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Animation Framework with Internationalization (i18n)

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Abstract – *Today, the e-learning animation content are available in English. People who are familiar with English can understand it easily, but those people whose mother Tongue is not English finds difficulty in understanding the actual meaning of contents this increases the failure rate in examination. Hence there is need to develop system which will allow the user to switch language of animation content according to their choice and understand the subject easily. The proposed system aims at development of animation framework with internationalization support. It is based on the software development methodology Internationalization (i18n). Internationalization and localization are means of adapting computer Software to different languages, regional differences and technical requirements of a target market (locale). Internationalization is the process of designing a software application so that it can potentially be adapted to various languages and regions without engineering changes.*

In this software tool user can switch between languages .Hence user can use it in their native language for better understanding. The project includes development of tools for graphics designers. Graphics designers will use these tools to incorporate original English words that later on will be converted into i18n languages upon users demand. The project also includes tools for language experts who will provide most accurate language representations for original English words. There will be a cloud component which will store and access all the i18n information from the cloud and use it inside various tools of this project.

Key Words: animation, internationalization, cloud component.

1. INTRODUCTION

1.2 Motivation

As experts say that if you learn in mother tongue you will understand better. Taking this fact into consideration, the basic idea of proposed system is to translate the English text into users chosen language while playing e-learning animation. This will enable the student to understand the subject more effectively and score well in examination. This will eventually reduce failure rate in examination.

To internationalize an existing product, the developers must locate the user-visible constant strings that should be externalized [1]. The need-to-translate elements include constant strings, time/date objects, number-format objects, etc. In particular, locating need-to-translate constant strings is often the most tedious task [2].

2. Related Work

Our tool is first one focusing on internationalization of e-learning animation content. However there are some published books on how to manually internationalize a software application [2]. There exist tools (e.g., GNU gettext2 and Java internationalization API3) to help developers externalize need-to-translate constant strings after the developers locate them [2]. Other tools such as KBabel4 help developers edit and manage resource files (called PO files in KBabel) containing externalized constant strings [2]. Some development environments (e.g., Eclipse String Externalizing and Susilizer7) provide features to locate and externalize all constant strings in the code of an application [2].

3. Proposed System

The proposed system aims at development of animation framework with internationalization support. It is based on the software development methodology Internationalization (i18n). Internationalization is the process of designing a software application so that it can potentially be adapted to various languages and regions without engineering changes.

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The system is developed in such a way that English text is extracted from animation content by applying the extraction code which is part of implementation of this system, the extracted text is then stored in database. The database consists of English language words and equivalent words in other languages.

This database will be accessible to user through cloud component. The database includes field for English text as well as fields for its translation into another Language along

with field for animation file name. Following figure shows database view:

	index_no	fileName	text
Edit Copy Delete	167	animation.swf	Ten
Edit Copy Delete	168	animation.swf	Nine
Edit Copy Delete	169	animation.swf	Eight
Edit Copy Delete	170	animation.swf	Seven
Edit Copy Delete	171	animation.swf	Six
Edit Copy Delete	172	animation.swf	Five
Edit Copy Delete	173	animation.swf	Four
Edit Copy Delete	174	animation.swf	Three
Edit Copy Delete	175	animation.swf	Two
Edit Copy Delete	176	animation.swf	One
Edit Copy Delete	177	animation.swf	Hello World
Edit Copy Delete	178	file5.swf	MADE WITH LOVE
Edit Copy Delete	179	file5.swf	ENGINEERING EDUCATION SOFTWARE
Edit Copy Delete	180	module-07.swf	Steve Jobs
Edit Copy Delete	181	module-02.swf	Be insanely great at something
Edit Copy Delete	182	moduloo-01.swf	Albert Einstein
Edit Copy Delete	183	moduloo-01.swf	Imagination is greater than knowledge
Edit Copy Delete	184	th-precast-concrete.swf	®
Edit Copy Delete	185	th-precast-concrete.swf	Cognifront
Edit Copy Delete	186	th-precast-concrete.swf	Pre-cast Concrete

Fig 3.1: Database View

In animation player tool user has to select the one of the language from options provided. Once user selects language, it starts displaying animation text contents in the respective language.

System is implemented as follows:
1. Analysis and extraction of text from animation files.
2. Translate retrieved text using i18n into number of native languages and store it in master database.
3. Validating text stored in database.
4. Accessing text stored in database as per user choice.

3.1 Constraints

- For on demand content delivery user must have access to database through internet connectivity.
- Faster internet connection
- At a time only one language could be selected.

3.2 Outcomes

This system will help the student to understand subject clearly and have good understanding by providing text in animation as per his/her choice.

3.3 Applications

- In institute and organization.

4. System Architecture

The System Architecture is given as below:

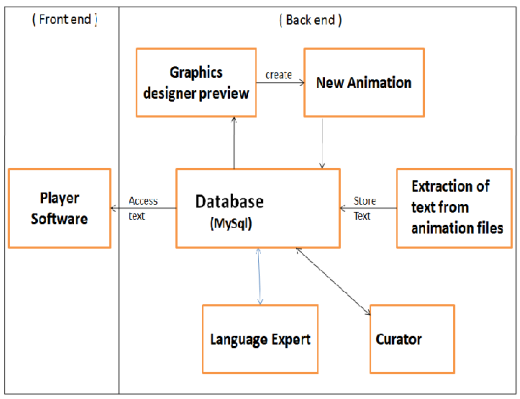

Fig.3.1 System Architecture

The architecture diagram gives the total representation of the modules and their execution flows. There are total four main modules to be designed in the system as:

1) Cloud Component:
- Store and access all the i18n information with proper security measures.
  i18n information include:
  i. Language database
  ii. E-learning animation content

2) Language Expert:
- Tools for language experts; provide most accurate language representations for original English words.

3) Curator:
- Tools for accuracy check on database
- Check translated words considering their proper meaning

4) Graphics Designer:
- Graphics designers will use these tools to incorporate original English words that later on will be converted into i18n languages upon users demand.

3. Goals and Objectives

The goal of animation framework is to switch the animation text content according to user's chosen language.

- To learn all theoretical concepts of i18n,unicode, translations.
- To apply all concepts to create fully functional system.
- Provide tools for language expert, graphics designer, and curator team.
- To change text's language of animation as per user choice.

3. CONCLUSIONS

In the proposed system tool user can switch between languages. While watching e-learning animation this will support user to use it in their native language for better understanding. This will enable the student to understand the subject more effectively and score well in examination.

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