Suleyman Demirel University

Assignment#7

DD-3

SE

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Design Document for Translit.kz

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Version	Date	Author	Change
0.1	21/03/15	Group 7	Initial Design Document
0.2	04/04/15	Group 7	Updated, with focus on 5.1, 5.2 section
0.3	11/04/15	Group 7	Updated, with focus on 3.3, 3.4, 4, 7 sections

Table of Contents

1 Introduction

1.1 PURPOSE

Purpose of this document is to explain the design and architecture of the Translit.kz.

1.2 SCOPE

This document covers system decomposition, interfaces, and dependencies, as well as design rationale.

1.3 DEFINITIONS, ACRONYMS, ABBREVIATIONS

Term	Description

1.4 DESIGN GOALS (MB)

1. Reliability: The core process (major use-cases) must continually function consistently.
2. Maintainability: Our code must be well organized with consistent syntax and relevant naming techniques.
3. Extensibility: The application must facilitate easy extension and features to be added to the PHP Code.
4. Response Time: All Web pages must load in less than 30 seconds including library.

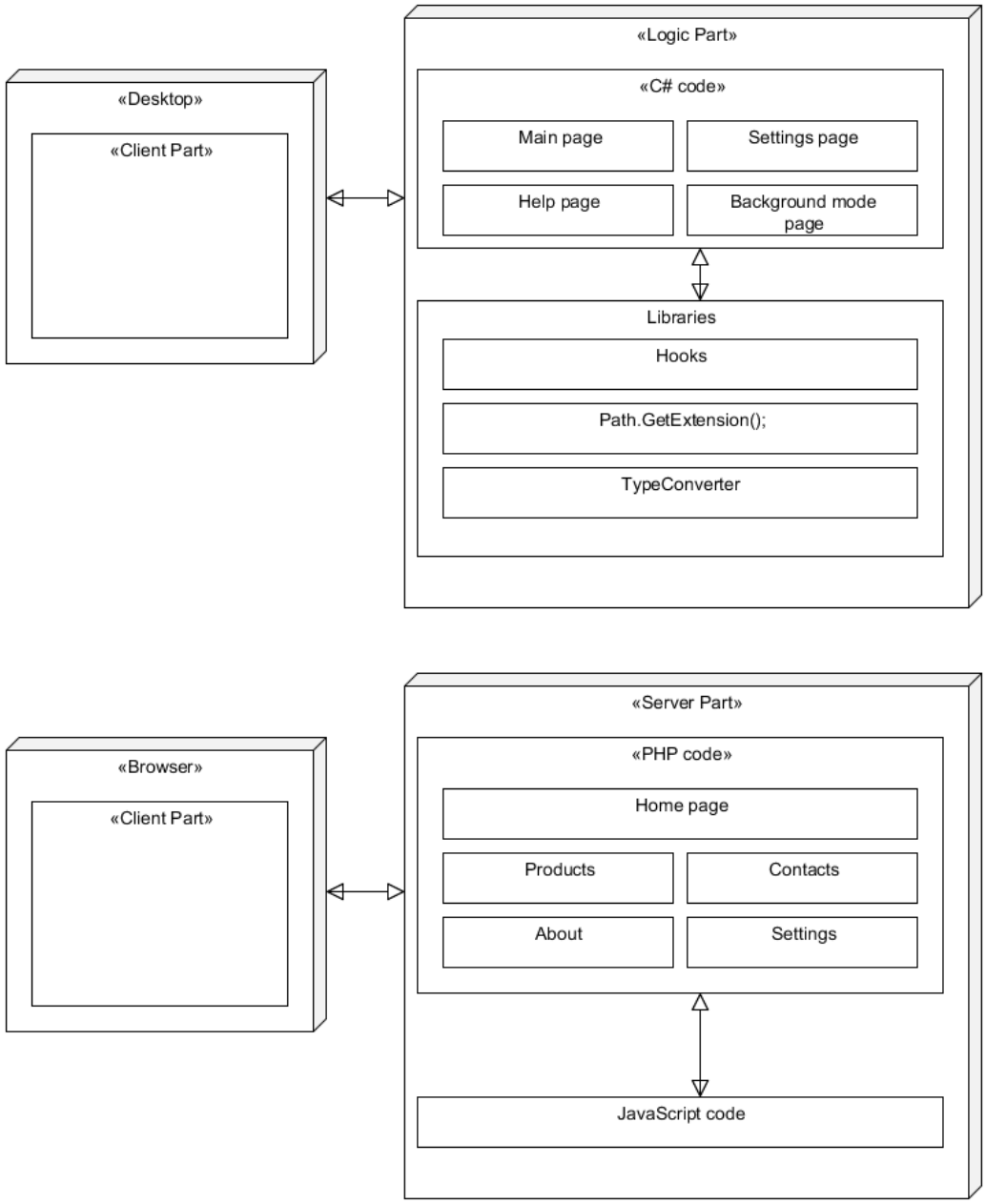
2 References

SRS document

3 Decomposition Description

3.1 MODULE DECOMPOSITION

ARCH DIAGRAM FOR TRANSLIT.KZ SYSTEM



These two diagrams have the same logic of construction Architecture Diagram. The first diagram describes the architecture of a desktop application. It consists of two layers. The first layer is code C# which includes all pages of the application. The second contains only the Libraries module, which provides services to the C# Code in the layer above. The second diagram describes the architecture of a web application. It consists of two layers. The first layer contains only PHP code, the second layer is JavaScript code, which provides services to the PHP code in the layer above. (MB)

3.1.1 C# Code Description(SA)

C# code is consisted with 4 different pages. Each page takes charge of specific events and graphical process. It uses libraries to get/send information.

3.1.2 Libraries Description(MD)

The libraries modules contains the classes and functions needed by the C# Code.

3.1.3 PHP Code Description (BM)

PHP code is consisted with 5 different pages. Each page takes charge of specific events and graphical process. It uses JavaScript to get/send functions.

3.1.4 JavaScript Description. (KG)

JavaScript modules contains the classes and functions needed by the PHP.

3.2 CONCURRENT PROCESS

3.2.1 Main Page Description (Desktop AS)

It is the main page of our desktop applications. There will be two TextBoxes. In the first TextBox you can type the text in Latin/Kirill and in another one get translited text by clicking on the button “Translit It”. Settings Page Description (Desktop AS)

3.2.2 Help Page Description (Desktop MD)

Page HELP teaches us how to change the settings and use the program.

3.2.3 Background Mode Page Description (Desktop MD)

On this page will be a CheckBox to enable or disable automatic background transliteration. If CheckBox Checked background mode is turn on, else turn off.

Hooks: A hook is a point in the system message-handling mechanism where an application can install a subroutine to monitor the message traffic in the system and process certain types of messages before they reach the target window procedure.

3.2.4 Settings page Description (Desktop MD)

In the Settings page, we can change the letters as we used to write. For example, someone wrote the letter Щ like W or someone like SH. Clicking on "Save changes " we keep the settings, or you can proceed without saving.

3.2.5 Home page Description (Web BM)

It is the main page of our desktop applications. There will be two TextBoxes. In the first TextBox you can type the text in Latin/Kirill and in another one get translited text by clicking on the button “Translit It”. Also on this page you can get translited file by downloading it. We use the library of PHP method typeConverter.

TypeConverter: This method converts file from one extension to another. It needs for us, because when we translited file, firstly system must convert our extension to standard .txt or .doc etc.

Path.GetExtension: Returns the extension of the specified path string.

3.2.5.1. Settings Page Description

In the Settings page, we can change the letters as we used to write. For example, someone wrote the letter Щ like W or someone like SH. Clicking on "Save changes " we keep the settings, or you can proceed without saving.

3.2.6 Products Page Description (Web BM)

Our application will be developed and all of the latest updates of our desktop applications, we will throw on this page.

3.2.7 About Page Description (Web KG)

On this page we describe why we need the program, the audience of program etc.

3.2.8 Help Page Description (Web KG)

Page HELP teaches us how to change the settings and use the program.

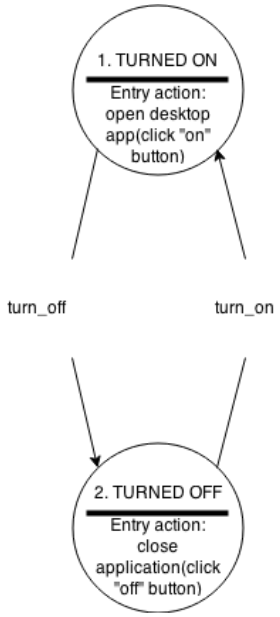
3.3 DATA DECOMPOSITION

<NONE> tables, files or classes with a lot of data, just a simple site's pages with information

3.4 STATES

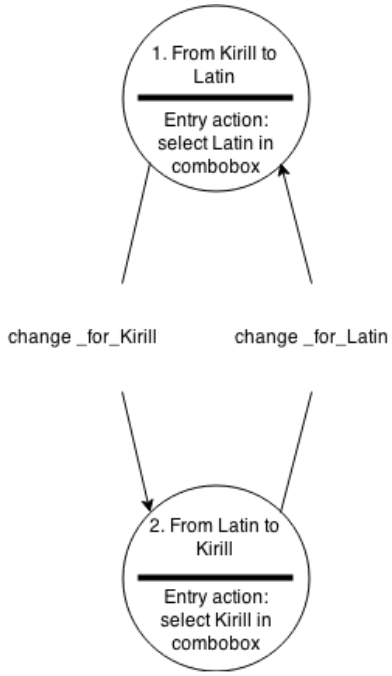
3.4.1 STATE OF BACKGROUND MODE

In this project, also there is ability of background transliteration, it means that the system may be in one of two this states: turned on background mode and turned off:



3.4.2 STATE OF LANGUAGE

In this project user may do transliteration in two directions: from Latin to Kirill and vice versa. So you may see what transition conditions and state here exist in state diagram:



4 Dependency Description

4.1 INTERMODULE DEPENDENCIES

The JavaScript code module directly depend on Server, cause when user do transliteration the JS file will be on Server side.
The PHP code module also is depend on Server as they are making connection with each other.

4.2 INTERPROCESS DEPENDENCIES

See sequence diagrams in SRS document.

4.3 DATA DEPENDENCIES

<NONE>

5 Interface Description

5.1 MODULE INTERFACE

5.1.1 JavaScript Code Interface(AS)

5.1.1.1 Function call which called by HTML (PHP) and provided by JavaScript

5.1.1.1.1 function strtr(str, repl);

used for transliteration each char value of string word in window(input text)

Parameters: str = original string taken from window;

repl = array from which we should take transliteration char value;

Return: str = translited string text;

5.1.1.1.2 function replace(new RegExp(f, t), r);

it's Regular Expression that should replace every char by another

Parameters: f = old value of char;

t = new value of char;

r = string that should be replaced;

Return: replaced value of string;

5.1.1.1.3 function getTranslit();

used for calling the transliteration method when text typed into window or when button "TRANSLIT IT" clicked;

Parameters: no parameters;

Return: none;

5.1.1.1.4 function handleFileSelect(evt);

used for selecting file in dialog window from your computer when "Select file" button is clicked, it work by using standard element <input type = "file">. JavaScript returns a list of the selected objects in a File object FileList

Parameters: evt = var file which selected from dialog window;

Return: list of selected objects(files);

5.1.1.1.5 function document.getElementById(ID);

use for define objects in JavaScript which created in HTML(PHP) by using IDentification value

Parameters: ID = identificator of object;

Return: none;

5.1.2 C# Code Interface (MD)

5.1.2.1 Dictionary library.

We use this library for transliterate Cyrillic to Latin and vice versa.

```
Dictionary<string, string> CyrtoLat = new Dictionary<string, string>();

Dictionary<string, string> LattoCyr = new Dictionary<string, string>();
    words.Add("a", "а");
words.Add("б", "b");
words.Add("в", "v");
words.Add("г", "g");
words.Add("д", "d");
words.Add("e", "e");
    words.Add("ё", "yo");…/here we add chars by default to our Dictionary.
```

5.1.2.2 Hooks - we need it, so that we could use transliteration for all open windows.

```
public class KeyHook
{
        protected static int Hook;
        protected static LowLevelKeyboardDelegate Delegate;
        protected static readonly object Lock = new object();
        protected static bool IsRegistered = false; }
```

We created class KeyHook, after that called this class in our main code Translit.kz

```
KeyHook gHook;
```

After that we use Dictionary to realize Translitration on each textbox.

5.1.2.3 path.GetExtension - Returns the extension of the specified path string. We need this for Convert from one type to another.

```
string fileName = @"C:\mydir\myfile.doc";
string path = @"C:\mydir.txt\";
string extension;

extension = Path.GetExtension(fileName);

extension = Path.GetExtension(path);


// This code produces output similar to the following:
//
// GetExtension('C:\mydir\myfile.doc) returns '.ext'
// GetExtension('C:\mydir.txt\') returns ''
```

5.2 PROCESS INTERFACE

5.2.1 Main process (KG)

This process shows all graphical interface of the system

5.2.1.1. Process is created when the page of web application is opened

5.2.1.2. Terminated when the page of web applications close button is pressed

5.2.1.3 All other threads will be killed if this main thread stops

5.2.2 "Translit" process

This process shows transliting from kirill to latin or from latin to kirill

5.2.2.1 Process is worked when we enter the letters and press the button "translit"

5.2.2.2 Terminated when we remove the letters

5.2.3 "Settings" process

This process shows settings of the apllication, in which we change latin letters for yourself

5.2.3.1 Process is started when we change the latin letters of those we have or we write the letter which we want

5.2.3.2 Process is worked after the changes we press a button "save"

5.2.3.3 Lost if we don't save

5.2.3.4 Terminated when process is closed

5.2.4 "About" process (BM)

This process shows the description of service

5.2.4.1 Process is started when we press button "about"

5.2.4.2 Terminated when button "close" is pressed

5.2.5 "Select file" process

This process shows the selection the .doc or .pdf file and translit texts in those files

5.2.5.1 Process is started when we press the button "select file" and choose the file

5.2.5.2 Process ends when we get the transliting text

6 Detailed Design

NOT REQUIRED <Java Docs to be used instead>

7 Design Rationale

7.1 FILE TRANSLITERATION(AS)

7.1.1 DESCRIPTION

Users should be able to translit a selected file

7.1.2 FACTORS AFFECTING ISSUE

7.1.2.1 File may be big in size

7.1.2.2 File may be not in txt format

7.1.3 ALTERNATIVES AND THEIR PROS AND CONS

7.1.3.1 Always change type of file to txt and only then translit

7.1.3.1.1 Transliteration of any text file (txt., doc) will be available

7.1.3.1.2 When we retransform the type of translited(txt) file to input file's type it may change in term of place, font, size of text.

7.1.3.2 Divide file into several part to decrease size of file and translit every part then merge them

7.1.3.2.1 It may help to transliterate any file of big size and a lot of data

7.1.3.2.2 Some part may be lose and also it's hard to merge them

7.1.4 RESOLUTION OF ISSUE

We decided to, first of all, transform type of file to txt and then translit it and use limitation for selecting file

7.2 ONLINE TRANSLITERATION(DM)

7.2.1 DESCRIPTION

Users should be able to translit online by typing text in window

7.2.2 FACTORS AFFECTING ISSUE

7.2.2.1 If user lose Internet connection while typing text user may lose typed text and his/her time

7.2.2.2 User need to always copy paste translited text to use it in other place

7.2.3 ALTERNATIVES AND THEIR PROS AND CONS

7.2.3.1 Upload all script file together with other source file to own Server (hosting) not in another place

7.2.3.1.1 It helps to user to save typed text and it's transliteration even if Internet connection will be lose

7.2.3.1.2 It may decrease attendance of site (stable auditory), cause user may upload all files of site and use it in offline mode

7.2.3.2 Create background translit mode in desktop application that translited automatically in any text editor

7.2.3.2.1 Save time and energy of user by escape extra copy pasting work from windows

7.2.3.2.2 Not all OS platform will support this application

7.2.4 RESOLUTION OF ISSUE

We decided to create desktop application with auto-transliteration mode and upload all script file in one hosting

7.3 SETTINGS(MB)

7.3.1 DESCRIPTION

User will be able to use own symbols for transliteration

7.3.2 FACTORS AFFECTING ISSUE

7.3.2.1 In WEB version any Internet Robots may change settings of symbols

7.3.2.2 Every time even if user refresh site user need to do settings

7.3.3 ALTERNATIVES AND THEIR PROS AND CONS

7.3.3.1 Use some default setting

7.3.3.1.1 Don't' need to set every time after refreshing

7.3.3.1.2 It's difficult in terms of coding

7.3.4 RESOLUTION OF ISSUE

We decided to use some default setting values for every symbols, if user need to be change it it's possible

7.4 USING OF JAVASCRIPT CODE, DESKTOP APPLICATION(GK)

7.4.1 DESCRIPTION

We use JavaScript code for translit text

7.4.2 FACTORS AFFECTING ISSUE

7.4.2.1 Not all browsers support JavaScript

7.4.3 ALTERNATIVES AND THEIR PROS AND CONS

7.4.3.1 Use instead JavaScript only PHP or another scripting language

7.4.3.1.1 Project will be available in any browser

7.4.3.1.2 By PHP it transliteration take more time and some logical part will not be solved by PHP

7.4.3.2 Create desktop, mobile application

7.4.3.2.1 Project will be available for anynone

7.4.4 RESOLUTION OF ISSUE

We decided to create desktop application and in online use JavaScript code, even if User's browser cannot support JS User may install Desktop app.

8 Traceability

No	Use Case/ Non-functional Description	Subsystem/Module/classes that handles it
1		
2		

FEEL FREE TO ADD APPENDICES AS NEEDED. UPDATE TOC BEFORE SUBMITTING