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Lab 2 – Blackboard Archive Extractor Product Specification Outline

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1. Introduction

According to Corcoran (2014), approximately 17,000 schools were using Blackboard, in over 100 different countries. Blackboard is an online tool used by schools, colleges, and universities to organize course materials. This tool allows professors to distribute course materials such as syllabi, notes, and assignments to students over the Internet.

This would not be useful for instructors who are required to present their course materials to a Review Board. According to the Old Dominion University Faculty Handbook, lecturers are reviewed every year, senior lecturers are reviewed every three years, and tenured professors are reviewed every five years[2]. Depending on one's status with the University, lecturers rely on Blackboard to create their portfolio that will then be evaluated. However, there are various obstacles that instructors encounter while using Blackboard as a teaching tool for reviews. According to the ODU policy, courses on Blackboard are limited to being stored with a maximum of 2 years. Professors are forced to either move their content to an empty course or export their course as a Blackboard archive file. A tenured professor would have to move their materials at least twice between evaluations. If the lecturer opted to create a Blackboard archive of their course, they would have to manually extract their content page-by-page. They would also have to manually format the folder structure to allow it to be viewable. This process would have to be repeated for each course archive as illustrated in Figure 1. This proposes the issue of professors having difficulty retrieving their course content after being exported to a Blackboard Course Archive.

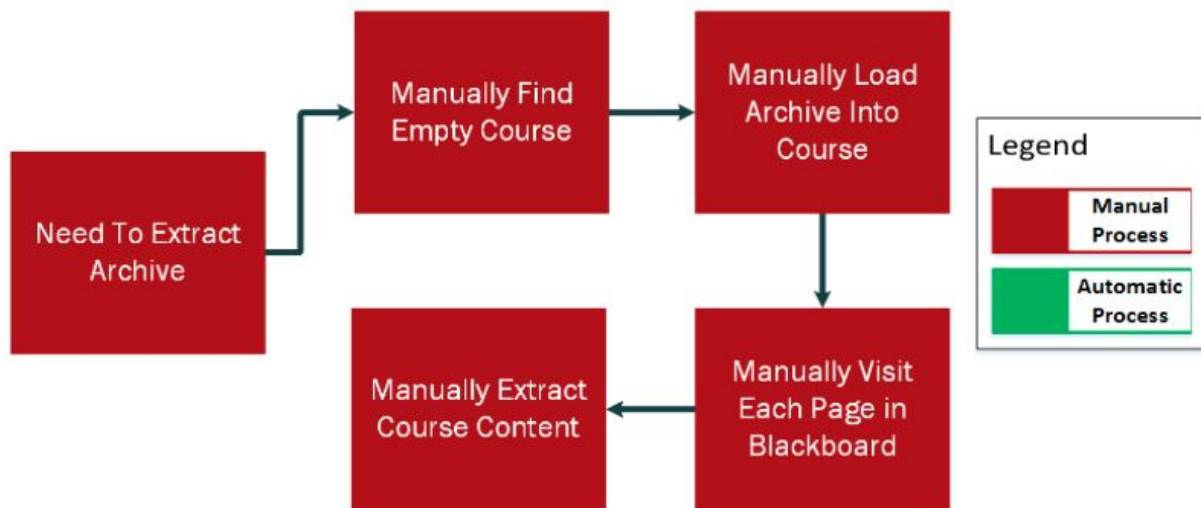Running head: Lab 2 - Blackboard Archive Extractor Product Specification Outline

Figure 1: Current Manual Process Flow

With the Blackboard Archive Extractor, its goal is to automate this process by going through various algorithms to make the process automatic and viewable as depicted in Figure 2. This will provide users with a solution that takes less time and less effort than the current process.
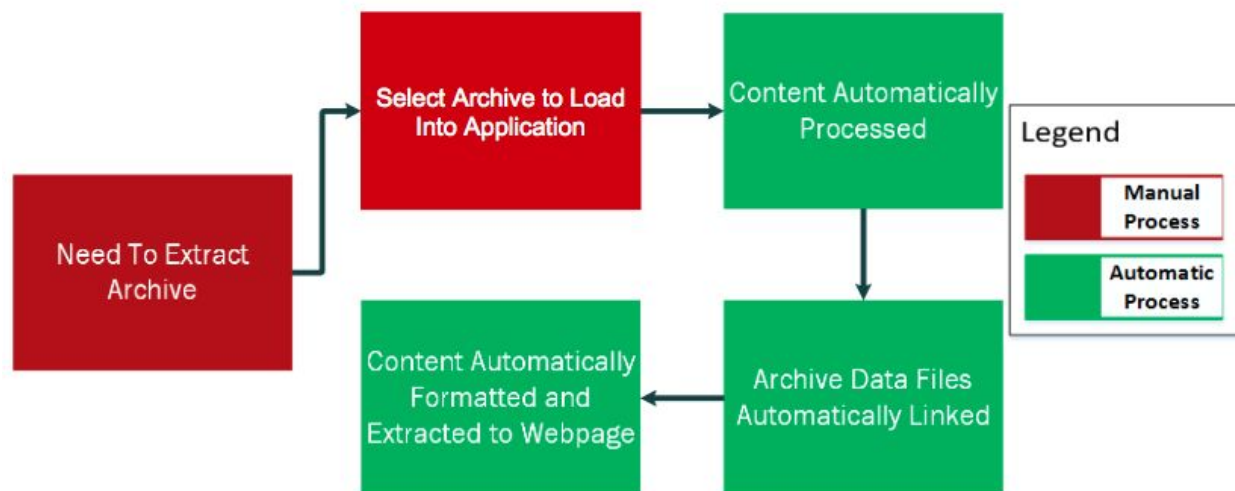

Figure 2: Automated Process Flow

1.1 Purpose

Blackboard Archive Extractor is an application designed to allow teachers and professors to load a Blackboard course archive and explore its contents. The application will be able to handle selected Blackboard contents such as blogs, modules, documents, and exams. The application will then create a directory containing all the extracted and processed contents from the Blackboard Course Archive. All materials in the archive will be viewable and accessible through an HTML page for review committees to observe or personal use. Blackboard Archive Extractor will be a desktop application that can be executed from either a command line interface or a graphical user interface. The application will assist lecturers, instructors, and professors organize and maintain materials that are hosted on Blackboard.

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1.2 Scope
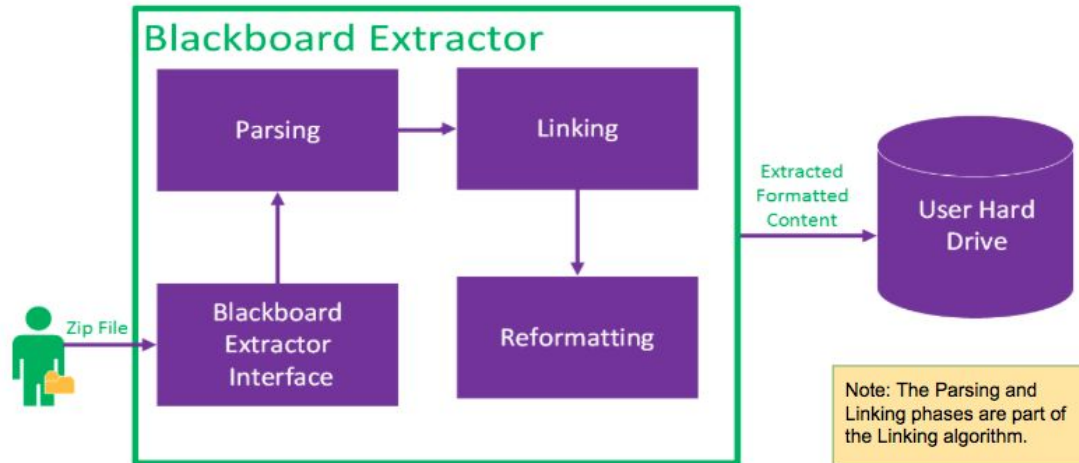
Figure 3: Major Functional Component

The Blackboard Archive Extractor will consist three major components including parsing,

linking, and reformatting. The major functional components are as specified in Figure 3.

Blackboard Archive Extractor will include a user interface, algorithms to recreate the course, and

an output that will be reviewable. The application will be desktop software available for

Windows 7 through Windows 10. There will be an input and output that will take in the

Blackboard archive and create an output that will be viewable. The software will allow the user

to drag and drop the archive into the application or browse the computer for the file. The user

will then have the option to choose where to save their reformatted Blackboard file. Upon

completion, the application will create a navigable set of HTML documents that will display a

webpage with the user's materials from a Blackboard course.

1.3 Definitions, Acronyms, and Abbreviations

Blackboard Learn – is a virtual learning environment

Blackboard Archive – a ZIP file of the course content and user interactions

Blackboard Archive Extractor – a tool that extracts blackboard archives into an easily

navigable set of HTML documents

GUI – Graphical User Interface is a type of user interface that allows users to interact visually

IMS Course Cartridge – is a specification that describes format for creating and sharing

primarily educational digital content

Old Dominion University (ODU) – is a public co-educational research university located in

Norfolk, Virginia

Root Index – where the website files are stored

UI – User Interface is where a user and system interact

URL – Uniform Resource Locator a web address referencing a web resource, specifying location

UX – User Experience is the overall experience when using a product

ZIP file – is an archive file format that supports lossless data compression

1.4 References

1. Corcoran, B. (2014, July 23). Blackboard's Jay Bhatt Strikes Up the Brass Band.
   Retrieved October 19, 2016, from
   https://www.edsurge.com/news/2014-07-23-blackboard-s-jay-bhatt-strikes-up-the-brass-band

2. ODU Faculty Handbook. (2005, December 21). Retrieved October 26, 2016, from
   http://ww2.odu.edu/ao/facultyhandbook/index.php?page=ch07s01.html

3. Lab I

1.5 Overview

This product specification provides the hardware and software configuration, capabilities

and features of the Blackboard Archive Extractor prototype. This prototype will not use of

external interfaces. The information provided in the remaining sections of this document

includes a detailed description of the hardware, software, and architecture of the Blackboard

Archive Extractor prototype. This specification also describes the architecture design of the

prototype and how that design leads to the functional capabilities of the Blackboard Archive

Extractor. The specification provides a precise list of requirements which the prototype must

satisfy, located in Lab 2 Section 3.1 located in a separate document.

2. General Description

The Blackboard Archive Extractor is a software designed to target educators that use

Blackboard. The user will use the application through CLI or GUI to upload their Blackboard

archive. The Blackboard Archive Extractor tool is a software containing algorithms that will

parse and organize contents inside Blackboard archives. The contents are restructured into a

viewable directory tree comparable to the Blackboard website. The newly created archive is

saved onto the hard drive and a web content is created. With these features, the Blackboard

Archive Extractor's goal is to provide educators a method of creating a teaching portfolio automatically.

## 2.1 Prototype Architecture Description

Blackboard Archive Extractor is set to nearly implement every major functional component and algorithms required for the final product as illustrated in Figure 4.

Features	Real World Product	Prototype
Can extract all content from an archive	Fully Functional	Partially Functional
Saves archive on hard disk	Fully Functional	Fully Functional
Checks every URL that points to an outside website	Fully Functional	Partially Functional
Execute application from command line interface	Fully Functional	Fully Functional
Execute program from a GUI	Fully Functional	Fully Functional
Doesn't break on future Blackboard versions	Fully Functional	Partially Functional
Executes from a web application	Fully Functional	Eliminated
Creates web content from archive	Fully Functional	Fully Functional
Responsive website design	Fully Functional	Partially Functional

Table 4: Real World Product with Prototype

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The application will be distributed through download from the website. The download will

be hosted on a private server by ODU Computer Science department. The software will extract

all content from the Blackboard archive. It will go through a linking and formatting algorithm to

parse the archive. ==The prototype will check every uniform resource locator (URL) that points to==
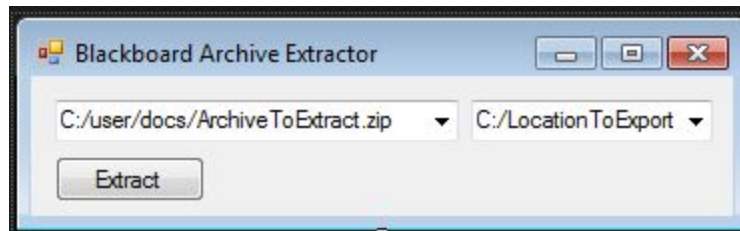
==an outside website. The Blackboard Archive Extractor will execute the program from the==

==command line interface (CLI).== It will also have the option to execute from a graphical user

interface as illustrated in Figure 5. The program will accept the location of the archive. It can

also receive the location by dragging and dropping the archive into the application. It will then

save the new archive onto the hard drive in the specified location. The software will create a web

content form the archive and have a responsive website design. This website will host all the

content in the archive and will be viewable to those with the proper authorization. Lastly, this

prototype will be compatible with future Blackboard versions.

2.2 Prototype Functional Description

The user must download the Blackboard Archive Extractor application onto their

machine from   **Figure 4: Example of the GUI**   the hosted

website. It is also required to have a Blackboard archive that needs extracting. ==Once the user has==

==obtained the two items, the user has the option to execute the program from either GUI or CLI.==

For the GUI, there will be an input and output object accepting the location of the archive and where the extracted archive will be located. The application will also accept a drag and drop method onto the application as an alternative action to specify the Blackboard archive. When the objects are filled with the necessary locations, the user will need to perform the extract button to start the extraction. When it is complete, the user will be notified. A directory will be created where the location was specified containing all the contents. In effect to this, a fully responsive web design is created through this directory. The user will be able to view their materials through the web browser and allowing other viewers, like the review committee, to examine their materials used throughout the course.