StudyAbroad

Version 1.0.0

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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# Introduction

## 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.

## Intended Audience

Includes:

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

## 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.

## Definitions and acronyms

### Definitions

|  |  |
| --- | --- |
| **Keyword** | **Definitions** |
| ***NFR*** | *Non-functional Requirements* |

### Acronyms and abbreviations

|  |  |
| --- | --- |
| **Acronym or**  **abbreviation** | **Definitions** |
| *XML* | *Extensible Markup Language* |
| ***DS*** | *Data Source* |
| ***API*** | *Application programming interface* |
| ***DB*** | *Database* |

## References

*[1] Project Homepage:* [*http://www.fer.unizg.hr/rasip/dsd/projects/studyabroad*](http://www.fer.unizg.hr/rasip/dsd/projects/studyabroad)

# Overall Description

## 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).

## 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.

## 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.

## Constraints

### **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.

# Requirements Description

## 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.

## General requirements

### Functional requirements (high priority)

* + Browsing universities by geographical location
  + Viewing selected university information
  + Viewing selected location information

### 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

### Functional requirements (low priority)

* + Viewing user profile
  + Editing user profile
  + Commenting university
  + Commenting location

## Requirements on external systems

The StudyAbroad service depends on the service of external systems.

### External Data Acquisition

* + DS1: [http://www.4icu.org](http://www.4icu.org/)
  + DS2:<http://dev.mendeley.com/>
  + DS3: [http://dbpedia.org](http://dbpedia.org/)
  + DS4:<http://www.expatistan.com/>
  + DS5:<http://www.wikipedia.org/>

## 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

## 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

## Non Functional requirements

### 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

### Security requirements

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

### System requirements

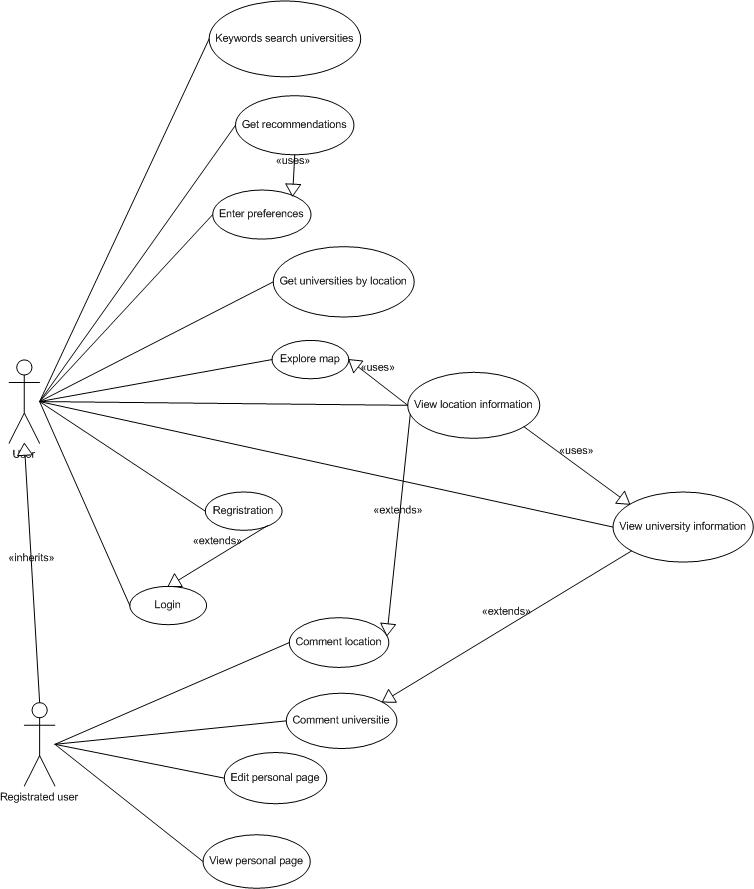
* + The service should work on all platforms
  + The service should work on all web browsers.
  + The server should work with .Net and C#

### Availability

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

# Use Cases

## Use case diagram



## Use cases

### Browsing universities by geographical location

|  |  |
| --- | --- |
| Use case ID | UC1 |
| Name | *Browsing universities by geographical location* |
| Priority | High |
| Goal | *Find top universities in one geographical area* |
| Participating actors | User |
| Precondition |  |
| Main scenario | *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 | fgdfg |

### Getting university recommendations

|  |  |
| --- | --- |
| Use case ID | UC2 |
| Name | *Getting university recommendations* |
| Priority | Medium |
| Goal | *Let user ou enter his preferences in order to give him university recommendations* |
| Participating actors | User |
| Precondition |  |
| Main scenario | *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 | fgdfg |

### Viewing university information

|  |  |
| --- | --- |
| Use case ID | UC3 |
| Name | *Viewing university information* |
| Priority | High |
| Goal | *Show university information to the user* |
| Participating actors | User |
| Precondition | UC2 |
| Main scenario | *1. he selects university name link*  *2. he will be redirected to the university information page* |
| Exceptions |  |
| Extensions |  |
| Dependent UC |  |

### Viewing location information

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

### User registration

|  |  |
| --- | --- |
| Use case ID | UC5 |
| Name | *User registration* |
| Priority | Medium |
| Goal | *User is registered and can login* |
| Participating actors | User |
| Precondition | *Must be on university information page* |
| Main scenario | *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* |
| Exceptions | *If the data inserted is in a wrong format, error message may be displayed* |
| Extensions |  |
| Dependent UC | Fgdfg |

### User log in

|  |  |
| --- | --- |
| Use case ID | UC6 |
| Name | *User log in* |
| Priority | Medium |
| Goal | *Identify guest in order to give him personalized services* |
| Participating actors | User |
| Precondition | User is not logged in |
| Main scenario | *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* |
| Exceptions | *if the data are not valid, an error message will be displayed* |
| Extensions |  |
| Dependent UC |  |

### Viewing user profile

|  |  |
| --- | --- |
| Use case ID | UC7 |
| Name | *Viewing user profile* |
| Priority | Low |
| Goal | *Show to the user his personal informationsand preferences* |
| Participating actors | User |
| Precondition | User must be logged in |
| Main scenario | *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 |  |

### Editing user profile

|  |  |
| --- | --- |
| Use case ID | UC8 |
| Name | *Editing user profile* |
| Priority | Low |
| Goal | *let the user edit his personal information* |
| Participating actors | User |
| Precondition | User must be logged in, must be on his personal page |
| Main scenario | *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 | *If the data inserted are in a wrong format and error message may be displayed* |
| Extensions |  |
| Dependent UC |  |

### Commenting university

|  |  |
| --- | --- |
| Use case ID | UC9 |
| Name | *Commenting university* |
| Priority | Low |
| Goal | *let the user interact commenting university informations* |
| Participating actors | User |
| Precondition | User must be logged in, must be on an university page |
| Main scenario | *1. UC4*  *2. write into the dedicated text box*  *3. press “comment” button*  *4. page will be updated and DB will be updated* |
| Exceptions | *If the data inserted are in a wrong format and error message may be displayed ( Data Validation )* |
| Extensions |  |
| Dependent UC |  |

### Commenting location

|  |  |
| --- | --- |
| Use case ID | UC10 |
| Name | *Commenting location* |
| Priority | Low |
| Goal | *let the user interact commenting location informations* |
| Participating actors | User |
| Precondition | User must be logged in, must be on a specific location  page |
| Main scenario | *1. UC5*  *2. write into the dedicated text box*  *3. press “comment” button*  *4. page will be updated and DB will be updated* |
| Exceptions | *If the data inserted are in a wrong format and error message may be displayed ( Data Validation )* |
| Extensions |  |
| Dependent UC |  |

### Exploring map of university location

|  |  |
| --- | --- |
| Use case ID | UC11 |
| Name | *Exploring map of university location* |
| Priority | Medium |
| Goal | *let the user explore map to find informations* |
| Participating actors | User |
| Precondition | must be on a location  page |
| Main scenario | *1. UC5*  *2. he uses the controls placed near the Map*  *3. the Map will be updated accordingly.*  *( Eg.  show/hide places, search points of interest )* |
| Exceptions | *If the data inserted are in a wrong format and error message may be displayed ( Data Validation )* |
| Extensions |  |
| Dependent UC |  |

### Keywords search universities

|  |  |
| --- | --- |
| Use case ID | UC12 |
| Name | *Keywords search universities* |
| Priority | Medium |
| Goal | *let the user search an university using some keywords*  *(E.g. course, publication, professor, network, research area)* |
| Participating actors | User |
| Precondition |  |
| Main scenario | *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* |
| Exceptions | *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* |
| Extensions |  |
| Dependent UC |  |

### Editing ‘recommended for you’ module

|  |  |
| --- | --- |
| Use case ID | UC13 |
| Name | *Editing ‘recommended for you’ module* |
| Priority | Medium |
| Goal | *Let the user edit his preferences in order to get recomendations* |
| Participating actors | User |
| Precondition | User must be logged in |
| Main scenario | *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* |
| Exceptions | *If the data inserted are in a wrong format and error message may be displayed ( Data validation )* |
| Extensions | The user can push “cancel” button in the dialog to undo editing operation |
| Dependent UC |  |

# Requirements Definition

## 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 |  |

## Requirement Sources

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

## Requirement definitions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Identity** | **Sta**  **tus** | **Prio**  **rity** | **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.expatistan.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 |
| 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 |
| 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).

### 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)

# 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.