



Accreditor Software Applications

SOFTWARE REQUIREMENT SPECIFICATION

for Software Engineering Final Project

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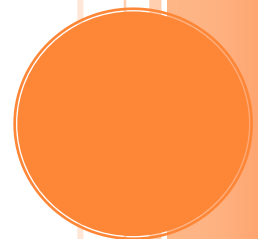


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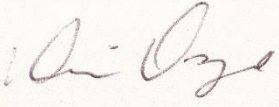

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REVISION HISTORY

Version	Date	Author(s)	Description
A1.0	10/24/14	JV	Initial SRS draft
1.0	10/26/2014	JV, JJ, DO, SB	Added all parts, discuss on future changes
1.0B	10/29/2014	JV, JJ	Revised document based using Dr. Quweider's feedback.

DOCUMENT APPROVAL

Signature	Printed Name	Date	Description(s)
	Jesus Jasso	10/26/2014	Added Overall Description section to SRS draft
 Sandra Briseno	Sandra Briseno	10/26/2014	Added Nonfunctional Requirements section to SRS draft
	Diana Orozo	10/26/2014	Added External Interface Requirements section to SRS draft
	Jesus Villafranca	10/26/2014	Modified SRS Introduction, append and finalize changes to SRS draft, bumping version

INTRODUCTION

1.1 Purpose

The purpose of this document is to provide an overview with the purpose, scope, definition, acronyms, abbreviations, references and general outline of the Software Requirement Specification for the Accreditor Software Application. It explains the functional features of the Accreditor Software including interface details, design constraints and performance characteristics.

1.2 Document Conventions

This document is divided into 6 major topics and they are:

- Introduction
- Overall Description
- External Interface Requirements
- System Features
- Other Nonfunctional Requirements
- Other Requirements

In addition, every major topic is divided into subtopics that elaborates and explains the specific feature. This overall document design allows easy navigation and to jump to a specific feature on the spot. The topography of this document is as follows:

- The 6 major topics uses default Heading 1 style text and color.
- The subtopics/feature uses default Heading 2 style text and color.
- The feature description uses Normal style text and color.

Lastly, every requirement statement or feature has its own priority and are equal. For example, they are not high or low level requirement statements. ALL requirements are treated the same.

1.3 Intended Audience

The intended audience of this document is for software developers, project managers, marketing, testers, business stakeholders, document writers and most importantly, end-users.

1.4 Definitions, Acronyms and Abbreviations

NetBeans IDE 8.0 – an integrated development environment for developing primary with Java programming language. We use NetBeans IDE to develop the Accreditor Software Application. It runs on Windows.

GUI – Graphical user interface. The primary medium the end-user interacts with the application software.

CPU – Central processing unit. The “brains” of the computer. The speed measures in gigahertz, usually the higher the number, the faster the computer is.

Open-source Software – Software for which the code is freely available for use and research. Product support provided by on-line guide and forums. It is usually royalty-free and cost effective.

XML Database – An XML database is a data persistence software system that allows data to be stored in XML format. These data can then be queried, exported and serialized into the desired format. XML databases are usually associated with document-oriented databases.

GitHub – A web-based repository which allows version control and source code management among multiple users. Programming developers submit code to a web portal, fully working/tested software is merge with the main code, and is tested/deploy in a controlled environment. This allow for every software version is an improvement over the previous version.

ANSI/IEEE Std. 830-1984 –This document is mainly drafted and design using the IEEE Recommended Practice for Software Requirements Specifications standard. Our Software Requirement Specification is standard compliant, as an extension, the Accreditor Software Application is also standard complaint with all IEEE and ANSI specifications and standards.

1.5 Product Scope

The Accreditor Software Application enables colleges and universities an easier way to administer and manage all student, faculty and department related business data, functions, reports and outcomes. The Accreditor Software Application is an integrated application system of modules and functions. This allows all modules and applications to be customize and provide a best “fit” software solution for institution and ultimately, the end-user. In addition, all data is saved using the standard XML database format which allows for all changes made to the application modules and functions to do not affect the actual data.

1.6 References

NetBeans IDE - <https://netbeans.org/>

Java - <https://www.oracle.com/java/>

GitHub - <http://github.com/>

GraphicString - <http://www.graphicsprings.com/>

ANSI - <http://www.ansi.org/>

IEEE - <https://www.ieee.org/>

OVERALL DESCRIPTION

2.1 Product Perspective

The Accreditor Software Application is a new self-contained application that runs on the Windows operating system and creates a local XML base database to store, manage, backup, query and display the user's data. The interface will be a step-by-step wizard that will guide the user to generate the required report. Figure 2.1A demonstrates how the application queries the database to acquire the data after the initial user input and then generates a report from it.

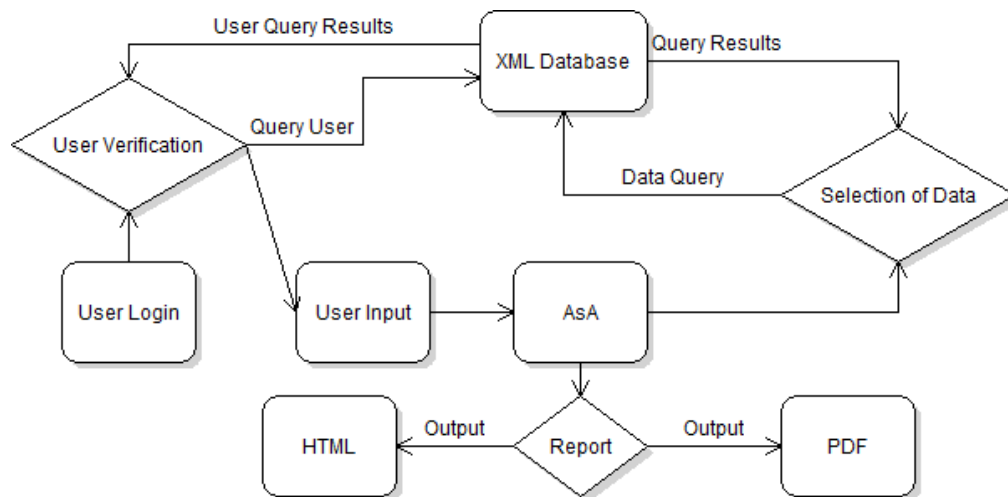


Figure 2.1A – Program functions overall layout

2.2 Product Functions

- Provides university information such as:
 - College's mission
 - Department's mission
 - Department's vision
 - Department's faculty information
 - Department's program of study
- Provides straightforward navigation to view the details of the requested university information
- Provides a means to generate a report depending on what information is selected

2.3 User Classes Characteristics

The user should be familiar with the Windows operating system basic functionality. The user should be able to use the mouse and keyboard on the system where the application is

installed. The user should possess basic background knowledge of the university colleges and departments.

2.4 Operating Environment

The application will run in the Windows operating system environment and a network connection in order to retrieve the university's department data. The hardware configuration is the following: hard drive for program storage, keyboard and mouse as input device and monitor and printer for output devices.

2.5 Design and Implementation Constraints

The only constraint is that the application requires an active network connection to query the university's department data.

2.6 User Documentation

A hard copy quick reference guide will be delivered along with the application.

2.7 Assumptions and Dependencies

Assumptions:

- The code is error-free.
- All the data queried is stored and available on the online database.
- The system where it runs must have appropriate hard drive space, memory and CPU speed to run the application.
- The system is running Windows.
- The system has an active internet connection.

Dependencies:

- The application is developed in accordance to the specifications given.
- The end users should have proper understanding of the application.
- The university information must be stored on the online database.

2.8 Apportioning of Requirements

Software:

- Operating System:
 - Windows XP
 - Windows 7
 - Windows 8
- Language:
 - Java Runtime Environment
 - NetBeans 8.0 (Front End)

- Database:
 - Local XML based database

Hardware:

- Processor:
 - Intel x86 Compatible
- Hard Disk
 - 1 GB
- RAM
 - 2 GB

EXTERNAL INTERFACE REQUIREMENTS

There are only two types of external interfaces that share data with the wizard, which are, the Database and UTB's Web Server. This section provides information of the different types of interfaces (User, Hardware, Software and Communication Interfaces) that are utilized by the wizard which allow all inputs and outputs between the wizard and the database or UTB's web server.

3.1 User Interfaces

A user that interacts with the wizard should be able to see the University's Mission and View it has and expects to accomplish, see Figure 3.1A. By pressing the Colleges button, the wizard offers the types of Colleges provided by the University of Texas at Brownsville, see Figure 3.1B:

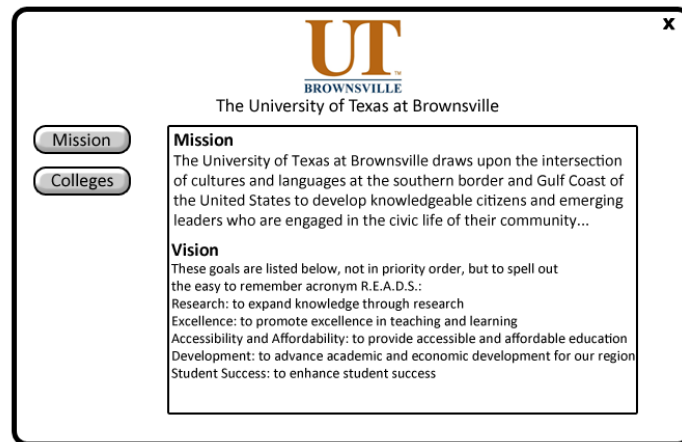


Figure 3.1A – UTB's Mission and Vision

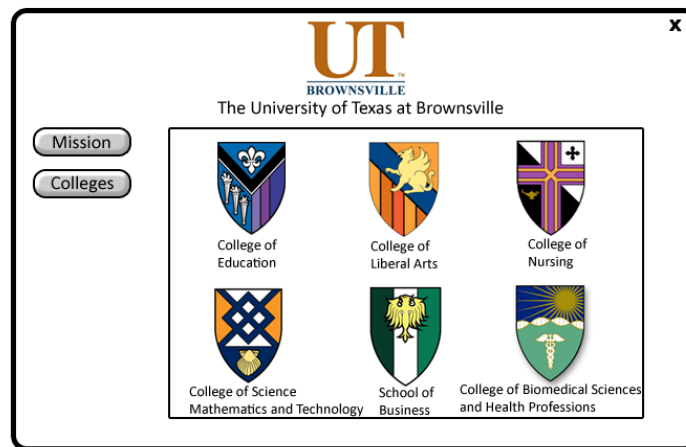


Figure 3.1B – Colleges offered by UTB

By selecting the preferred College a Department and Program section are offered, see figure 3.1C. The department section has all the departments offered by the College in a drop down list. Also information of the department's faculty will be displayed at the moment the department is selected. Once a department is selected, another drop down list in the program section will show all available programs.

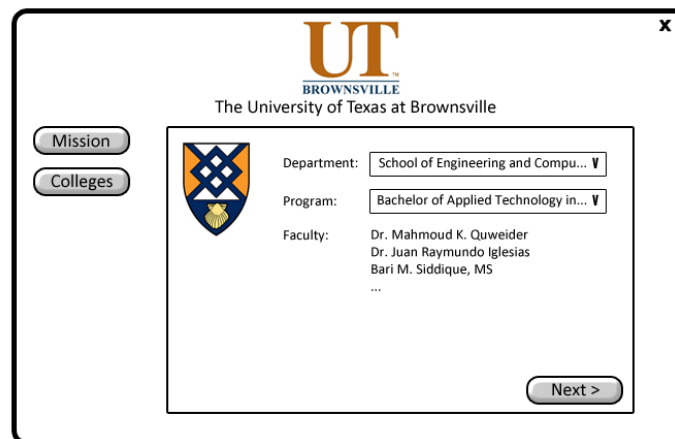


Figure 3.1C – Departments and Programs offered in the College, plus information of the faculty of such department.

On the next view, the user can see the student statistics which consist of the number of students currently enrolled, their rank, gender, ethnicity and age, see Figure 3.1D.

#	Student	Rank	Gender	Ethnic	Age
1	Lilia Yaz	Junior	Female	White	22
2	Minhoo Lee	Graduate	Male	Asian	28
..					

Figure 3.1D – Student Statistics View

Following the Student Statistics view, there is a drop down list offering the degrees for the department. The user will see important available information based on services offered by the department that can be of help, see figure 3.1E.

Computer Science

Degree:

Labs: SETB 555.2 M-F 8:00am-12:00pm
 SETB 555.2 M-F 5:00pm-10:00pm
 ...

Equipment: Computers
 Printers
 Projectors
 Screens

Figure 3.1E – Degrees and Services of department

At the last view, the user can select desired information based on previous selections made throughout the wizard and be sent to a valid email address, see figure 3.1F. The report will have all detailed information necessary in a single report file.

Figure 3.1F – Report Settings

3.2 Hardware Interfaces

Since the wizard is data-based it is not linked to any hardware, therefore, it does not have any hardware interfaces.

3.3 Software Interfaces

The database is the only software based interface that the wizard will interact with.

Database details:

Name: UTB Accreditation Software Database

Version Number: 1.0

Source: XML based Database

Database Description:

The database contains most of the information required for the wizard. Such information includes; The University's information, College's information, Department's information and Program's information. Any type of information provided can be retrieved based on the actions chosen.

3.4 Communications Interfaces

There are two types of communication interfaces used the Web Server (Web Page) of the University and the Email Server.

UTB's Web Server (Web Page):

Name: UT Brownsville

URL: www.utb.edu

Language based: JavaScript/HTML

Purpose of Use: In order to acquire the Program of Study's offered by the University, the wizard has the URL's to the location of each POS.

Email Servers

Even though there are different types of email servers there are four main types used mostly depending on the purpose and convenience.

POP3

- Name: Post Office Protocol Version 3
- Mnemonic: POP3
- Version Number: 3

POP3 is mostly used by email services and Internet Service Providers for personal email accounts.

IMAP

- Name: Internet Message Access Protocol
- Mnemonic: IMAP

IMAP is commonly used for business email accounts but now days it has increased its usage for personal email accounts also.

SMTP

- Name: Internet Message Access Protocol
- Mnemonic: IMAP

SMTP handles only outgoing email so it is used in conjunction with POP3 or IMAP.

Microsoft Exchange

- Name: Microsoft Exchange
- Mnemonic: --

Microsoft Exchange uses a non-standard protocol that synchronizes with calendars and contacts.

SYSTEM FEATURES

Accreditor Software features must be implemented and followed in order to have a fully-functional application. In case a step is overview or bypassed the application's section is unprocessed and unable to advance further.

4.1 University Information

Description:

When the wizard is run, the user is presented with the University's mission, vision and colleges offered by the UTB. Colleges can be viewed by clicking a button on the left side panel. By completing this process the user can choose which College the user desires.

Stimulus/Response Sequences:

- Accreditation Software wizard is launched from an executable program.
- The user is prompted with the University's mission, vision and a left side navigation panel.
- The user must click on the College button to proceed.

Functional Requirements:

- TBD

4.2 College Information

Description:

When the college button is clicked, a visual list of available colleges is presented. College details and additional information can be view by selecting desired college. Such information includes the college's mission and vision, departments and programs offered, and faculty information of the department.

Stimulus/Response Sequences:

- The user clicks "College" button from left side navigation panel.
- The wizard prompts a visual list with all the colleges offered.
- User must choose a college of preference to proceed.

Functional Requirements:

- TBD

4.3 Department Information

Description:

When the college of preference is chosen, departments, programs, and degrees offered by preferred college are presented. Also, department's mission, vision, student statistics, and current faculty information are displayed.

Stimulus/Response Sequences

- The wizard prompts a department's and program's drop down list menu selection.
- The user must choose a department to view available programs.
- Once a department is chosen the department's mission, vision and current faculty information will be displayed, and available programs will be listed on the drop down list menu.
- Department's student statistics are displayed.
- The user must choose a program to view available degrees offered.
- A degree must be selected to proceed.

Functional Requirements:

- TBD

4.4 Report Information

Description:

When the user completes all necessary wizard requirements, all gathered information plus additional information such as, program of study, course learning outcomes, and syllabuses can be selected and added to a single file that can be emailed as a text, web or pdf format.

The email address must be an authorized address for information to be sent.

Stimulus/Response Sequences:

- The wizard prompts a check list with several additional information options.
- The user can choose as many or all options as desired.
- The user must enter a valid authorized email address in the section asked for.
 - Only users with University emails provided with University's education domain address can be allowed to process report.
 - If email is invalid, it will not allow the user to continue.
- The user must click on "Email Report" for the report to be generated and sent to the email address provided.

Functional Requirements:

- TBD

NON-FUNCTIONAL REQUIREMENTS

5.1 Performance Requirements

The system should provide mechanisms to generate the periodic backups of the data maintained in the system. The backup should be responsible by the system administrator who shall create, store and retrieve in case the data is loss. All data will be backup daily so that they will be preserved in case of equipment failure or other catastrophe. We can use an internet backup called QuickBackup is a client program from McAfee Associates, they have a modest charge for the client and a relatively low monthly charge for storing 30 MB. The system must perform as what every user expects. The response time for the application loading may take 2 seconds, the button response time is under 10 seconds, and the system search will occur within no more than 10 seconds 95 percent of the time. Probably, the system needs less than 2GB of data storage

5.2 Reliability Requirements

The system shall be available 24/7/365 may still require a schedule downtime at midnight to perform full backups. The system must provide error message that allows the user to identify the type of error.

5.3 Availability Requirements

The system shall be available 99.99% of the time for any 24-hour period.

5.4 Security Requirements

All users who access/update the system should be restricted by the use of their login ID and passwords assigned to each user so no other user can mess with her/his account. The login ID which is the UTB email and password must be at least 9 characters long and contain at least one of each of the following: one uppercase letter, one lowercase letter, contain at least one number (0-9), and must not include any spaces. The password should be encrypted for safety. All information will be protected, the system follows security standards, procedures that are designed to protect any personal information about users.

5.5 Maintainability Requirements

The system should be able to allow quickly and easy for future maintenance regarding possible errors that may occur during operation of the system.

5.6 Portability Requirements

The application program must run with the hardware Intel x86 with the Microsoft Windows/VM operating systems. The system shall be able to be executed on NetBeans IDE. The system must run on any browser.