

Software Design Specification  
Label Refinement by Behavioral Similarity

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# **1 Introduction**

## **1.1 System Overview**

## **1.2 Design Map**

## **1.3 Supporting Materials**

## **1.4 Definitions and Acronyms**

# **2 Design Considerations**

## **2.1 Assumptions**

## **2.2 Constraints**

## **2.3 System Environment**

## **2.4 Design Methodology**

## **2.5 Risks and Volatile Areas**

# **3 Architecture**

## **3.1 Overview**

## **3.2 Rationale**

## **3.3 Component Details**

# **4 High Level Design**

## **4.1 Conceptual View**

# **5 Low Level Design**

## **5.1 Module 1**

## **5.2 Module 2**

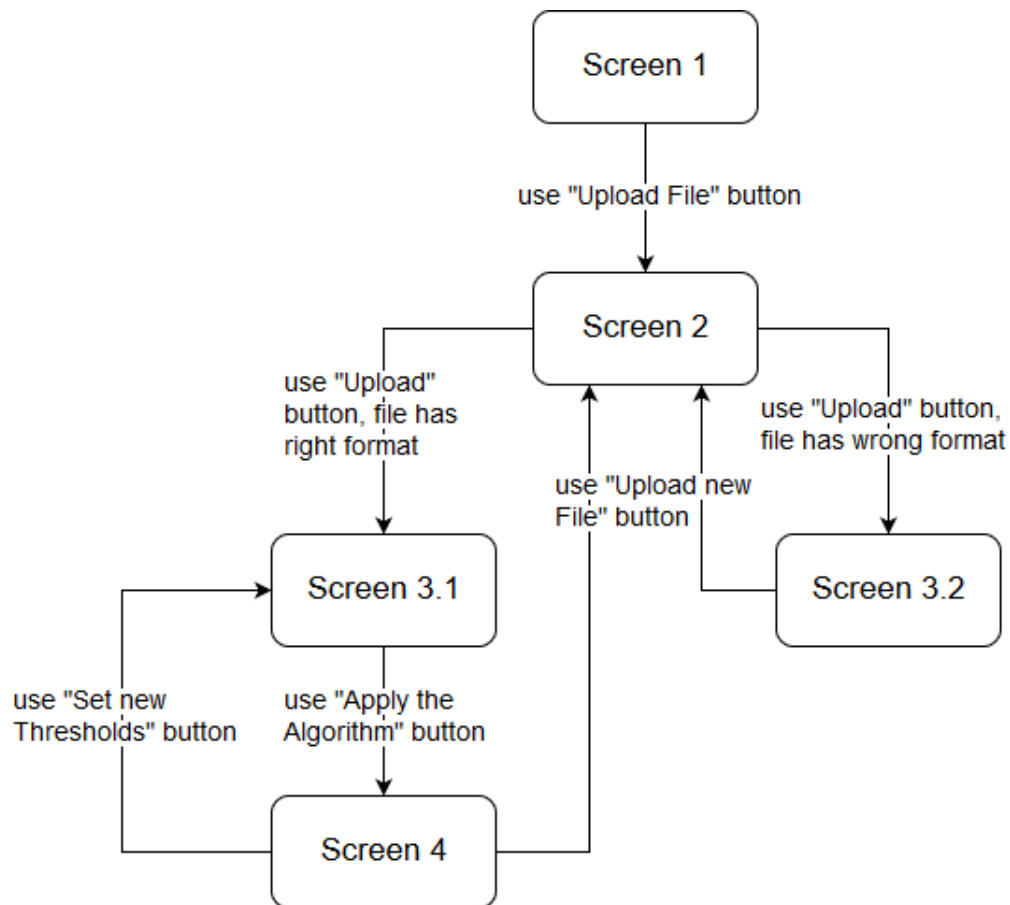
# **6 User Interface Design**

## **6.1 Application Control**

In the project, we will implement a web service. The web client will have a rather plain design that should focus on the main activities the service should provide, which are uploading event logs in csv or XES format, setting the threshold for the label refinement algorithm and download the refined log after the algorithm is finished. There will be buttons used to upload the file, apply the algorithm and download the refined event log. Moreover, the screens will have short explanations telling the user what to do (if not self-explanatory). For setting the thresholds, two boxes will be provided that include the default thresholds, but new values can be entered by the user. A draft of each of the main screen can be found in the next section, section 6.2.

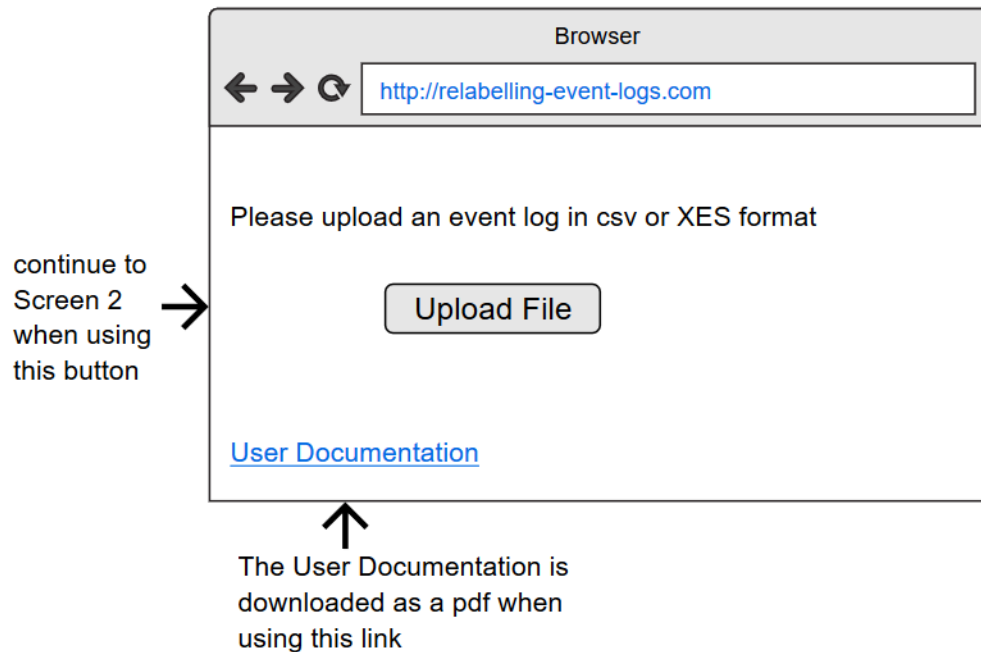
## **6.2 The Screens**

The main screens will be visualized in the following subsections. In these screens include the main functionalities, which are described in the former section. The following diagram will show the flow of control through the screens.



### 6.2.1 Screen 1

#### Screen 1:

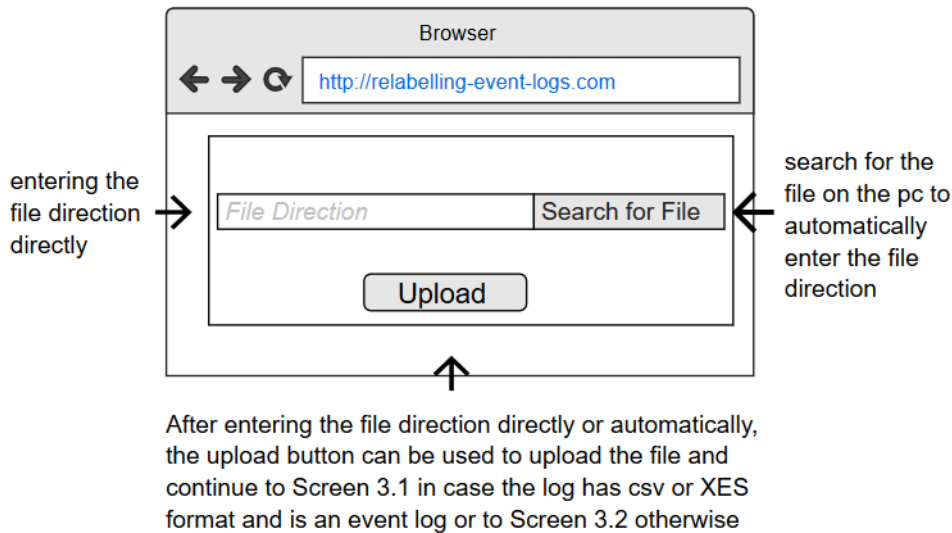


The first screen visible to the user will show a description saying that an event log in csv or XES format should be uploaded. Moreover, a button "Upload File" is visible. By using this button, the user will continue

to Screen 2. At the end of the page, there will be a link called "User Documentation". By clicking on this link, the User Documentation will be downloaded in pdf format.

### 6.2.2 Screen 2

#### Screen 2:



In the second screen visible to the user, the user can enter the file direction of the event log he wants to upload. He can either directly type in the direction into the "File Direction" field or use the "search for File" button to search for a file on his pc, so that the direction will automatically be filled in after selecting a file. After using one of this alternatives, he can use the "Upload" button to upload the file with the given directory. In case this file is an event log, i.e., the data contains at least the attributes "id", "time stamp" and "activity name", and has either csv or XES format, the user will continue to Screen 3.1. If one of these conditions is not satisfied, he will continue to Screen 3.2.

### 6.2.3 Screen 3.1

#### Screen 3.1:

Browser

← → ↻ <http://relabelling-event-logs.com>

Please enter the variant threshold and the unfolding threshold the algorithm should use:

Variant threshold: 0.05

Unfolding threshold: 0.60

Apply the Algorithm

The user can enter the thresholds in the white boxes

By using this button, the algorithm will be applied to the uploaded event log using the thresholds provided above. If the user does not enter any threshold, the default value of 0.05 and 0.60 will be used respectively. After finishing the algorithm, the user will get to Screen 4.

This screen appears if the file uploaded by the user meets the requirements. In this screen, the user can set the thresholds for the algorithm, i.e., the variant and the unfolding threshold. He can enter these in the corresponding white boxes. If he does not enter the thresholds, the default values of 0.05 and 0.60 will be used respectively. Using the button "Apply the Algorithm", the web service will start applying the algorithm using the provided thresholds. After the algorithm is finished, the user will get to Screen 4.

### 6.2.4 Screen 3.2

#### Screen 3.2:

Browser

← → ↻ <http://relabelling-event-logs.com>

**Error!**  
The file did not meet the constraints. This web-service only supports files in csv or XES format. Moreover, the file has to contain an event log, i.e., contain at least the attributes "id", "time stamp" and "activity name".

Upload new File

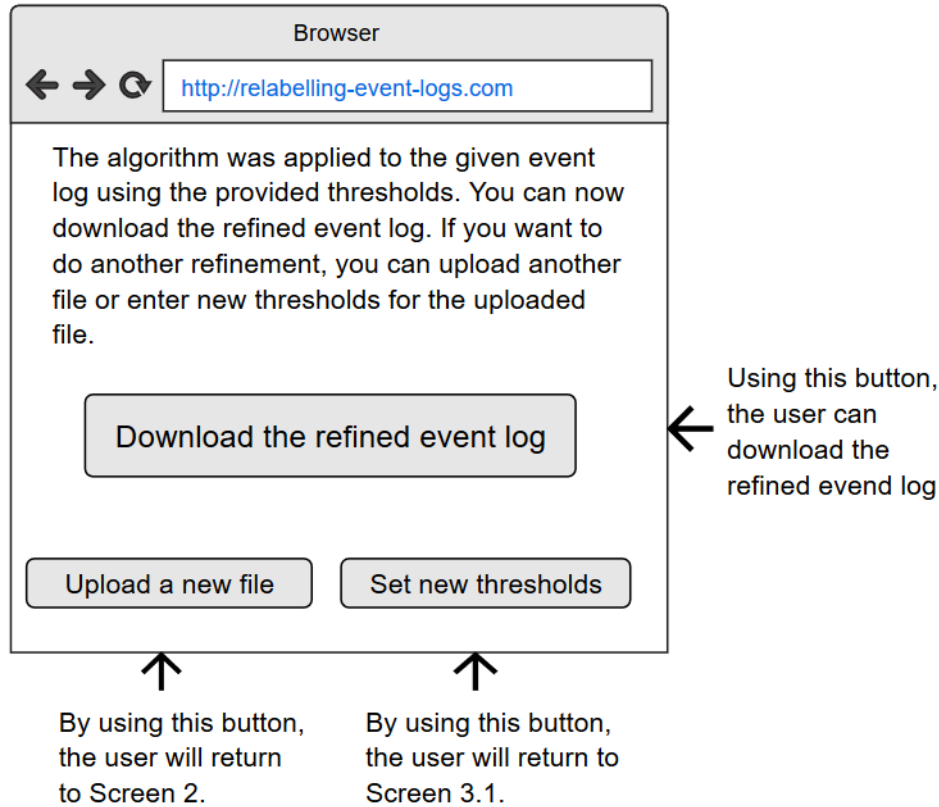
By using this button, the user will return to Screen 2.

This screen appears if the upload was not successful because the file did not meet the assumptions. If the file

does not have the right format, the user can click on the button "Upload new File" to return to Screen 2 and upload a file that meets the constraints.

#### 6.2.5 Screen 4

##### Screen 4:



This Screen will be shown after finishing the algorithm. The user can now download the refined log using the corresponding button. After this step, the user is done and can exit the page, but if he also wants to apply the algorithm to another event log or to the same event log using different thresholds, he can use the corresponding buttons and will be redirected to Screen 2 or Screen 3.1 respectively.

## References

- [1] Lu, Xixi, et al. "Handling duplicated tasks in process discovery by refining event labels." International Conference on Business Process Management. Springer, Cham, 2016.