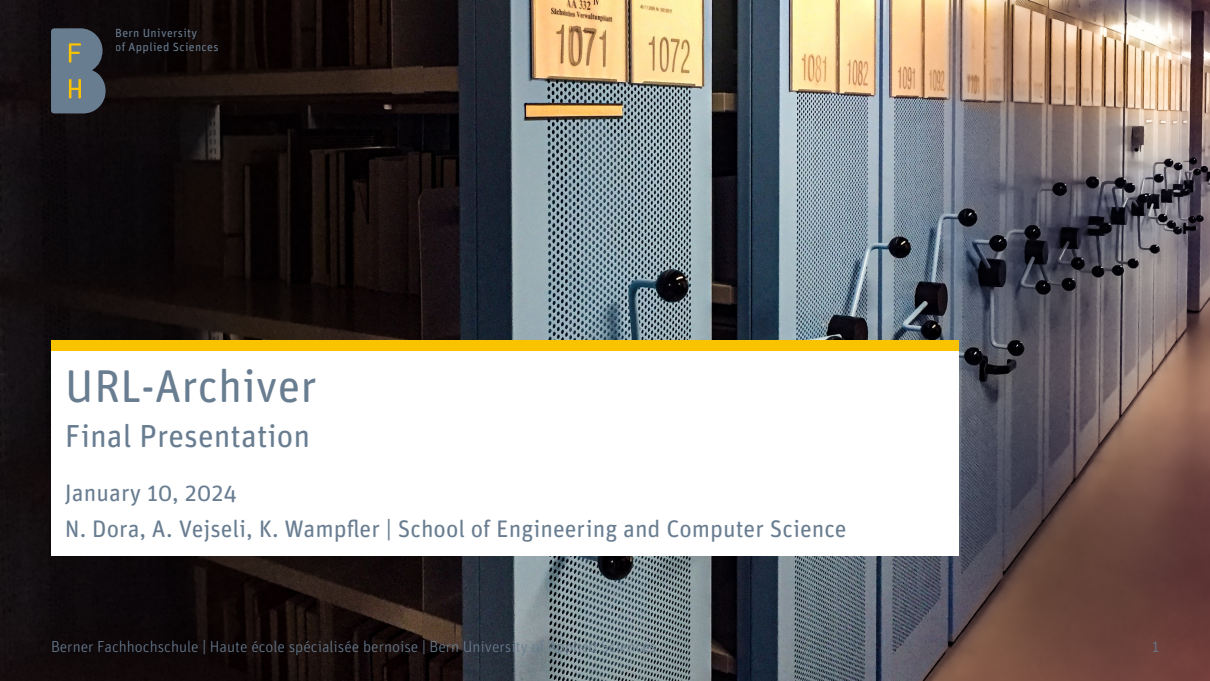


Bern University
of Applied Sciences

URL-Archiver

Final Presentation

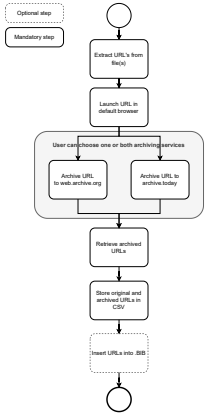
January 10, 2024

N. Dora, A. Vejseli, K. Wampfler | School of Engineering and Computer Science

Table of Content

Topics Covered

- Brief Recap: Problem Statement
- Solution Overview
- Live-Demo
- Project Management
- Conclusion
- Questions?



Brief Recap: Problem Statement

About what was this project again?

Problem Statement Recap ”URL-Archiver”

The ever changing Internet

- problem statement
  - **ever-changing Internet** (websites are taken down or changed)
  - **Forensic** (e.g. **legal report** about a statement on the Internet)
- solution
  - a java application which **searches hyperlinks**
  - and **archives** them with an archiving service

Project Goal

- Develop a software that…
  - …**searches hyperlinks** within documents
  - …is capable of **archiving websites**
  - …can **store** current and archived links in a file
  - …is **easy** and **intuitive** to use

Project Setup Review

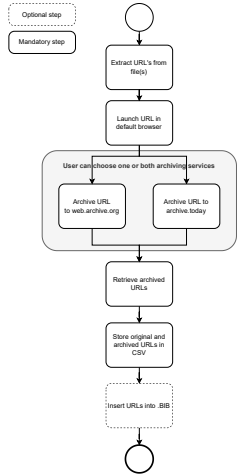
Initial Situation

- **What we knew:**
  - the end result has to be a **platform independent java application**
  - we can only use **FLOSS**-licensed libraries
  - the software must support **Archive Today** and **The Wayback Machine**
  - the code must be publicly accessible

Project Setup Review

Initial Situation

- **What we did first:**
  - **project setup**
  - we **researched** both archiving services and whats possible
  - we designed the rough **process for user interaction**
  - we decided on a **software design pattern**



Project Setup Review

Installation / Project Setup

- creation of a new **github repository** for public accessibility
- setting up a **jira project** (with epics and first stories)
- installing the **latest java version**

Solution Overview

Command line application

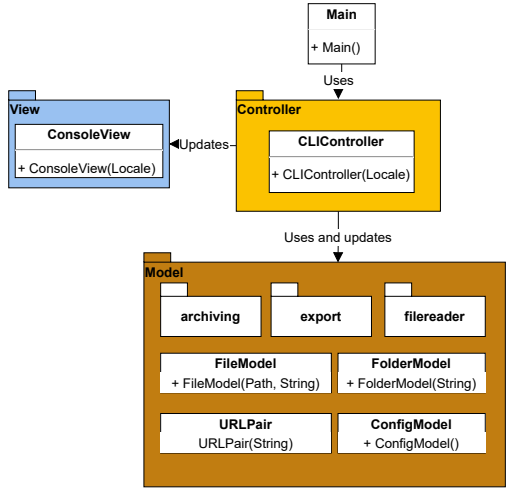
Why a command line and not a GUI application?

- **Focus on Logic:** Emphasis on functional depth over visual design.
- **Technical Audience:** Suited for users proficient in command-line environments.
- **Efficiency in Development:** Streamlines the development process by focusing less on UI design.
- **Flexibility and Scalability:** Provides a stable base for future feature expansion.

Architecture

Employing the **MVC** Pattern

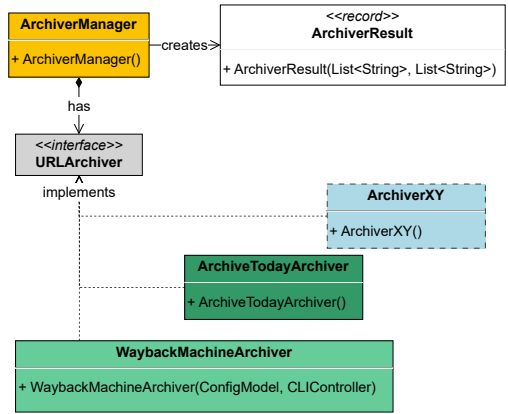
- Modular design for **easy extension**
- Separate data, view, and control flow
- Facilitates the potential **addition of a GUI**



Architecture

Factory Pattern

- **File Reader:** More input file types? No problem.
- **Archiving Services Integration:** An additional service can be added very easily.
- **Selenium Web Drivers:** Support another browser? Nothing easier than that!
- **Export functionality:** Easily add support for additional file types.



Enhancing Functionality and Flexibility

Configuration, Internationalization, and Testing

- **Configuration File Usage:** Preserves settings between program sessions.
  - **Stored Settings:** Includes Wayback Machine API keys and default browser.
- **i18n Implementation:** Lays groundwork for multilingual support.
- **Unit Testing:** Comprehensive tests written for all relevant classes.

Ease of Use: Installation Simplified

Custom Scripts for Cross-Platform Compatibility

- **Simplified Compilation and Installation:** Tailored scripts for Windows, Linux, and macOS.
- **User-Friendly Scripts:** Enable straightforward application compilation and execution.
- **Flexible Installation Options:** Users can choose to compile then run, or do both in one step.

```bash
#!/bin/bash

# Check for Java installation
if ! type java > /dev/null 2>&1; then
    echo "Java is not installed or not in the PATH. Please install Java 21."
    exit 1
fi

# Check for Maven installation
if ! type mvn > /dev/null 2>&1; then
    echo "Maven is not installed or not in the PATH. Please install Maven."
    exit 1
fi

# Build the project with Maven
mvn clean package

# Check for build success
if [ $? -eq 0 ]; then
    echo "Build successful."

    # Create 'bin' directory if it doesn't exist
    mkdir -p bin

    # Move the JAR file to the 'bin' directory
    mv target/URL-Archiver-1.0-RELEASE-jar-with-dependencies.jar bin/
else
    echo "Build failed."
fi
```

Live-Demo

Project Management

SCRUM Review

Product Goal

- ✓ Accepts **directories**, **Unicode text** (.BIB, .TEX, .HTML, etc.), or **.PDF files** as input.
- ✓ Extracts **all URLs** from the files.
- ✓ Can **open** URLs in a web browser.
- ✓ Can **archive URLs** to **archive.today** and **the Wayback Machine**.
- ✓ Retrieves archived URLs.
- ✓ **Outputs a CSV file** with key-value pairs of original and archived URLs.
- ✓ Can **add archived URLs to a .BIB file**.
- (✓) The program code should be **minimal, modular, and self-explaining**.
- ✓ **User manual**, **Installation instructions** and **Software documentation** are provided.

SCRUM Review

Scrum Methodology

Nicolin Dora
Product Owner & Developer

Abidin Vejseli
Scrummaster & Developer

Kilian Wampfler
Developer

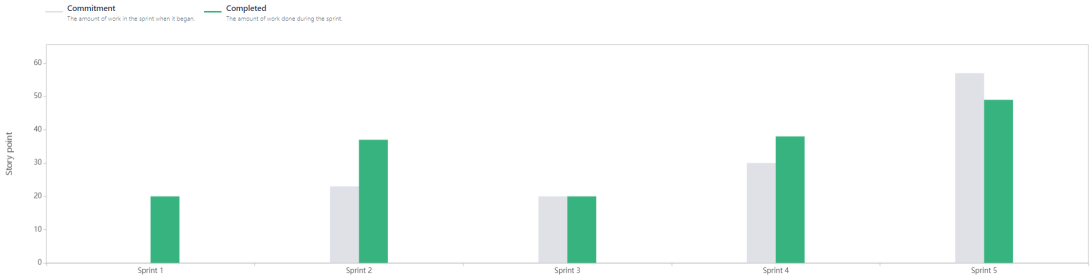
SCRUM Review

Product and Sprint Backlog Management

Projects / URL-Archiver / Reports

Velocity report

› How to read this repo



Sprint	Commitment	Completed
Sprint 1	0	20
Sprint 2	23	37
Sprint 3	20	20
Sprint 4	30	38
Sprint 5	57	49

SCRUM Review

Sprint Goals & Approach

- **Sprint 1** Implement input handler for files (any unicode file e.g. .bib, .txt, .html and .pdf) and basic user guidance (Menu, Error messages).
- **Sprint 2** Implement a function to scan a provided text in order to identify and extract any URLs contained within it and upgrade our current console-based interface to enable users to easily open any extracted URL using their default web browser.
- **Sprint 3** Develop and implement a fully automated URL submission system that integrates with the Wayback Machine and Archive Today to ensure at least a 98% success rate in URL archiving.
- **Sprint 4** Enhance the system's stability and usability by resolving identified Selenium bugs across Linux, macOS, and Edge browsers, documenting the sprint process and licenses, conducting a thorough code review, and establishing a new configuration management file, aiming for zero critical bugs at sprint closure and readying the system for seamless URL archiving integration in subsequent sprints.
- **Sprint 5** Complete application refactoring for asynchronous archiving and .BIB file URL integration, ensuring no critical bugs and preparing for seamless future enhancements.
- **Sprint 6** Deliver a finalized application design, improved code quality, and complete documentation, with all components ready for review.

SCRUM Review

Delimitation and Delivery

- **Disciplined** backlog management and sprint planning.
- Confined our efforts to the **most critical features**, implicitly setting **boundaries** that guided our **development focus**.

SCRUM Review

Tools and Communication

Our project's success was also due to the effective use of tools like:

- Java, Maven, JUnit 5
- IntelliJ IDEA, GitHub, LaTeX
- Microsoft Teams and BigBlueButton

SCRUM Review

Conclusion

- Journey of **learning**, **adapting**, and **growing**
- Our **experiences**, **challenges**, and **successes** in this project have been **valuable**, and we are excited to **carry these lessons** forward into future projects.

Conclusion

Conclusion: Project Goal

- ✓ Develop a software that…
  - ✓ …**searches hyperlinks** within documents
  - ✓ …is capable of **archiving websites**
  - ✓ …can **store** current and archived links in a file
  - ✓ …is **easy** and **intuitive** to use

Future Work

What can be done to improve the application further

- Add more **archiving services** (such as Memento Time Travel)
- Support more **input file types** (e.g. .docx)
- Integrate a **graphical interface**
- Implement **multilingual** support

Questions?