



StudyAbroad Requirements Specification

Version 1.0.0

Project Name	Version: 0.0.1.0
Requirements Definition	Date: 2012-11-02

Revision History

Date	Version	Description	Author
2002-00-00	0.01	Initial Draft	DSD staff
2012-11-02	1.0.0	Requirements definition v1.0.0	StudyAbroad project team

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1. Introduction

1.1 Purpose of this document

This document provides the foundation for the StudyAbroad system. It details the understanding of the business need and its break down into discrete requirements. These requirements will be clearly defined, reviewed, modified and agreed as needed upon with the project stakeholders. Hence it will be the roadmap that will determine the next phases and offer a general overview of the project.

1.2 Intended Audience

Includes:

- Team members
- Team leader
- Project leader
- Project supervisor
- Customers (students)

1.3 Scope

This document presents the use case scenarios and requirements descriptions for the StudyAbroad system. StudyAbroad will be a website that presents a collection of information gathered from different data sources in a organized and easily readable format. Additionally it will supply the user with powerful recommendation options based on different types of criteria (parameters) such as: Language, country, university, city, climate, social life, finances, culture, people of interest etc.

Initially the system will provide information about specific programs and geographies. Students, with interest to study abroad, will benefit form having a singular location where they can get all the necessary information they need to make a decision.

1.4 Definitions and acronyms

1.4.1 Definitions

Keyword	Definitions
<i>NFR</i>	<i>Non-functional Requirements</i>

1.4.2 Acronyms and abbreviations

Acronym or abbreviation	Definitions
<i>XML</i>	<i>Extensible Markup Language</i>
<i>DS</i>	<i>Data Source</i>
<i>API</i>	<i>Application programming interface</i>
<i>DB</i>	<i>Database</i>

1.5 References

[1] Project Homepage: <http://www.fer.unizg.hr/rasip/dsd/projects/studyabroad>

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2. Overall Description

2.1 Product Perspective

The final product is a complete system and it is not part of any other larger system. It consists of two basic components: the server and the client interface. The user of the system communicates with the server using Question-Response principle via user interface. Communication between client side and server takes place over Internet using predefined interfaces. However, the product depends on external systems that provide open data. Communication with external systems is provided via Internet using the application programming interface (API).

2.2 Product Functions

In the final product users should be able to search for information and recommendation via the user interface. Users must be able to access the application using a browser on their home computer or on a mobile phone. Users must be able to search for universities based on geographical location, their own preferences, recommendations, or by keywords. Also, users should be able to register in order to save their preferences, but also to comment and evaluate universities.

2.3 User Characteristics

Service users are students, prospective students or students who are finishing their studies and plan to go to PHD program, regardless of age. It is assumed that these people have finished high school and they know the basics of using the computer. No additional technical skills are required.

2.4 Constraints

2.4.1 Open data sources

The availability of open source data effects on the system. If any of the systems that provide open data is not available, the usability of StudyAbroad service is reduced.

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3. Requirements Description

3.1 Introduction

The purpose of our project is to make a service that will provide information and recommendations to people who want to go to study in a foreign country. Our service should be available on the Internet and easy to use for all kinds of users. The user will enter his personal preferences, and the system will provide recommendations of the universities based on those preferences. With each recommendation, there will be an explanation why it was chosen and also the basic information about the city and country where the university is located.

3.2 General requirements

3.2.1 Functional requirements (high priority)

- Browsing universities by geographical location
- Viewing selected university information
- Viewing selected location information

3.2.2 Functional requirements (medium priority)

- Entering preferences for university recommendations
- Viewing university recommendations
- Exploring map of university location
- View universities based on people/publications/keywords
- User registration
- User log in
- Editing recommended for you module

3.2.3 Functional requirements (low priority)

- Viewing user profile
- Editing user profile
- Commenting university
- Commenting location

3.3 Requirements on external systems

The StudyAbroad service depends on the service of external systems.

3.3.1 External Data Acquisition

- DS1: <http://www.4icu.org>
- DS2: <http://dev.mendeley.com/>
- DS3: <http://dbpedia.org>
- DS4: <http://www.expatisstan.com/>
- DS5: <http://www.wikipedia.org/>
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3.4 Server requirements

- Parsing data source - DS1
- Parsing data source – DS5
- Developing application domain model
- Interfacing server with client
- Saving user preferences to database
- Developing a recommendation system
- Dynamic loading of data from data sources
- Interfacing with data source – DS3
- Parsing data source – DS4
- Data access layer
- Postdocs recommendation system
- Interfacing with data source DS2
- Defining and implementing the database

3.5 User interface requirements

- Interfacing with the server
- Making UI module for UC1 (Universities by geographical location)
- Making UI module for UC2 (Entering preferences for university recommendations)
- Recommended for you module
- Developing university information module for UC4 (Viewing selected university information)
- Developing location information module for UC5 (Viewing selected location information)
- Registration dialog
- Login dialog
- Login procedures
- Profile page
- Commenting system
- Google maps API
- Postdocs module on main page

3.6 Non Functional requirements

3.6.1 Usability requirements

- Service should be available on the Internet
- Intuitive interfaces (easy to use)
- Correct and up to date data.
- Presenting data in clear and logical way

3.6.2 Security requirements

- Ensure confidentiality of user personal data
- Do not store user passwords using plain text

3.6.3 System requirements

- The service should work on all platforms
- The service should work on all web browsers.
- The server should work with .Net and C#

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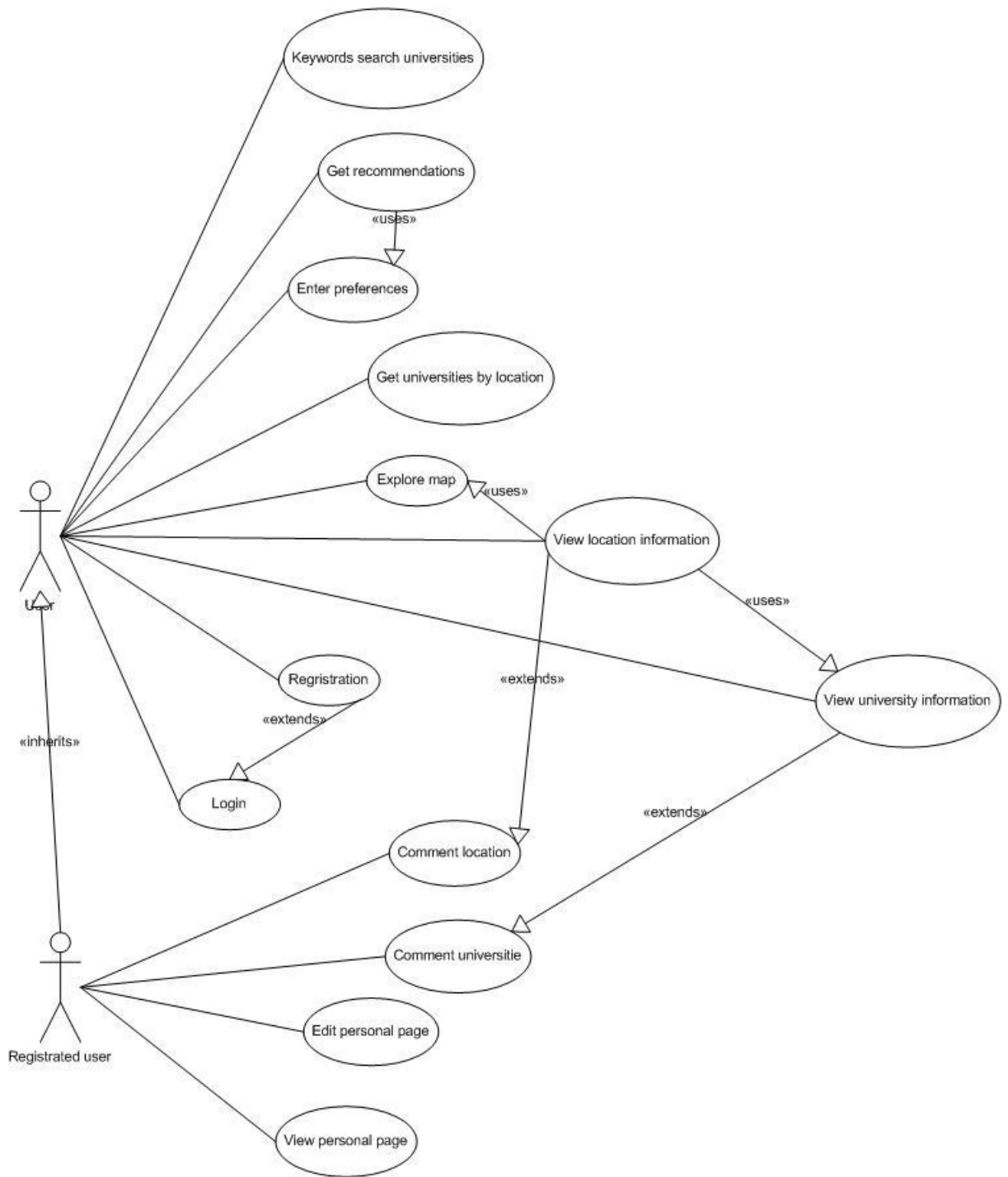
3.6.4 *Availability*

- More than 90% uptime. (Over 650 working hours per month and over 7900 working hours per year)

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4. Use Cases

4.1 Use case diagram



4.2 Use cases

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4.2.1 Browsing universities by geographical location

Use case ID	UC1
Name	<i>Browsing universities by geographical location</i>
Priority	High
Goal	<i>Find top universities in one geographical area</i>
Participating actors	User
Precondition	
Main scenario	<ol style="list-style-type: none"> 1. he goes to the main page 2. he selects a continent 3. the map of selected continent, list of regions and top universities in that continent are displayed 4. he selects a region 5. the map of selected region, list of countries and top universities in that region are displayed 6. he selects a country 7. the list of top universities in that country is displayed
Exceptions	7. if there are no universities in selected country the warning message is displayed
Extensions	3., 5. if user selects one of a top universities UC4 starts
Dependent UC	

4.2.2 Getting university recommendations

Use case ID	UC2
Name	<i>Getting university recommendations</i>
Priority	Medium
Goal	<i>Let user ou enter his preferences in order to give him university recommendations</i>
Participating actors	User
Precondition	
Main scenario	<ol style="list-style-type: none"> 1. he goes to the main page 2. he navigates to the preferences section 3. he enters his preferences 4. he presses „Show recommendations“ button 5. recommended universities and choice explanation are displayed
Exceptions	
Extensions	4. if the user is logged in, the recommendations are stored in DB
Dependent UC	

4.2.3 Viewing university information

Use case ID	UC3
Name	<i>Viewing university information</i>
Priority	High
Goal	<i>Show university information to the user</i>
Participating actors	User
Precondition	UC2
Main scenario	<ol style="list-style-type: none"> 1. he selects university name link 2. he will be redirected to the university information page

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Exceptions	
Extensions	
Dependent UC	

4.2.4 Viewing location information

Use case ID	UC4
Name	<i>Viewing location information</i>
Priority	High
Goal	<i>Show user the information about the city in which the selected university is located</i>
Participating actors	User
Precondition	<i>Must be on university information page</i>
Main scenario	<i>1. he presses „Show locaton information“ button 2. he will be redirected to the location information page</i>
Exceptions	
Extensions	
Dependent UC	

4.2.5 User registration

Use case ID	UC5
Name	<i>User registration</i>
Priority	Medium
Goal	<i>User is registered and can login</i>
Participating actors	User
Precondition	<i>Must be on university information page</i>
Main scenario	<i>1. he navigates into our web app (any page) 2. he pressed „register“ link 3. he is redirected to registration page 3. he enters his personal information, username and password 4. he pressed „save“ button 5. he is redirected to the personal page and DB is updated</i>
Exceptions	<i>If the data inserted is in a wrong format, error message may be displayed</i>
Extensions	
Dependent UC	

4.2.6 User log in

Use case ID	UC6
Name	<i>User log in</i>
Priority	Medium
Goal	<i>Identify guest in order to give him personalized services</i>
Participating actors	User
Precondition	<i>User is not logged in</i>
Main scenario	<i>1. he navigates into our web app (any page) 2. he inserts his username into the usarname textbox 3. he inserts password 4. he clicks on “login” button in order to start authentication 5. current page is refreshed</i>

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Exceptions	<i>if the data are not valid, an error message will be displayed</i>
Extensions	
Dependent UC	

4.2.7 Viewing user profile

Use case ID	UC7
Name	<i>Viewing user profile</i>
Priority	Low
Goal	<i>Show to the user his personal informations and preferences</i>
Participating actors	User
Precondition	User must be logged in
Main scenario	<ol style="list-style-type: none"> 1. he navigates into our web app (any page) 2. he presses on his own name (displayed instead of login/pass textboxes) 3. personal page is displayed
Exceptions	
Extensions	
Dependent UC	

4.2.8 Editing user profile

Use case ID	UC8
Name	<i>Editing user profile</i>
Priority	Low
Goal	<i>let the user edit his personal information</i>
Participating actors	User
Precondition	User must be logged in, must be on his personal page
Main scenario	<ol style="list-style-type: none"> 1. UC8 2. he presses the "edit" button near the data he wants to edit 3. edit data 4. press " Ok " Button 5. page will be updated with the new data and changes are made into the DB
Exceptions	<i>If the data inserted are in a wrong format and error message may be displayed</i>
Extensions	
Dependent UC	

4.2.9 Commenting university

Use case ID	UC9
Name	<i>Commenting university</i>
Priority	Low
Goal	<i>let the user interact commenting university informations</i>
Participating actors	User
Precondition	User must be logged in, must be on an university page
Main scenario	<ol style="list-style-type: none"> 1. UC4 2. write into the dedicated text box 3. press "comment" button 4. page will be updated and DB will be updated

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Exceptions	<i>If the data inserted are in a wrong format and error message may be displayed (Data Validation)</i>
Extensions	
Dependent UC	

4.2.10 Commenting location

Use case ID	UC10
Name	<i>Commenting location</i>
Priority	Low
Goal	<i>let the user interact commenting location informations</i>
Participating actors	User
Precondition	User must be logged in, must be on a specific location page
Main scenario	<ol style="list-style-type: none"> 1. UC5 2. write into the dedicated text box 3. press "comment" button 4. page will be updated and DB will be updated
Exceptions	<i>If the data inserted are in a wrong format and error message may be displayed (Data Validation)</i>
Extensions	
Dependent UC	

4.2.11 Exploring map of university location

Use case ID	UC11
Name	<i>Exploring map of university location</i>
Priority	Medium
Goal	<i>let the user explore map to find informations</i>
Participating actors	User
Precondition	must be on a location page
Main scenario	<ol style="list-style-type: none"> 1. UC5 2. he uses the controls placed near the Map 3. the Map will be updated accordingly. <i>(Eg. show/hide places, search points of interest)</i>
Exceptions	<i>If the data inserted are in a wrong format and error message may be displayed (Data Validation)</i>
Extensions	
Dependent UC	

4.2.12 Keywords search universities

Use case ID	UC12
Name	<i>Keywords search universities</i>
Priority	Medium

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Goal	<i>let the user search an university using some keywords (E.g. course, publication, professor, network, research area)</i>
Participating actors	User
Precondition	
Main scenario	<i>1. he goes to the main page 2. write the keyword into the search box 3. press "search" button 4. he will be redirected to the result page 5. he clicks on the university name from the result page 6 he will be redirected to the selected university page</i>
Exceptions	<i>If the data inserted are in a wrong format and error message may be displayed (Data validation) In case of no result an error page is displayed</i>
Extensions	
Dependent UC	

4.2.13 Editing 'recommended for you' module

Use case ID	UC13
Name	<i>Editing 'recommended for you' module</i>
Priority	Medium
Goal	<i>Let the user edit his preferences in order to get recommendations</i>
Participating actors	User
Precondition	User must be logged in
Main scenario	<i>1. he goes to the main page 2. he click on "edit" button into the recommendation box 3. a dialog appears 4. he modifies his preferences and click on "ok" button on the dialog 5. The box it's updated displaying new recommendations</i>
Exceptions	<i>If the data inserted are in a wrong format and error message may be displayed (Data validation)</i>
Extensions	The user can push "cancel" button in the dialog to undo editing operation
Dependent UC	

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5. Requirements Definition

5.1 Requirement Group Definitions

Identification	Requirement Group	Rem.
EDA	External Data Acquisition	
SC	System Core	
UIF	User Interface Functional	
UIV	User Interface Visualization	
RUA	Registered User Addons	

5.2 Requirement Sources

Source	Description	Rem.
Ctm	Customer (Ivana Bosnic)	
PMS	Project Member Suggestion	
Sys	Required as a consequence of the system design	

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5.3 Requirement definitions

Identity	Status	Priority	Reference	Description	Source
				External Data Acquisition	
EDA-1	I	1	Requirements on external systems	Acquire raw data from DS1: http://www.4icu.org/	PMS
EDA-2	I	2	Requirements on external systems	Acquire raw data from DS2: http://dev.mendeley.com/	PMS
EDA-3	I	1	Requirements on external systems	Acquire raw data from DS3: http://dbpedia.org/	PMS
EDA-4	I	2	Requirements on external systems	Acquire raw data from DS4: http://www.expakistan.com/	PMS
EDA-5	I	3		Acquire raw data from other data sources	Ctm, PMS
				System Core	
SC-1	I	1	Server requirements	Dynamic loading of raw data	Ctm
SC-1.1	I	1	Server requirements	Mapping of raw data to an higher abstraction layer	Sys
SC-1.1.1	I	1	Server requirements	universities	Sys
SC-1.1.2	I	1	Server requirements	location/city/country	Sys
SC-1.1.3	I	2	Server requirements	postdocs publications	Sys
SC-1.1.4	I	2	Server requirements	cost of living	Sys
SC-2	I	1	Server requirements	Provide interfaces to request data to the UI	Sys
SC-3	I	2	Server requirements	Save user preferences	PMS

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SC-3.1	I	2	Server requirements	Provide a recommendation system based on user preferences	PMS
SC-4	I	2	Server requirements	Authenticate a user by his Username/Password	Sys
			User Interface Functional		
UIF-1	I	1	User interface requirements	Interface with the server	Sys
			User Interface Visualization		
UIV-1	I	1	User interface requirements	Provide a visual interface for UC1 to the end user	Ctm
UIV-2	I	1	User interface requirements	Provide a visual interface for UC2 to the end user	PMS
UIV-3	I	1	User interface requirements	Provide a visual interface for UC4 to the end user	Ctm
UIV-4	I	1	User interface requirements	Provide a visual interface for UC5	Ctm
UIV-5	I	2	User interface requirements	Provide a login/register dialog to the end user	PMS
UIV-6	I	2	User interface requirements	Show a map containing tagged places according to the user selection	Ctm,PMS
UIV-7	I	2	User interface requirements	Provide a postdoc section of the UI	Ctm,PMS
			Registered User Addons		
RUA-1	I	2	User interface requirements	Provide a “Recommended for you” UI module to the registered users	PMS
RUA-1.2	I	2	User interface requirements	Provide a visual interface to edit the “Recommended for you” module	PMS
RUA-2	I	2	User interface requirements	Provide a profile overview page to the registered users	PMS
RUA-2.1	I	2	User interface requirements	Provide a visual interface to edit the profile to registered users	PMS

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RUA-3	I	2	User interface requirements	Provide a visual interface to add comments and ratings	PMS
RUA-3.1	I	2	User interface requirements	to universities	PMS
RUA-3.2	I	2	User interface requirements	to locations	PMS

Requirement status:

- I = initial* (this requirement has been identified at the beginning of the project),
- D = dropped* (this requirement has been deleted from the requirement definitions),
- H = on hold* (decision to be implemented or dropped will be made later),
- A = additional* (this requirement was introduced during the project course).

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5.3.1 Change Log

Table contains the list of changes to requirements from the main table, in chronological order.

Identity	Action	Date	Comments
ADM-1.1	A	2004-10-09	
ADM-1.2	A		
ADM-1.1.1	D		

Requirement status:

D = dropped (this requirement has been deleted from the requirement definitions),

H = on hold (decision to be implemented or dropped will be made later),

A = added (this requirement was introduced during the project course).

R = resurrected (dropped or on hold requirement was reactivated)

6. Future Development

As there will be always the need to get information from new countries and parameters, providing a configuration based extensibility mechanism will allow easy integration of new data sources.