

Decibel Threshold Event Display

Intermediate Presentation

January 3, 2025

Dominic Gernert, Lukas von Allmen, Darius Degel

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Initial Situation



Project Goals

- Analyze Audio File

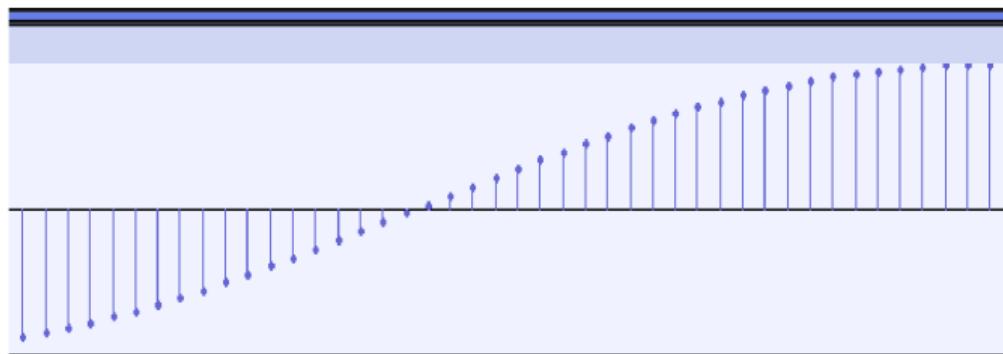
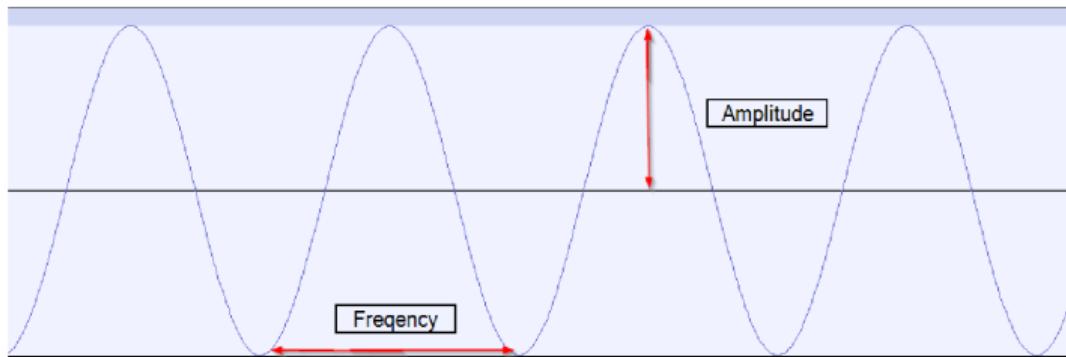
Project Goals

- 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



26.95
Voltcraft Schallpegel-
Messgerät SL-10

Bewertungen
★★★★★ 58

Zwischen Fr. 8.11. und Mo. 11.11. geliefert
Mehr als 10 Stück in Lager beim Drittanbieter

Angebot von:
Conrad CH

In den Warenkorb
Vergleichen Merken

DecibelX for iOS

Requirements

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

Requirements

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

Requirements

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

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

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- User should not need any Technical know-How

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 - Plot
- 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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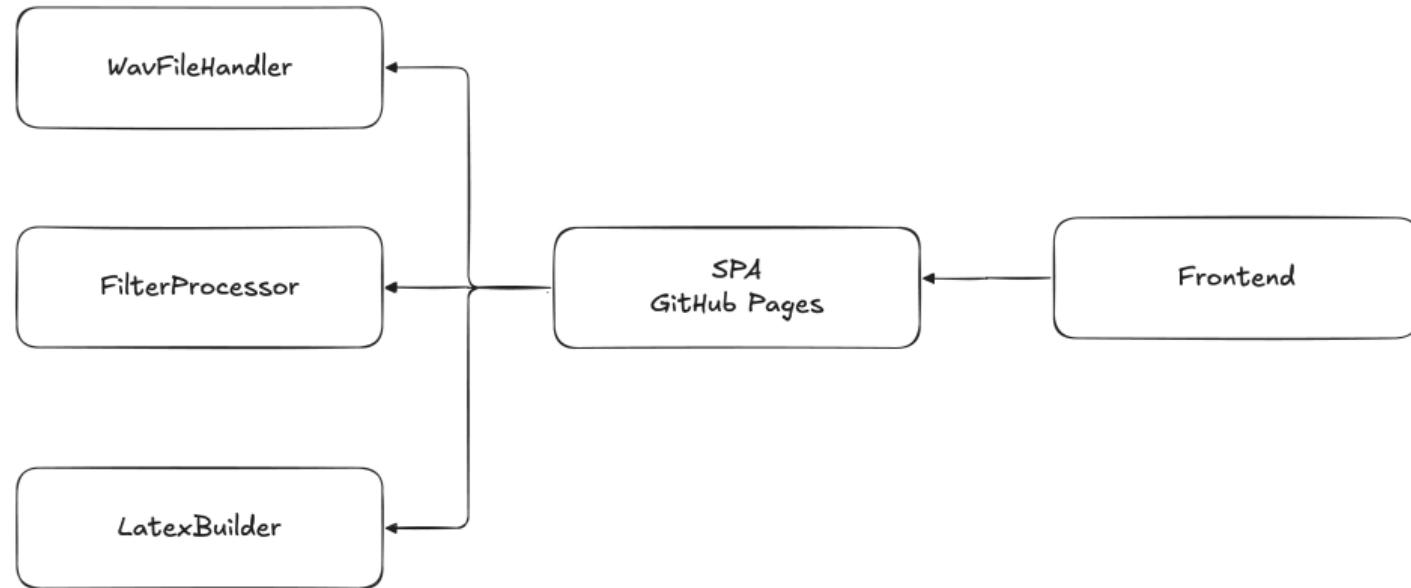
Technology evaluation

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

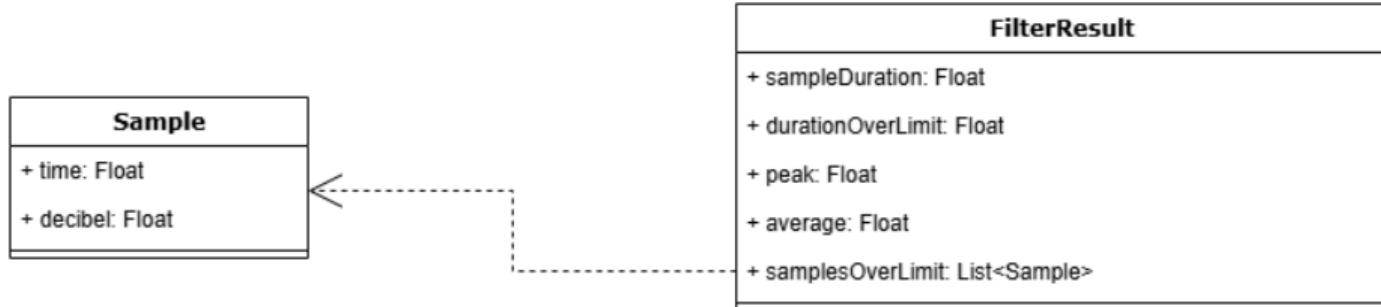
Technology	Total score
Kotlin minimal	74
Kotlin bundled	56
Web SwiftLaTeX	82

Table: Technology stack evaluation

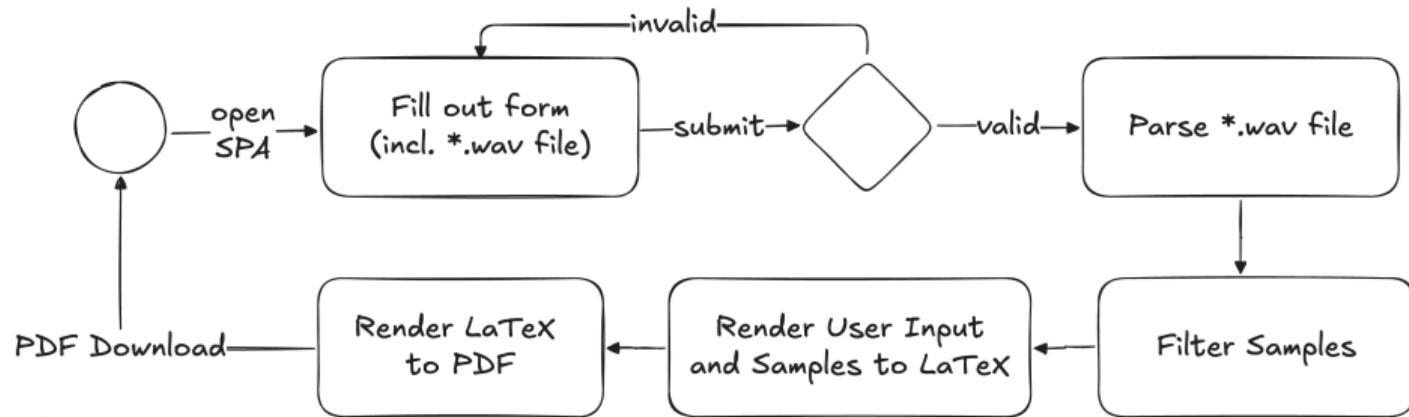
Architecture



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 ← user input *required
distance to noise source: 20m
applied threshold: 60dB*

duration: 5min
duration over legal limit: 1min (20%)
peak: 70dB
average dB: 55dB

100 dB

dB

60dB

time

Filtered pgfplot Graph of dB which is not in the legal limits

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 [The address where the recording has been taken.
70]

Location [The date and time when the recording has been taken.
Musterstrasse 1, Bern, Switzerland
01.01.2023]

Datetime [The device which was used for the recording.
01.01.2023]

Device [The distance from the recording device to the noise source.
iPhone 14]

Distance to noise source [50 m]

*.wav
File upload
Dropzone

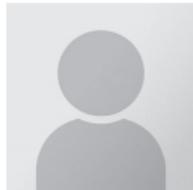
Generate PDF

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

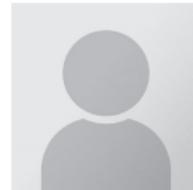
Disclaimer: The accuracy of the measurements can vary...
Technical information: We use the following calculation...

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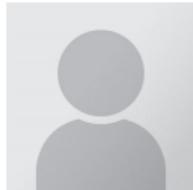
Scrum Roles



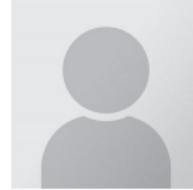
Dr. Simon Kramer
Stakeholder



Dominic Gernert
Product Owner



Lukas von Allmen
Scrum Master



Darius Degel
Developer

Backlog

- Epics ≈ 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 shows a Jira backlog board with the following structure:

- Priority Low:**
 - Check licenses of all dependencies
 - Write report
 - Prepare final presentation
 - Multiple languages
 - Create a sequence diagram for input handling and processing
 - Define default thresholds
 - Create sequence diagram whole application
 - Read default thresholds
 - Add custom thresholds
- Priority Medium:**
 - Define content
 - Define interface
 - Render LaTeX
 - Implement frontend application
- Priority High:**
 - Prepare intermediate presentation
 - Write specification
 - Calculate db(A) from relativ db values
 - Read WAV file
 - Filter data
 - Write Introduction
- Sprints Project 1 Oct 24, 2024...**
 - Define content (priority medium)
 - Prepare intermediate presentation (priority high)
 - Define interface (priority medium)
 - Write specification (priority high)
 - Calculate db(A) from relativ db values (priority high)
 - Write Introduction (priority high)

Each item in the backlog includes a small icon, a unique ID, and a timestamp indicating when it was created or last modified.

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

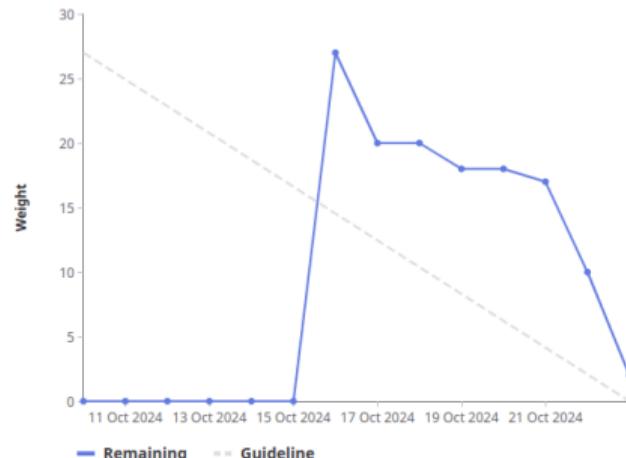
Display by Issue count Issue weight

Completed 93% | 28 of 30

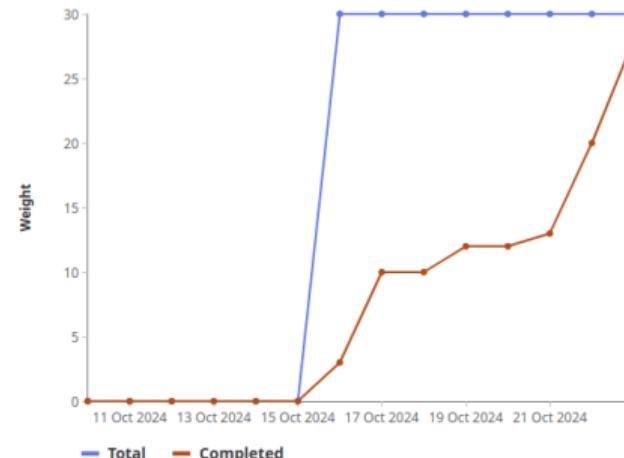
Incomplete 3% | 1 of 30

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