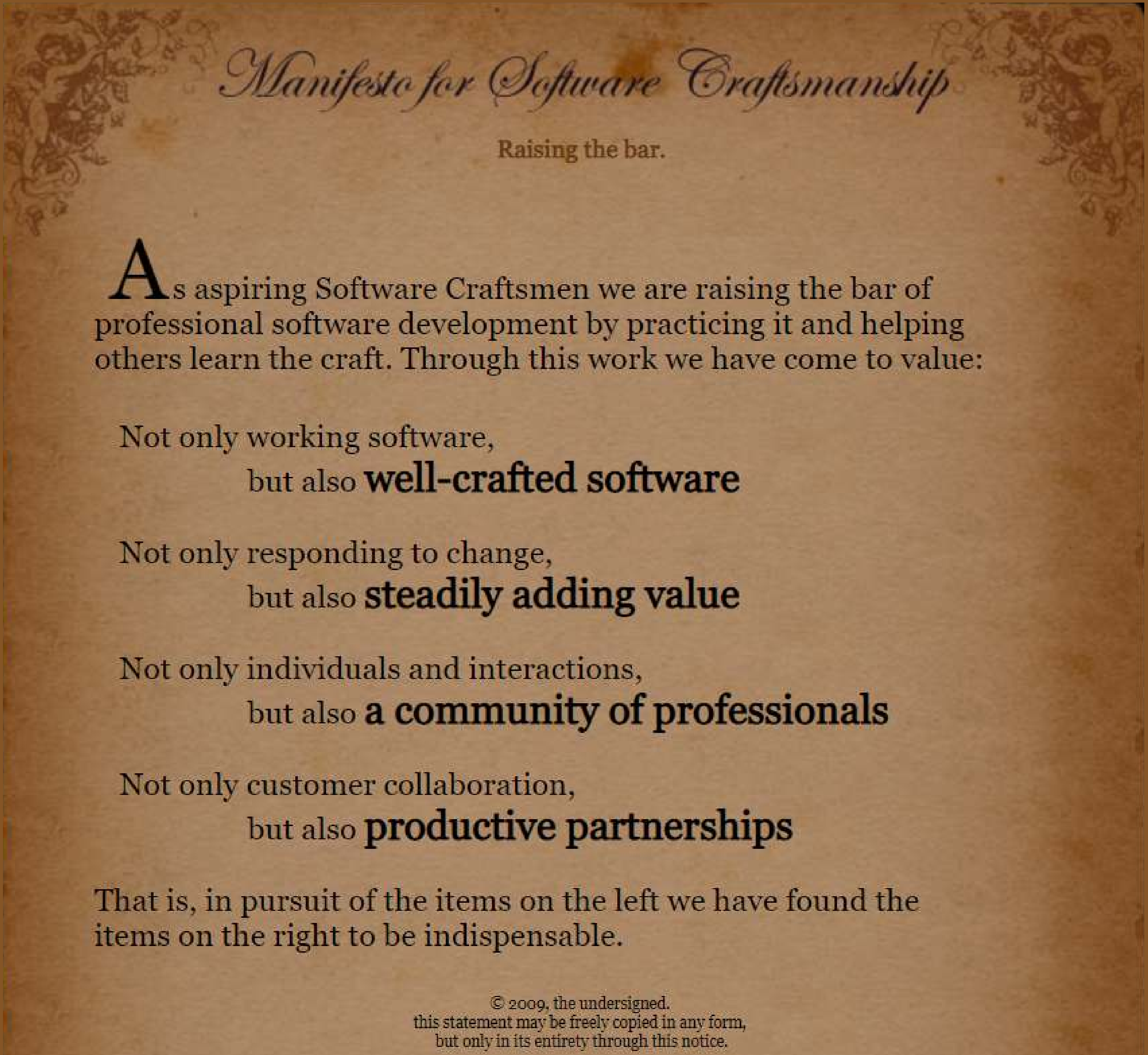
Product Improvements - What's Next?

- Producer-Driven Contract Testing
- Better Error Handling
- Logging and Monitoring improvements

Lessons Learned (for Work)

Lessons Learned (for Work)

- Missing emoji font in run-image
- Staging and Production Environment needed
- Continous Migration
    - Spring Cloud OpenFeign to HTTP interface client
    - Virtual threads
    - Dependency updates
- Extensive Telegram 😍
- Buildpacks 😍
- GraphQL API 😨



Manifesto for Software Craftsmanship

Raising the bar.

As aspiring Software Craftsmen we are raising the bar of professional software development by practicing it and helping others learn the craft. Through this work we have come to value:

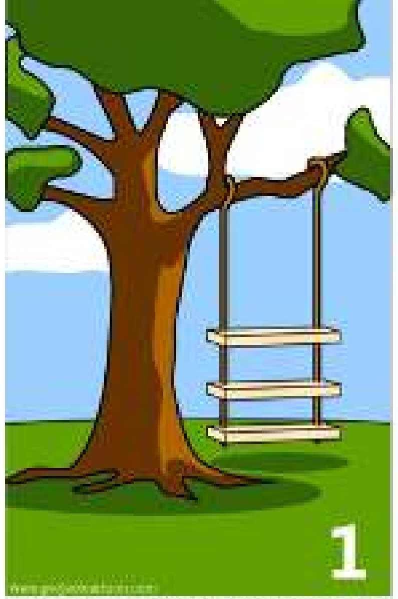
Not only working software,
but also **well-crafted software**

Not only responding to change,
but also **steadily adding value**

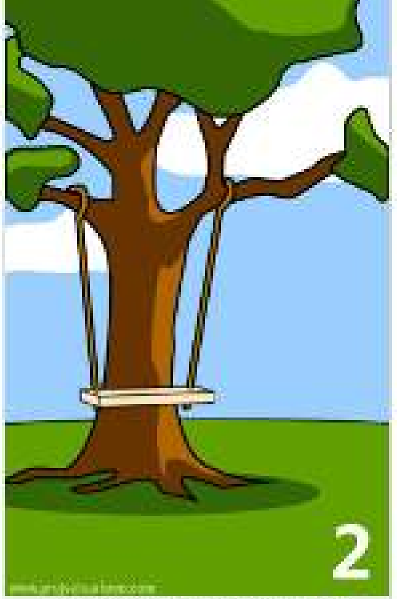
Not only individuals and interactions,
but also **a community of professionals**

Not only customer collaboration,
but also **productive partnerships**

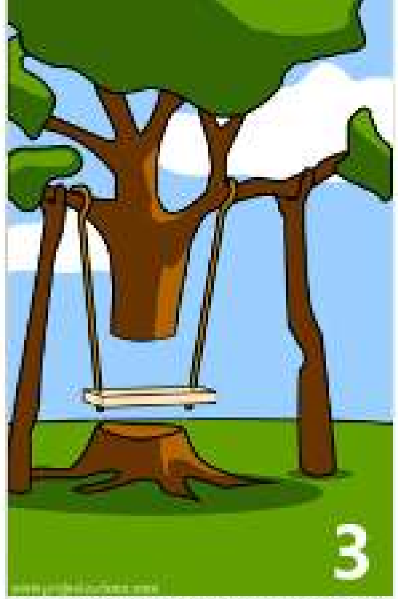
That is, in pursuit of the items on the left we have found the items on the right to be indispensable.



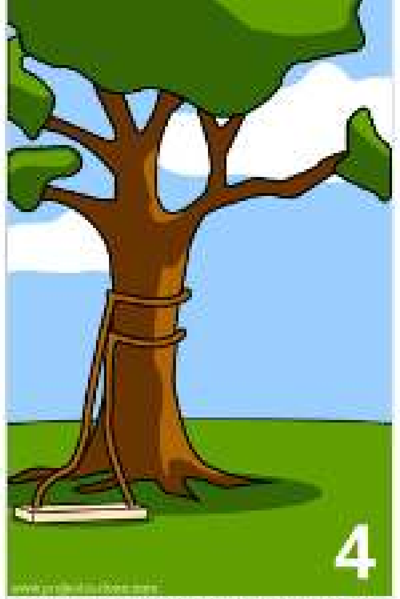
How the customer explained it



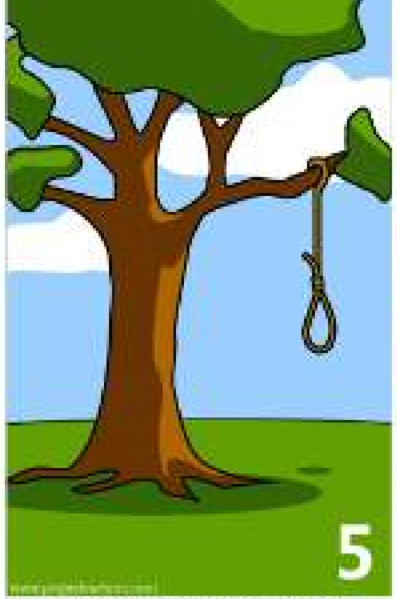
How the project leader understood it



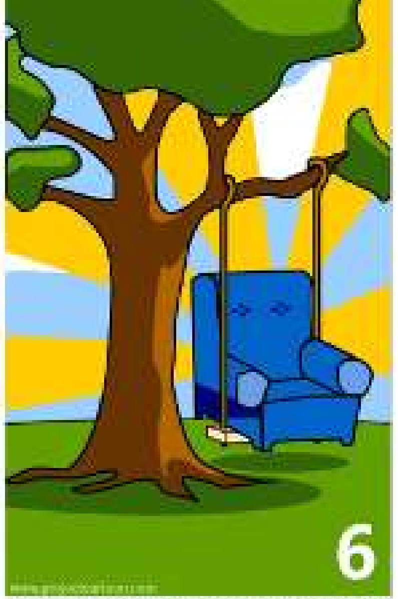
How the analyst designed it



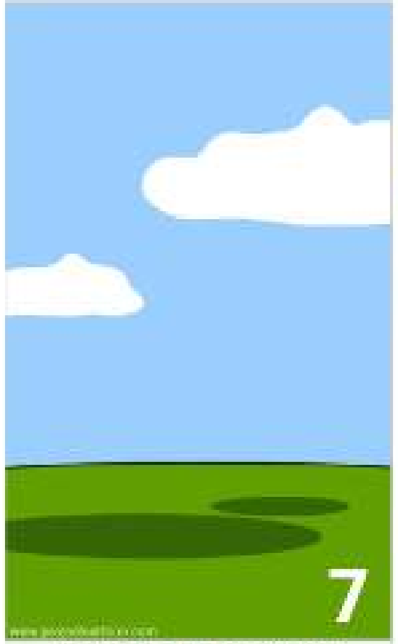
How the programmer wrote it



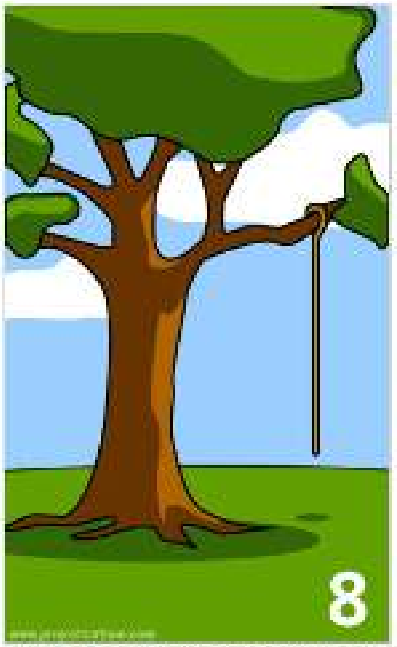
What the beta testers received



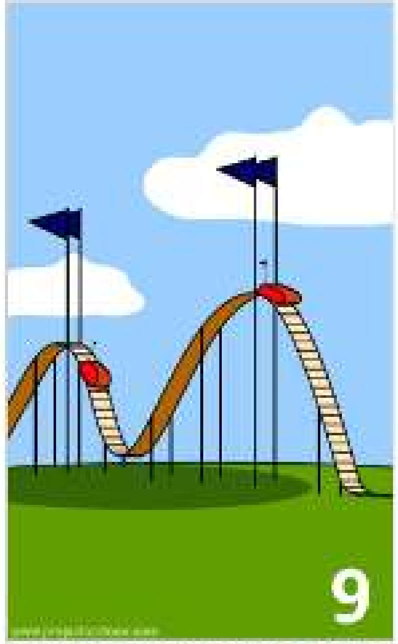
How the business consultant described it



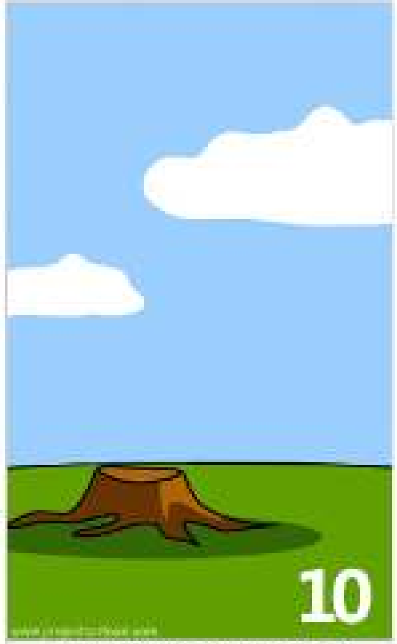
How the project was documented



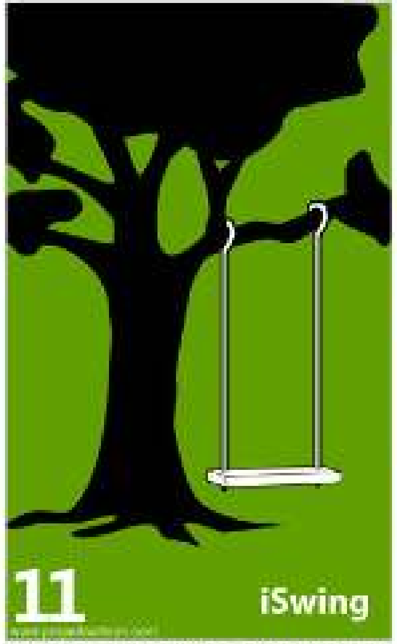
What operations installed



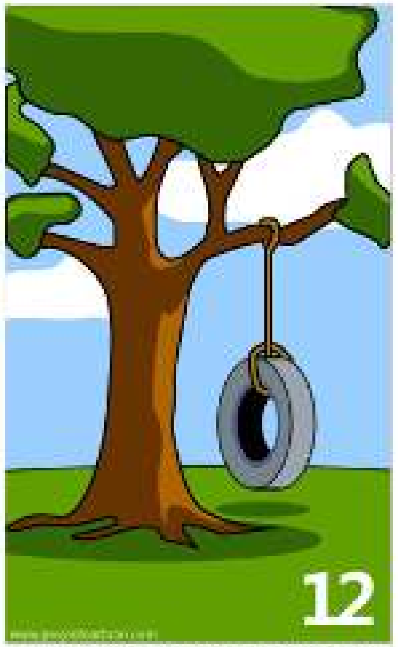
How the customer was billed



How it was supported



What marketing advertised



What the customer really needed

Every developer should have a leisure project as a learning experience and a testing ground for new ideas. But that's not the product that goes into production and is used by customers!

Happy Coding! 👩‍💻👨‍💻

Insights

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