Binary file handling tool

Analysis and Project Requirements

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CREATED: 13th November 2020

MODIFIED: 16th November 2020

RECIPIENTS: Jakub Nalepa, BEng, PhD

VERSION: [1.0.0]

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1. Document History

Version	Date	Author	Approved by	Additional information
0.1.0	2020/11/13	Katarzyna Chowańska, Maqsudjon Khusainov	Katarzyna Chowańska, Anna Brzezina	creation of the APR document
0.2.0	2020/11/14	Anna Brzezina	Katarzyna Chowańska, Anna Brzezina	development of the document structure, adding a Dictionary and a General Description, precising the requirements
0.2.1	2020/11/15	Anna Brzezina	Katarzyna Chowańska, Anna Brzezina	sorting the terms in the dictionary in alphabetical order, adding the "software" term
0.3.0	2020/11/16	Anna Brzezina, Katarzyna Chowańska	Anna Brzezina, Katarzyna Chowańska	adding the use-case diagram
1.0.0	2020/11/16	Anna Brzezina	–	release candidate
1.1.0	2020/11/26	Anna Brzezina	Anna Brzezina, Katarzyna Chowańska	adding IDs to particular requirements

2. Introduction

2.1. Scope

This document presents the requirements and details of the project. It was prepared on the basis of an interview between the Client and the Analyst. The interview was conducted during a meeting which took place on November 13, 2020.

2.2. Dictionary

The following notions will be used in this document:

Term	Explanation	Synonyms
APR	Analysis and Project requirements — abbreviation of the document's name.	–
Batch processing	Processing of several input files in a parallel manner (at the same time).	parallel processing
Binary file	A file stored in binary format	input file
GUI	Graphical User Interface — A form of user interface that allows users to interact with electronic devices through graphical icons.	interface
Input data	Data provided by the User which will provide additional information regarding processing of the input file.	–
Input file	A binary file which will be uploaded to the program in order to be processed and transformed into a readable text file.	input
Iteration	The repetition of an action	–
Output file	A result given by the program, provided that proper input data and a proper input file (or files) are given.	output
Software	The product developed by our Team.	program
User	Any person using the produced software for their or their own business purposes.	person

3. General description

3.1. General possibilities of the intended system

The program's goal is to process binary files in such a manner, that the provided input file (in a binary form) can be viewed in a form understandable for the user and can be later exported to a text file.

The software will allow the user to provide a binary file (or a set of files) in order to view its content. Moreover, it will be possible to export the whole content, or its chosen part, to a text file. The software will also be able to process both, linear, as well as iterative structures (where the number of iteration can be specified by the user or might be already written in the file itself).

3.2. General constraints

The software's constraints would be at first the type of files to process - these will be only binary files. Secondly, the output provided after the file has been processed can be a standard text file only (including **txt**, **tex**, **rtf**).

The number of processed files is unlimited thanks to the possibility of batch processing. However, if the amount of files to be processed indicates a very long time of processing, the user shall be informed about the estimated time and will be given the possibility to decide, whether the operation should be continued or abandoned.

3.3. Characteristics of users

The people who are considered to be users of this software are the ones who need to read binary files for their own purposes, or for their business purposes. The software is intended for private and commercial use. Furthermore, the users are people who have advanced, basic or no IT knowledge at all. Because of this it will be ensured that the software is easy to use, readable and clear, so that even people with no IT knowledge will be able to use the software.

4. Specific requirements

4.1. Functional requirements

1. Handling binary files (REQ 1)

   (a) Uploading a single binary file (REQ 1.1)

       i. Specifying the number of iterations (for an iterative structure) - If the user specifies a number of iterations different from the one in the file, the program should use the number specified in the input file and inform the user about a mismatch error. (REQ 1.1a)

       ii. Providing an error message to the user, if the input file is broken or incorrect. (REQ 1.1b)

       iii. The program should be able to process a binary file containing wide variety of data (including text and images). (REQ 1.1c)

       iv. If the binary file header specifies that the file contains an image, the user should be able to export the output to an image. (REQ 1.1d)

   (b) Uploading a set of binary files (batch processing) (REQ 1.2)

       i. All the requirements specified for a single binary file being processed. (REQ 1.2a)

       ii. If the set of files chosen to be processed contains non-binary files, these should be omitted. (REQ 1.2b)

       iii. The user chooses the properties of the output file only for the first file, the rest is processed in the exact same way. (REQ 1.2c)

       iv. Any amount of files should be possible to be processed. (REQ 1.2d)

       v. The user should receive a warning in the event of an attempt to process a large number of documents that will take a long time. (REQ 1.2e)

   (c) Saving the processed binary file to an output file (REQ 1.3)

       i. The output file should be a standard text file (i.e. txt, tex, rtf) (REQ 1.3a)

       ii. User should be notified in case of choosing output format different then specified in the file (for both, single file and batch processing). (REQ 1.3b)

2. GUI (REQ 2)

   (a) Includes a progress bar of the ongoing process. (REQ 2.1)

   (b) Shows a preview of the output after the file has been processed. (REQ 2.2)

4.2. Non-functional requirements

1. Licensing (REQ 3)

   (a) Software under the Open Source Licence. (REQ 3.1)

   (b) Software available for single and commercial use. (REQ 3.2)

2. Ease of use (REQ 4)

   (a) Training time will not exceed 1 hour. (REQ 4.1)

   (b) A limited number of clicks (maximal 3 for one action) (REQ 4.2)

   (c) Processing of one file should not exceed 5 seconds (for a file size of 100 KB). (REQ 4.3)

5. Use-case Diagram

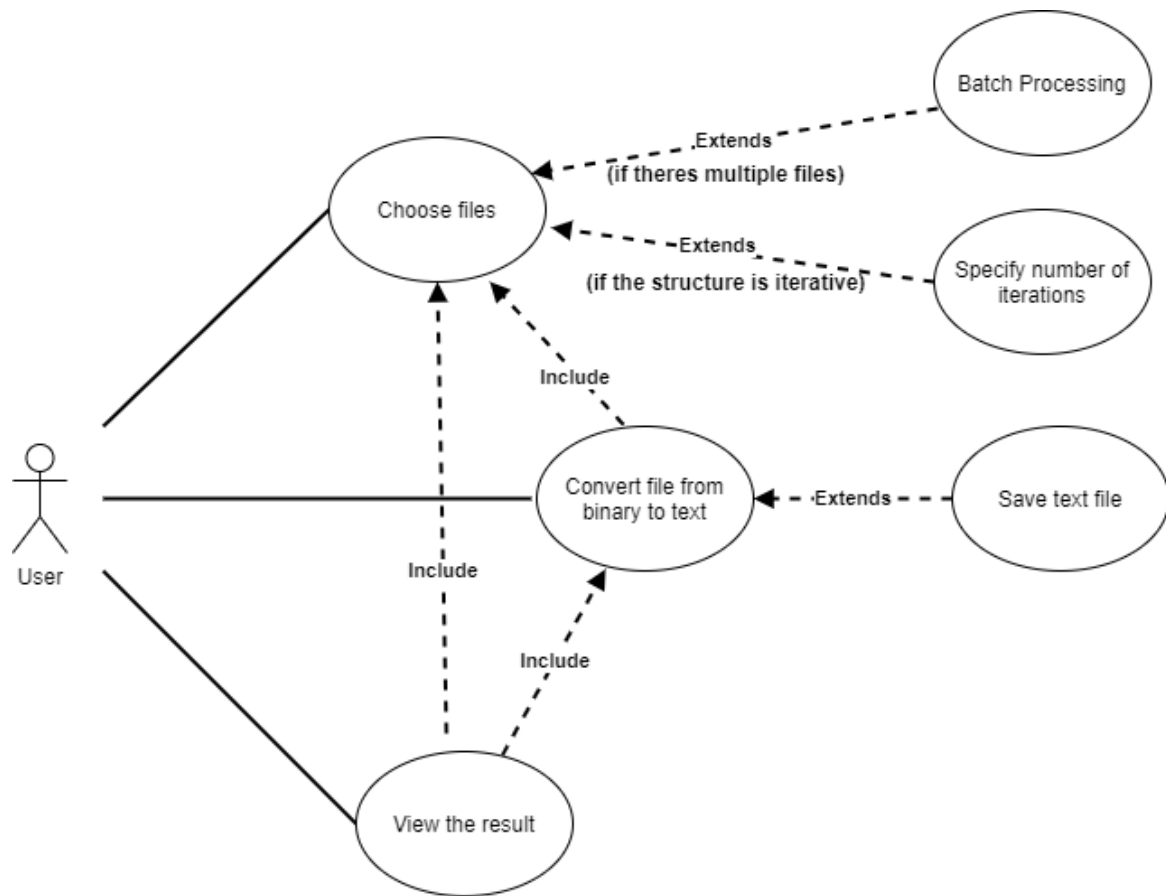The earlier mentioned functional requirements can be presented in the following use-case diagram.

Figure 1: Use-case diagram presenting the functional requirements