

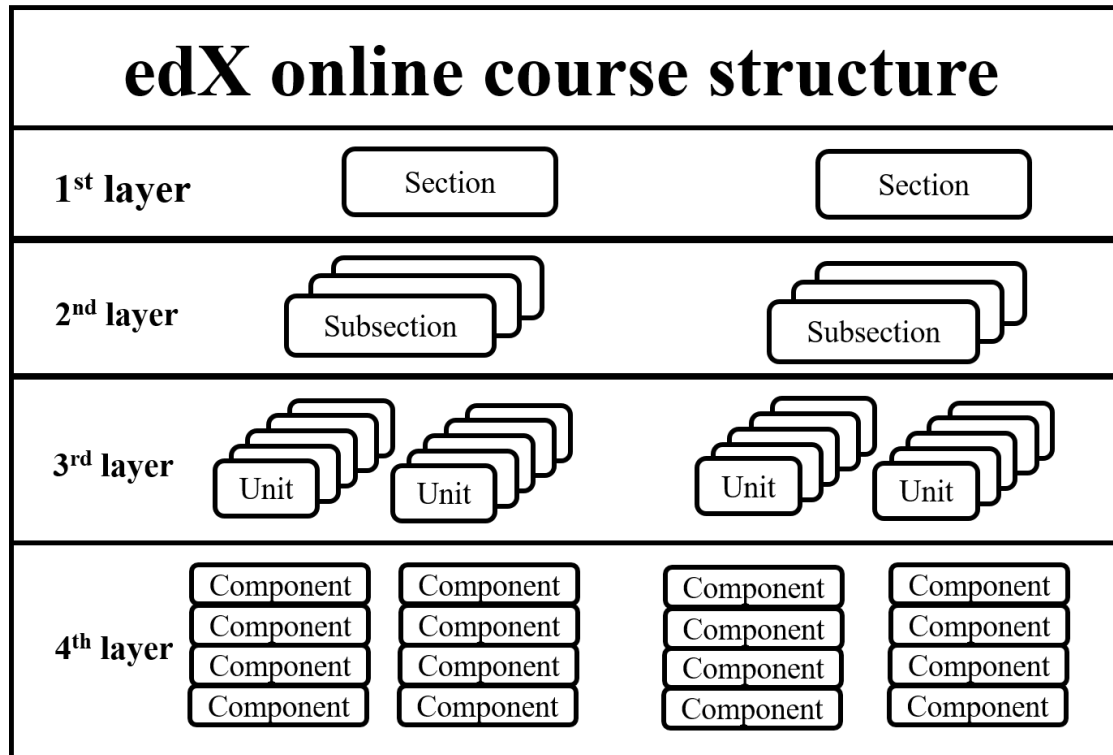
# Content Modification Tool for English-to-Japanese Text Replacement

# Contents

- edX course structure
- edX Open Learning XML (OLX) structure
- Material preparation
- Content Modification Tool
  - Course structure extraction
  - Component Replacement
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# edX Course structure

- edX provides a 4-level hierarchy [1]
- 4<sup>th</sup> layer component has various type. This tool involves only Text-type component
- For Text replacement, tool only modifies Text component without changing structure of existing course



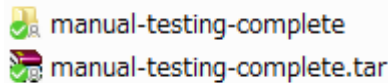
Compare to a course in school
Class, i.e., per week
Topic covered in each class
Chapter of each topic, such as introduction, main content, conclusion,
teaching material , i.e., text document, video

[1] *Building and Running an edX course*: (2017, April 17).

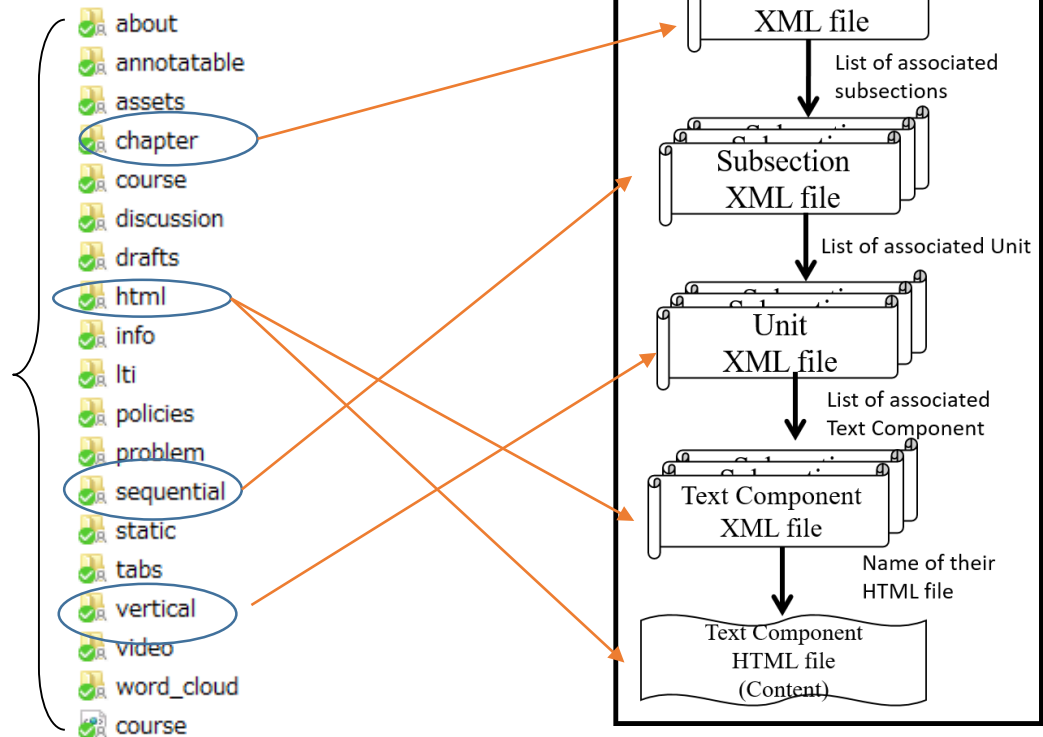
Retrieved from <http://edx.readthedocs.io/projects/edx-partner-course-staff/en/latest>

# edX Open Learning XML (OLX)-1

- When edX course is exported to local computer, data is compressed in tar.gz format [2].
- Content are structured based on OLX as figure below [3]



Section, subsection, unit, and text component information are saved in respective folders (see figure)



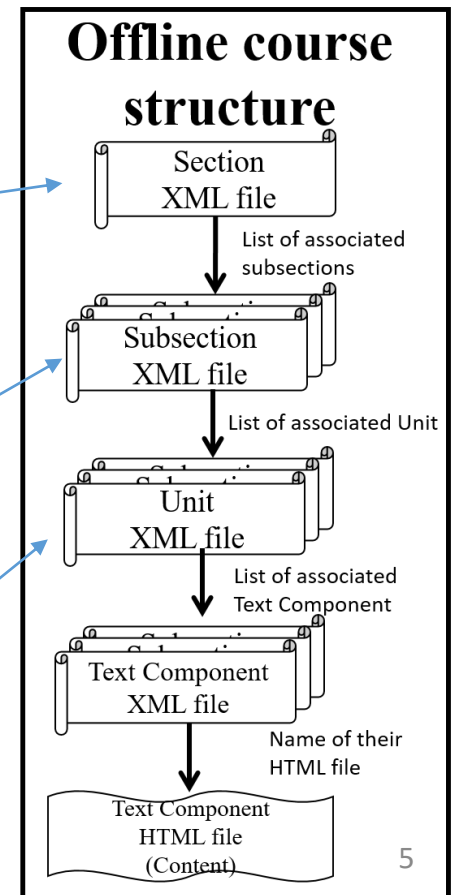
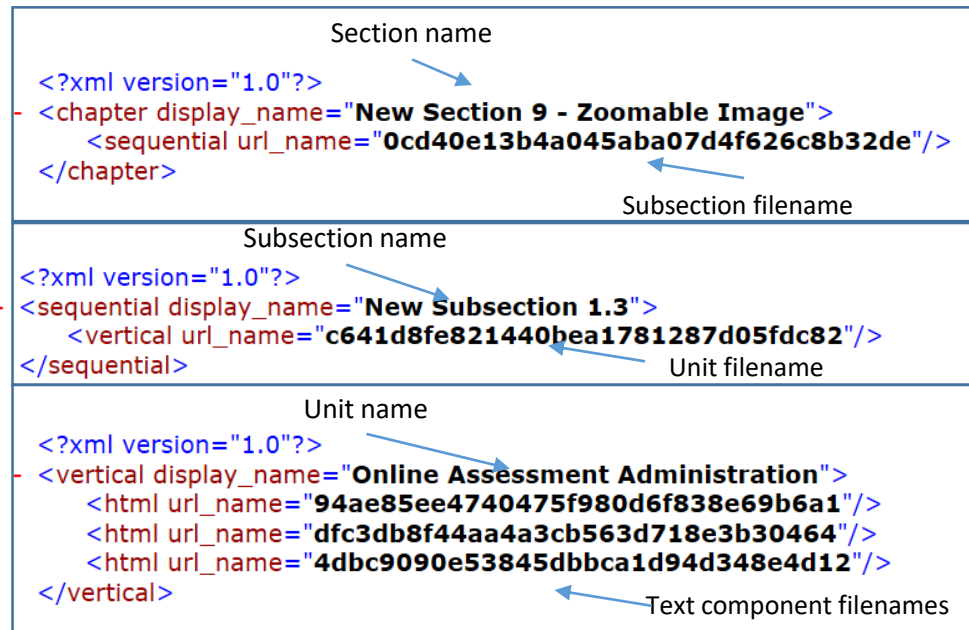
[2]edX Open Learning XML Guide: (2017, April 25). Retrieved from <http://edx.readthedocs.io/projects/edx-open-learning-xml/en/latest/>

[3]edX Manual-testing course: (2017, April 17).

<https://github.com/edx/edx-platform/tree/master/common/test/data/manual-testing-complete>

# edX Open Learning XML (OLX)-2

- XML file of these 4-level hierarchy has two information
  - Self-information
  - List of filename of lower layer



# edX Open Learning XML (OLX)-3

- Text component consists of two files
  - XML file

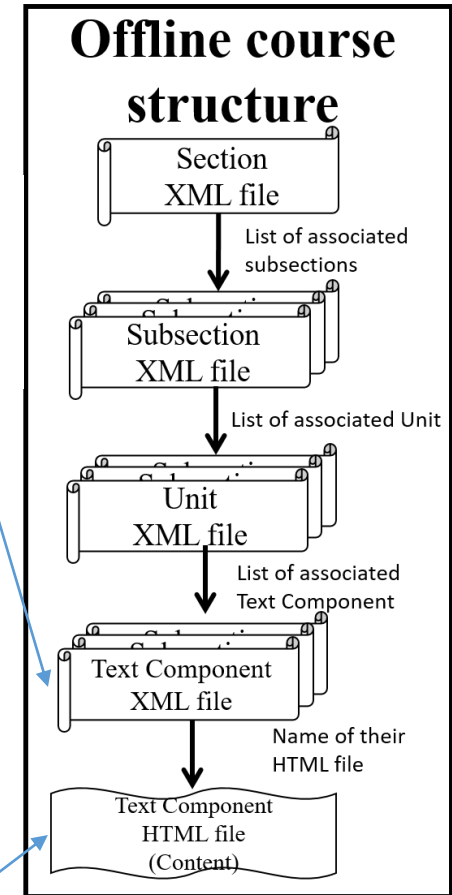
Text component name

```
<?xml version="1.0"?>
<html editor="raw" display_name="Introduction"
      filename="00b99bf259984bd896cb30ee6f8792fd"/>
```

HTML filename

- HTML file
  - plain text content in HTML format

```
<h1>Inquiry-Based Content Presentation Example</h1>
<link href="/static/stylesheet_cocd.css" rel="stylesheet" type="text/css" />
<h2>Introduction</h2>
<p>This sequence of lessons and exercises is an example of inquiry-based content presentation. The sequence begins with a standard text content presentation style that explains scansion and leads into an inquiry-based presentation of the concept of feet and specific types of feet (such as anapests and iambs). Students are asked to perform scansion on the beginning of "The Night Before Christmas"; so that they can discover on their own that there is a regular pattern before being introduced to meter in poetry. The target audience is students with an understanding of syllables but no knowledge of or experience with meter in poetry.</p>
<p>The sequence of lessons begins on the next page.</p>
<p></p>
```



Specifically, tool replaces HTML file of English text with translated text !!!

# Material preparation

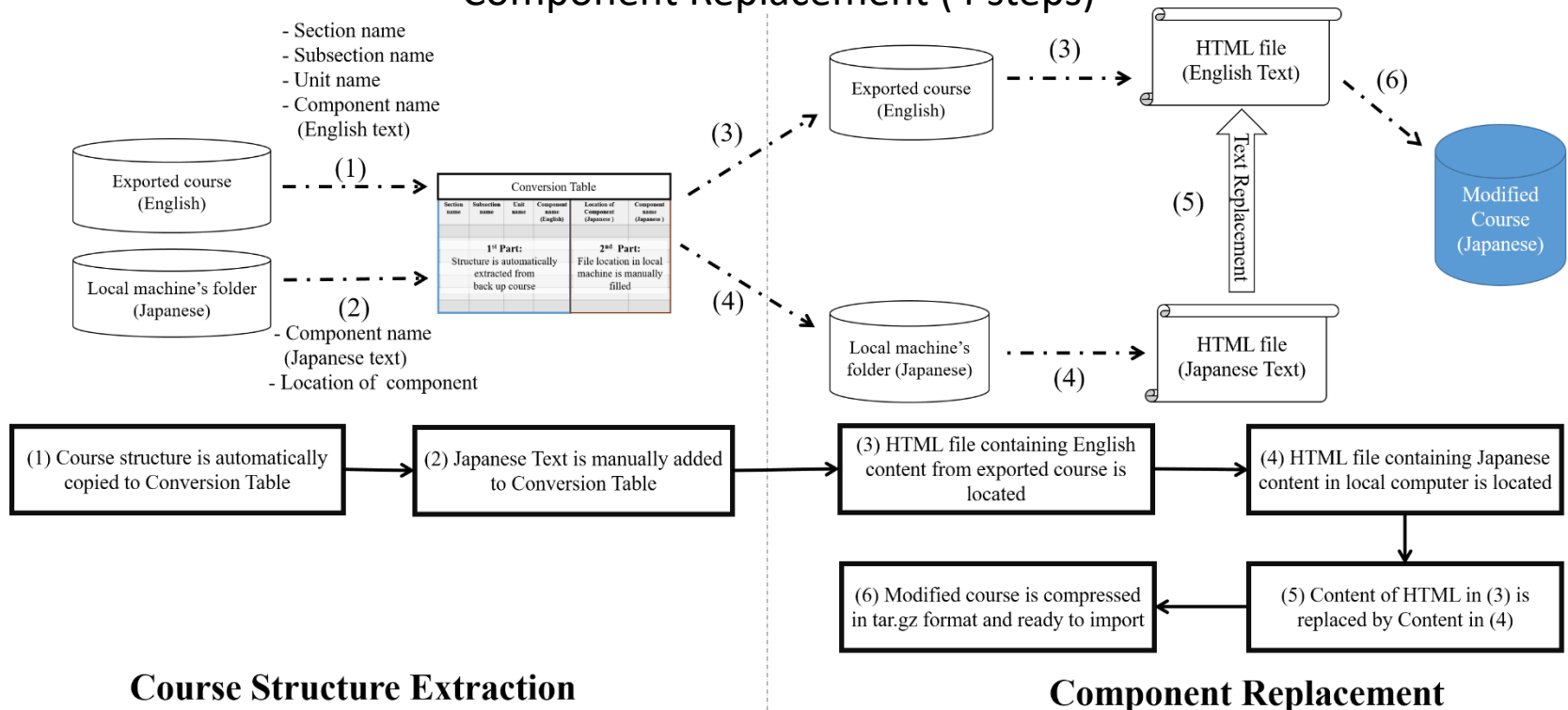
- Modification program.
  - In our work, it is a Python 2.7 script
- Translated material saved in HTML format
  - In our work, translated text (Japanese) was prepared in Microsoft word
  - Then, converted by using '**save as Web page filtered**'

# Content Modification Tool

**Goal:** Replaces HTML file of English text in Exported file with translated text

Our tool has two processes

- Course structure Extraction (2 steps)
- Component Replacement (4 steps)





# Course structure Extraction

Course structure is automatically copied to Conversion Table

- Python script searches through exported course (as slide 4)
- 4-level hierarchy names are copied into 1<sup>st</sup> Part of Conversion Table

Conversion Table					
Section name	Subsection name	Unit name	Component name (English)	Location of Component (Japanese )	Component name (Japanese )
<b>1<sup>st</sup> Part:</b> Structure is automatically extracted from back up course				<b>2<sup>nd</sup> Part:</b> File location in local machine is manually filled	

Japanese text is manually added to Conversion Table

- HTML filename of Japanese text and directory should be manually added in 2<sup>nd</sup> Part of Conversion Table **according to course structure in 1<sup>st</sup> part**

# Example of Conversion Table

From exported course

From local computer directory

no	section	subsection	unit	Text component	Local directory	HTML filename
	section	subsection	unit	component_name	file_loc	file_name
143	Content Presentation	Overview	Standalone Slideshows	Resources	/5) content presentation/1) Overview/unit copy 6	comp4
144	Content Presentation	Overview	Standalone Slideshows	Pros and Cons	/5) content presentation/1) Overview/unit copy 6	comp5
145	Content Presentation	Overview	Videos: Screencasts	Videos: Screencasts	/5) content presentation/1) Overview/unit copy 7	comp1
146	Content Presentation	Overview	Videos: Screencasts	Description	/5) content presentation/1) Overview/unit copy 7	comp2
147	Content Presentation	Overview	Videos: Screencasts	Resources	/5) content presentation/1) Overview/unit copy 7	comp3
148	Content Presentation	Overview	Videos: Screencasts	Pros and Cons	/5) content presentation/1) Overview/unit copy 7	comp4
149	Content Presentation	Overview	Videos: Classroom Capture	Videos: Classroom Capture	/5) content presentation/1) Overview/unit copy 7	comp5
150	Content Presentation	Overview	Videos: Classroom Capture	Description	/5) content presentation/1) Overview/unit copy 8	comp1
151	Content Presentation	Overview	Videos: Classroom Capture	Resources	/5) content presentation/1) Overview/unit copy 8	comp2
152	Content Presentation	Overview	Videos: Classroom Capture	Pros and Cons	/5) content presentation/1) Overview/unit copy 8	comp3
153	Content Presentation	Overview	Videos: Studio or Green Screen	Videos: Studio or Green Screen	/5) content presentation/1) Overview/unit copy 8	comp4
154	Content Presentation	Overview	Videos: Studio or Green Screen	Description	/5) content presentation/1) Overview/unit copy 8	comp5
155	Content Presentation	Overview	Videos: Studio or Green Screen	Resources	/5) content presentation/1) Overview/unit copy 9	comp1
156	Content Presentation	Overview	Videos: Studio or Green Screen	Pros and Cons	/5) content presentation/1) Overview/unit copy 9	comp2
157	Content Presentation	Overview	Videos: Lightboard	Videos: Lightboard	/5) content presentation/1) Overview/unit copy 9	comp3
158	Content Presentation	Overview	Videos: Lightboard	Description	/5) content presentation/1) Overview/unit copy 9	comp4
159	Content Presentation	Overview	Videos: Lightboard	Resources	/5) content presentation/1) Overview/unit copy 9	comp5
160	Content Presentation	Overview	Videos: Lightboard	Pros and Cons	/5) content presentation/1) Overview/unit copy 10	comp1
161	Content Presentation	Overview	Videos: Location Shooting	Videos: Location Shooting	/5) content presentation/1) Overview/unit copy 10	comp2
162	Content Presentation	Overview	Videos: Location Shooting	Description	/5) content presentation/1) Overview/unit copy 10	comp3
163	Content Presentation	Overview	Videos: Location Shooting	Resources	/5) content presentation/1) Overview/unit copy 10	comp4
164	Content Presentation	Overview	Videos: Location Shooting	Pros and Cons	/5) content presentation/1) Overview/unit copy 10	comp5
165	Content Presentation	Overview	Learn By Doing	Learn By Doing	/5) content presentation/1) Overview/unit copy 11	comp1
166	Content Presentation	Overview	Synchronous Virtual Classrooms	Synchronous Virtual Classrooms	/5) content presentation/1) Overview/unit copy 12	comp1
167	Content Presentation	Overview	Synchronous Virtual Classrooms	Description	/5) content presentation/1) Overview/unit copy 12	comp2
168	Content Presentation	Overview	Synchronous Virtual Classrooms	Resources	/5) content presentation/1) Overview/unit copy 12	comp3
169	Content Presentation	Overview	Synchronous Virtual Classrooms	Pros and Cons	/5) content presentation/1) Overview/unit copy 12	comp4

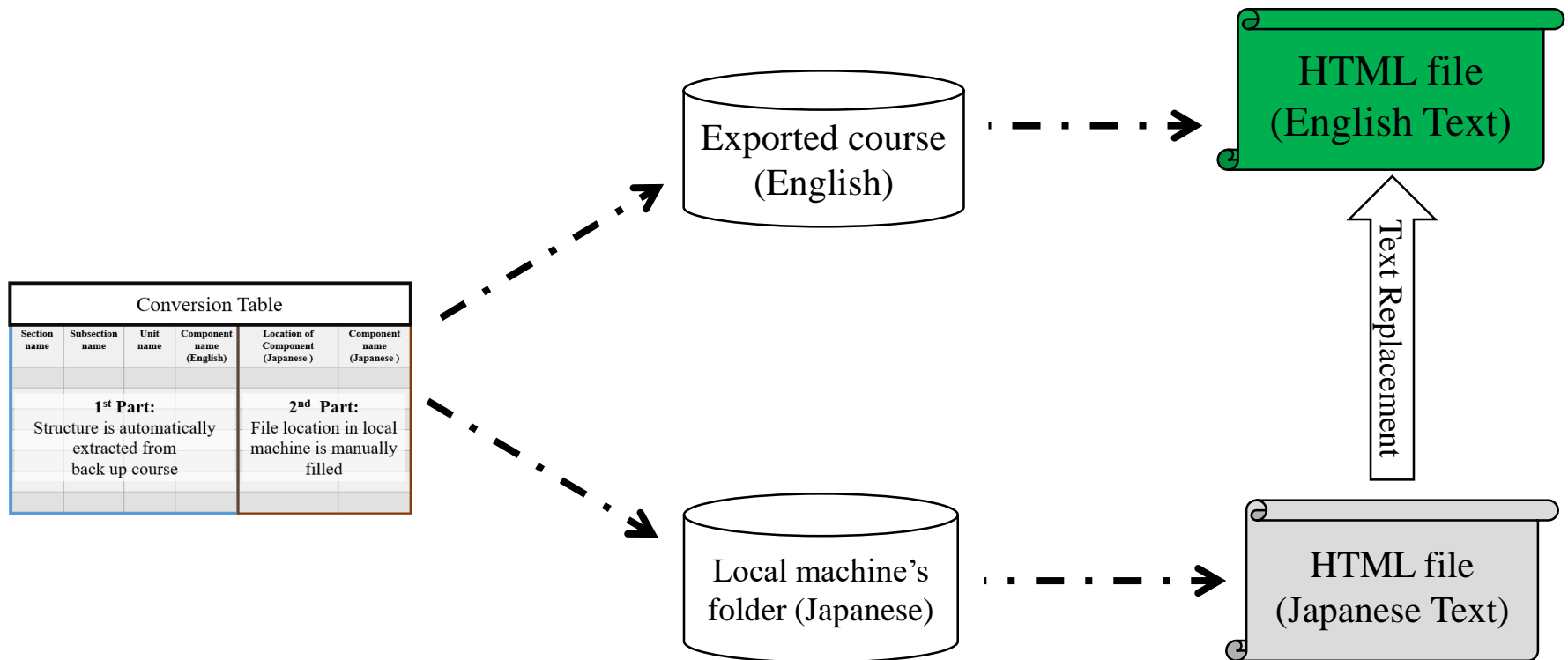
1<sup>st</sup> Part: automated task

2<sup>nd</sup> Part: manual task

Microsoft Excel is used for making Conversion table

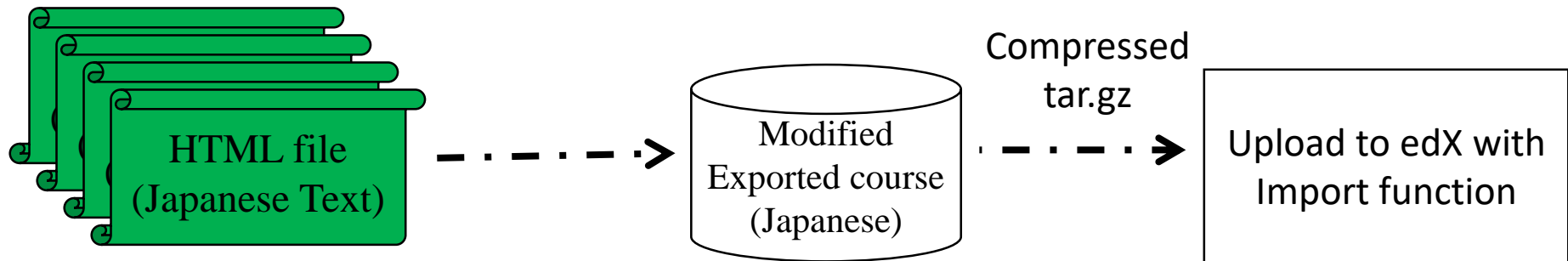
# Component replacement - 1

- Tool locates
  - a target HTML file of English text in exported course
  - A designed HTML file of Japanese text in local directory



# Component replacement - 2

- Tool iteratively replaces all text listed in the Table
- Exported course is now filled with Japanese text
  - Tool compresses the course (slide 4) into tar.gz format
- Manually, Upload the modified course into edX



# Result in edX (Before)

## Contents are in English

▶ Learning Objectives

▼ Assessment

Overview

Implementation: Selected-Response

Implementation: Constructed-Response

Case Study

▶ Activities

▶ Content Presentation

▶ Social Presence & Motivation

▶ Iterative Design

▶ Feedback on the Modules

▶ trash

Benefits of Constructed-Response Questions

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Benefits of Constructed-Response Questions

Learning Objective

Identify the benefits of constructed-response questions.

What Are the Benefits of Constructed-Response Questions?

STAFF DEBUG INFO

The following pages look at constructed-response assessments. Before we discuss each assessment type individually, we look at some benefits they all have in common.

**Guessing is difficult.** Guessing is possible for nearly all types of selected-response assessments, whereas constructed-response assessments are open ended.

**Writing requires more synthesis than selecting.** For short-answer and especially essay questions, students are challenged to analyze broad amounts of material to construct a response.

**Grading is not necessarily difficult.** Short constructed-response questions, such as fill-in-the-blank and numeric response, can be graded automatically by the platform. On some platforms, longer written responses can be graded quickly and reliably by artificial intelligence algorithms or by other students in the course. For more information, see [Constructed-Response Grader Options](#) and [Constructed-Response Scoring](#).

The following pages focus on the pedagogical pros and cons of each question type. Not all platforms support all question types, so be sure to look at your platform's documentation to see which types it supports.

# Result in edX (After)

Note that our tool changes only text content. Section, subsection, unit, and text component remains unchanged (English)

## Contents are changed to Japanese

▶ Learning Objectives

▼ Assessment

Overview

Implementation: Selected-Response

**Implementation: Constructed-Response**

Case Study

▶ Activities

▶ Content Presentation

▶ Social Presence & Motivation

▶ Iterative Design

▶ Feedback on the Modules

▶ trash

Benefits of Constructed-Response Questions

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### 記述式回答問題のメリット

#### 学習目的

記述式回答問題のメリットを特定します。

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スタッフデバッグ情報

#### 記述式回答問題のメリットとは？

以下のページでは、記述式回答の評価について説明します。各々の評価タイプについて個別に説明する前に、まず共通して見られるメリットについて考えてみましょう。

**推測が難しい。** ほぼすべてのタイプの選択式回答評価は推測が可能です。一方、記述式回答評価は決まった回答がありません。

**記述式は選択式より統合力を必要とする。** ショートアンサー問題、特にエッセー問題は、学生に幅広い教材を分析し、回答を記述することを要求します。

**採点は必ずしも難しいというわけではない。** 穴埋め問題や数字による回答などの短い記述式回答問題では、プラットフォームによって自動的に採点することもできます。一部のプラットフォームでは、より長い記述回答を、人工知能アルゴリズムによって、または、コースの他の学生によって、速く、確実に採点することもできます。詳細については、[記述式回答採点者オプション](#)および[記述式回答の採点](#)を参照してください。

以下のページは、各々の問題タイプについての教育的な長所と短所に着目しています。すべてのプラットフォームですべての問題タイプがサポートされるわけではありません。サポートされる問題タイプについてはお使いのプラットフォームのドキュメンテーションを必ず確認してください。