

# Decibel Threshold Event Displayer

## Intermediate Presentation

January 14, 2025

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- ▶ **Problem Description**
- ▶ Problem Solving
- ▶ Scrum & Project Management

# Initial Situation



# Project Goals

- Analyze Audio File

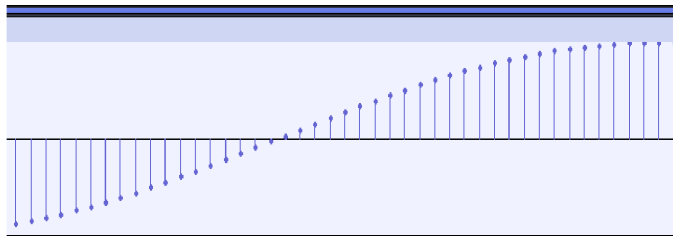
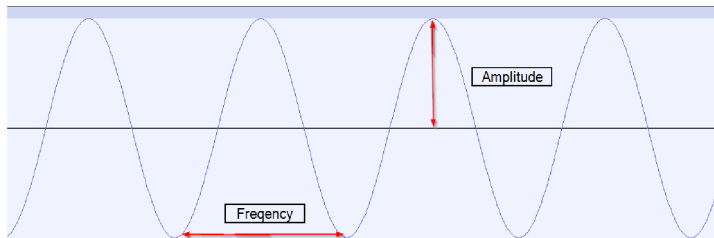
# Project Goals

- Analyze Audio File
- Summarize findings in a PDF

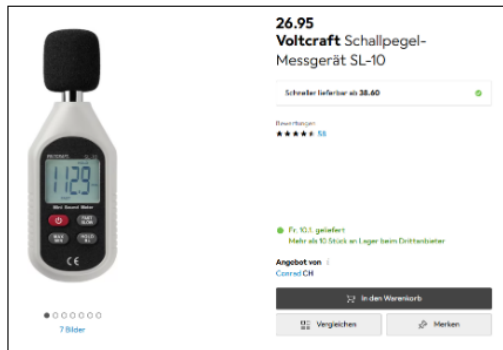
# Project Goals

- Analyze Audio File
- Summarize findings in a PDF
- Easy to use

# Audio Files



# Measuring the Sound Level



Sound level measuring device from Galaxus



# Requirements

- Take .wav file, threshold and additional reference values as input

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- Analyze and Summarize

# Requirements

- Take .wav file, threshold and additional reference values as input
- Analyze and Summarize
  - Metadata

# Requirements

- Take .wav file, threshold and additional reference values as input
- Analyze and Summarize
  - Metadata
  - Plot

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  - ▣ Metadata
  - ▣ Plot
- User should not need any Technical know-How

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- User should not need any Technical know-How
- Platform independent

# Requirements

- Take .wav file, threshold and additional reference values as input
- Analyze and Summarize
  - ▣ Metadata
  - ▣ Plot
- User should not need any Technical know-How
- Platform independent
- Multiple Languages

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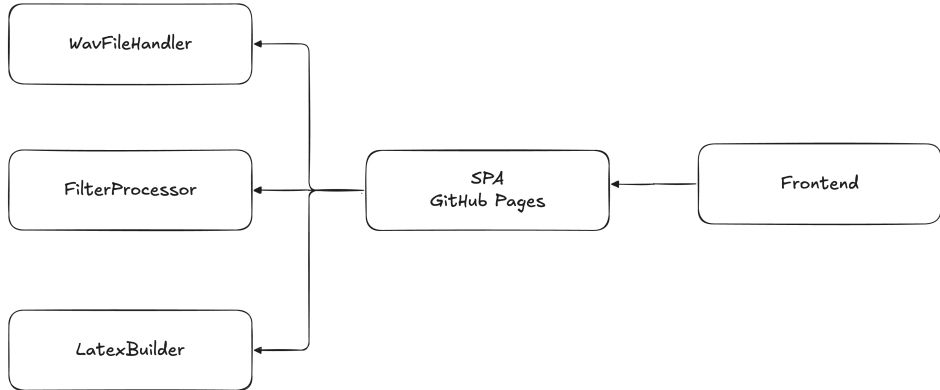
# Technology evaluation

- Option 1: Kotlin
- Option 2: SwiftLaTeX (Web)

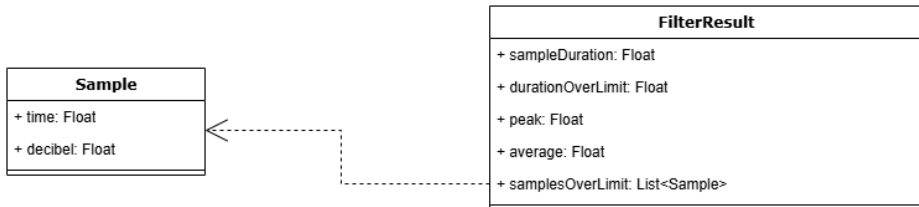
Technology	Total score
Kotlin minimal	74
Kotlin bundled	56
Web SwiftLaTeX	82

**Table:** Technology stack evaluation

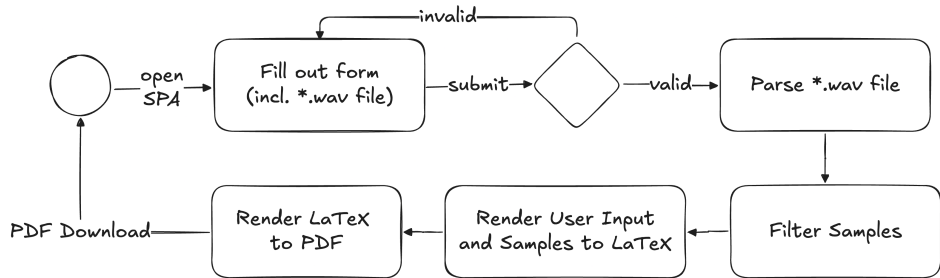
# Architecture



# Data Model



# Process Model



# UX Prototype - PDF Report

db\_threshold\_result\_<timestamp>.pdf

## dB threshold result

### Recording information

location: SIPBB

datetime: 00.00.2024 00:00:00

device: iPhone 14

distance to noise source: 20m

applied threshold: 60dB\*

← user input  
\*required

duration: 5min

duration over legal limit: 1min (20%)

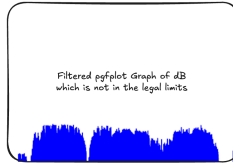
peak: 70dB

average dB: 55dB

100 dB

dB

60dB



time

generation date: 00.00.2024

website:

<https://decibel-threshold-event-displayer.github.io/>

repository:

<https://github.com/decibel-threshold-event-displayer/decibel-threshold-event-displayer.github.io>

Disclaimer: The accuracy of the measurements can vary...

Technical information: We use the following calculation...

# UX Prototype - Website

<https://decibel-threshold-event-displayer.github.io/>

## dB threshold event displayer

This tool was built to help people to create evidence for noise pollution.

Applied threshold\* ⓘ

70 dB

Location ⓘ

Musterstrasse 32, 3000 Bern

Datetime ⓘ

01.01.2024 HH:MM:SS 📅

Device ⓘ

iPhone 14

Distance to noise source ⓘ

50 m

\*.wav  
File upload  
Dropzone

Generate PDF

repository:  
<https://github.com/decibel-threshold-event-displayer/decibel-threshold-event-displayer.github.io>

Disclaimer: The accuracy of the measurements can vary...  
Technical information: We use the following calculation...

# UX Prototype - Website Tooltips

<https://decibel-threshold-event-displayer.github.io/>

## dB threshold event displayer

This tool was built to help people. All samples below this value will be removed from the plot.  
This could be for privacy reasons or to show only relevant data.

Applied

70

The address where the recording has been taken.

Location

Musters

The date and time when the recording has been taken.

Datetime

01.01.

The device which was used for the recording.

Device

iPhone 14

The distance from the recording device to the noise source.

Distance to noise source

50 m

\*.wav  
File upload  
Dropzone

Generate PDF

repository:  
<https://github.com/decibel-threshold-event-displayer/decibel-threshold-event-displayer.github.io>

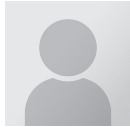
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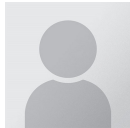
# Scrum Roles



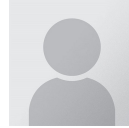
**Dr. Simon Kramer**  
Stakeholder



**Dominic Gernert**  
Product Owner



**Lukas von Allmen**  
Scrum Master



**Darius Degel**  
Developer

# Backlog

- Epics  $\approx$  Labels
- Impediments
- Development Board

## Core Application

&6 · created 3 weeks ago by Gernert Dominic

Project 1

## Project Management, Report and Presentation

&5 · created 3 weeks ago by Gernert Dominic

Project 1

## Visualization

&4 · created 3 weeks ago by Gernert Dominic

Project 1

## Input Handling and Processing

&3 · created 3 weeks ago by Gernert Dominic

Project 1

## Prototype

&1 · created 3 weeks ago by Gernert Dominic

Project 1

# Backlog

The screenshot displays a Jira Backlog board with four columns. The top bar includes a 'Development' dropdown, a search bar, and icons for filters, settings, and a help icon.

- priority low** (11 items):
  - Check licenses of all dependencies (#2)
  - Write report (#13)
  - Prepare final presentation (#14)
  - Multiple languages (#26)
  - Create a sequence diagram for input handling and processing (#18)
  - Define default thresholds (#15)
  - Create sequence diagram whole application (#30)
  - Read default thresholds (#32)
  - Add custom thresholds (#33)
- priority medium** (4 items):
  - Define content (#21, Oct 24 - Nov 6)
  - Define interface (#17, Oct 24 - Nov 6)
  - Render LaTeX (#22)
  - Implement frontend application (#24)
- priority high** (6 items):
  - Prepare intermediate presentation (#28, Oct 24 - Nov 6)
  - Write specification (#63, Oct 24 - Nov 6)
  - Calculate db(A) from relativ db values (#55, Oct 24 - Nov 6)
  - Read WAV file (#10)
  - Filter data (#11)
  - Write Introduction (#71, Oct 24 - Nov 6)
- Sprints Project 1 Oct 24, 2024...** (6 items):
  - Define content (priority medium, #21, Oct 24 - Nov 6)
  - Prepare intermediate presentation (priority high, #28, Oct 24 - Nov 6)
  - Define interface (priority medium, #17, Oct 24 - Nov 6)
  - Write specification (priority high, #63, Oct 24 - Nov 6)
  - Calculate db(A) from relativ db values (priority high, #55, Oct 24 - Nov 6)
  - Write Introduction (priority high, #71, Oct 24 - Nov 6)

Showing all issues

# Sprint Goals

- S.M.A.R.T
- Product Focus

## Example

Prototypes with two different technologies are implemented and their pros and cons are evaluated.

# Review & Retro

Open Oct 10 - Oct 23, 2024



Oct 10 - Oct 23, 2024

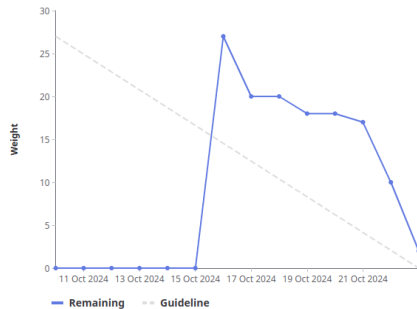
Display by

Completed 93% | 28 of 30

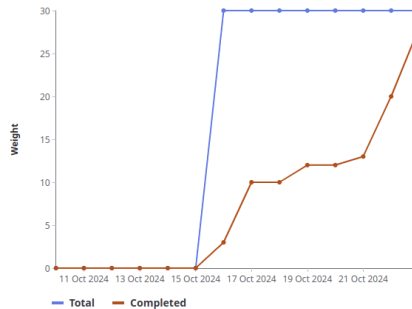
Incomplete 3% | 1 of 30

Unstarted 3% | 1 of 30

Burndown chart



Burnup chart



# Review & Retro

## Review

- Demo
- Done / Not Done
- Goal Attainment

## Retro

- What went well?
- What problems did we encounter?
- What are we improving in the future?

# Adaptations

- Product Owner
- Daily Scrum
- No Release Plan
- Retro
  - Shorter first Retro
  - Successes, Problems, Improvements