Travel n Study

Version 1.2

Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Version** | **Description** | **Author** |
| 2012-10-24 | 0.01 | Initial draft | DSD staff |
| 2012-11-02 | 1.00 | Project plan v1.0 | Travel n Study project team |
| 2012-11-09 | 1.10 | Revisions were made according to supervisor feedback in sections 2, 3, 4, 10 | Branimir Lochert, Daniele Rogora |
| 2013-01-13 | 1.15 | Deliverables actual week updated | Katarina Sekula |
| 2013-01-20 | 1.20 | Final version | Travel n Study project team |

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# Introduction

Travel n Study project aims to develop a system that will help students in choosing a university and the city in which they want to study. The project goal is to collect information from different data sources on the Internet and use it to develop a recommendation system which will guide the user towards a decision.

## Purpose of this document

This document is intended for members of the team involved in developing the Travel n Study application. The document describes the organization of the team and future plans for the project. It was written at the beginning of the project and will be updated in the future if there will be need for it. Revision of the document should be done if there are changes in the team organization or in the project plan. These plans are not strictly defined and there will be possible changes in future revisions. Since this is a basic document, all documents in future should be based on the information contained in it. Any differences in the information that the future documents will contain should be corrected in future revisions.

## Intended Audience

This document defines the roles of the team members and helps them to define their tasks. It is very important in the initial phase of the project, but also plays an important role in future phases because it defines guidelines and methodologies that will be used in the project from now on. All members of the development team including the supervisor use this document as the basis of the project.

## Scope

This document provides an overview of the information essential for the organization and work on the project. The document describes project roles for each member of the team, time schedule, deadlines and risks. There are also included tools used for communication and collaboration in the project, and the details of the technology that will be used to develop the system.

## Definitions and acronyms

### Definitions

|  |  |
| --- | --- |
| **Keyword** | **Definitions** |
| Travel n Study | The project name |
| Planbox | Agile project management tool that allows members of multiple business functions to plan, collaborate and deliver projects. |
| MS Project | Project management software program, developed by Microsoft, which is designed to assist a project manager in developing a plan. |
| Subversion | Software versioning and revision control system |
| Alpha prototype | First iteration prototype |
| Beta prototype | Second iteration prototype |
| Acceptance test | Acceptance test is a test conducted to determine if the requirements of a specification or contract are met. |

### Acronyms and abbreviations

|  |  |
| --- | --- |
| **Acronym or**  **abbreviation** | **Definitions** |
| FER | Faculty of Electrical Engineering and Computing |
| MDH | Mälardalen University |
| POLIMI | Politecnico di Milano |
| SVN | Subversion |
| DSD | Distributed software development |
| RUP | Rational Unified Process |
| VM | Virtual machine |
| GUI | Graphical user interface |
| ER Diagram | Entity–relationship diagram |

## References

Project homepage: [http://www.fer.unizg.hr/rasip/dsd/projects/Travel n Study](http://www.fer.unizg.hr/rasip/dsd/projects/travelnstudy)

# Background and Objectives

## Project goals

The goal of the project is to build a web application which will provide a service to the user in a form of a recommendation system for deciding where to go to study abroad. The application will gather data needed to make that decision from various open data sources and present the data to the user in an organized and visually attractive user interface. The application will allow the user to input data on a number of options so the system can provide the user with choices which are suitable to his preferences.

Additionally an important project goal is to learn how to overcome obstacles in the process of developing software in a distributed environment.

## Project requirements

In general there are several main requirement categories of our project. There is the collection of data that needs to be gathered from various data sources, presentation of that data, the filtering system for narrowing down the search and the recommendation system.

### Data sources

Several open data sources will be used for providing information in different categories like:

* General information
* Financial information
* Maps and Landmarks
* Education

### Visual presentation

Data gathered will be presented to the user in a visually attractive user interface which will make the user experience enjoyable. Several modules will be used to construct a modern, stylish and useful interface:

* Minimal textual information (the user will not be burdened by volumes of text)
* Images, photos
* Maps (tagged with all the most important locations)
* UI gadgets (graphs, charts and more)

### Suggestion system

In order for the application to help the user decide where he would like to go to study abroad some information will need to be provided by the user. There will be several different criteria on which the user will be able to provide information which combined will allow the application to present a list of recommended locations to the user. Some of the criteria follow:

* Country: One of the most important factors is the destination country. The users will be able to enter their preferences based on a general geographical location of the country.
* University: Another important factor is what does the university they plan to study abroad look like. The users will be able to enter whether or not the ranking and/or reputation of the university is important to them and also get recommendations on universities based on the study programs that interest them.
* City: The city of the university is also very important. Is it a metropolis or a small town, is it seaside or continental, how expensive is it, is it warm/cold, is it safe, is it eventful. All of these are factors important to the user decision so before the system makes any recommendations the user will be able to provide his preferences on a number of questions related to the city they want to study abroad at.
* Financing options: Possibility of scholarships, student loans, part time work. The user will be asked if this is something that is important to him.

### Recommendation system

The application will gather information about the user during his time spent using the application in order to provide additional suggestions, hints and other types of feedback designed specifically for the user.

## Project milestones

Project goals will be accomplished through several milestones. In general the milestones are:

* Project vision
* Project plan
* Requirements definition
* System design
* Alpha prototype
* Beta prototype
* Acceptance test
* Final product

The alpha and beta prototype will contain additional application specific milestones such as: database definition and implementation, acquiring data sources, recommendation system development, user interface mockup, core keywords functionality, user reviews and comments, scientific functionalities, Google maps interaction and more.

## Project deliverables

General project milestones will be followed by several project deliverables. The main part of the deliverables is the documentation that sets grounds for future development such as:

* Project plan document
* Requirements definition document
* Design description document

Besides documentation the milestones will be accompanied by presentations of work accomplished so far. There will be six presentations in total:

* Team and Project vision presentation
* Project plan presentation
* Requirements Definition and System Architecture presentation
* Alpha prototype presentation
* Beta prototype presentation
* Final project presentation

Finally, the last deliverable will be the final product delivered with installation setup and source code.

## Project testing

Project testing will be done in cooperation with the project supervisor and will produce the acceptance test plan document. Acceptance tests will be performed for detection of possible defects and a test report will be published. Testing manager will be in charge of the test team and the testing campaign.

## Product delivery

After project testing a final project report document will be published and all the other documents (such as various technical documents, user manuals, etc.) will be finalized. The packaged product (together with installation and source code) will be delivered to the project web page.

# Organization

## Project management

* Project home: Zagreb, Croatia (FER)
* Project supervisor: Ivana Bosnić (FER)
* Project leader: Branimir Lochert (FER)
* Team leader: Alessandro Sisto (PoliMi)

The project leader Branimir Lochert is also the team leader for the Croatia (FER) local team.

Project management is responsible for guiding the project towards its goals by distributing work to all team members and meeting project deadlines which includes accomplishing project milestones and producing the required deliverables on time. Team leaders are responsible for their local team while the project leader is responsible for the whole project and communication with the project supervisor.

## Project group

The project team is distributed with three team members from Milano, Italy attending PoliMi and three team members from Zagreb, Croatia attending FER. Explicit list of all project team members and their responsibilities follows:

|  |  |  |
| --- | --- | --- |
| **Name** | **Initials** | **Responsibility (roles)** |
| **Branimir Lochert** | BL | Project leader, Documentation manager, Developer (Server) |
| ***Alessandro Sisto*** | AS | Team leader, User interface manager, Developer (Client) |
| Katarina Sekula | KS | Requirements manager, Testing manager, Developer (Server) |
| Milan Čop | MČ | Lead Developer, Database manager |
| Daniele Rogora | DR | Virtual Machine manager, Backup manager, SVN Manager, Developer (Client) |
| Javier Hualpa | JH | Server-Client coordinator, Data sources manager, Developer (Server) |

Some responsibilities and roles may change during the project.

## Project responsibilities

### Project leader (manager)

The project leader (manager) responsibilities include planning, organizing, managing, leading and controlling the project and project team members for the purpose of achieving all of the project goals and objectives inside the preconceived deadlines.

### Team leader (manager)

The team leader (manager) responsibilities include providing guidance, instructions, directions and other forms of management to the assigned local team. The team leader reports the status and progress of his team to the project leader.

### Documentation manager

The documentation manager reviews and edits all written documentation before it is published to make sure it conforms to documentation policies specified for the project.

### Backup manager

The backup manager makes sure all the production material is backed up on regular intervals. In case of any data loss he is responsible for the recovery process.

### User interface manager

User interface manager has a primary role in user interface design and implementation. He/she also makes sure that the user interface is ergonomic and accessible to the user.

### Requirements manager

Requirements manager is the person responsible for gathering requirements from communication with relevant stakeholders. Additionally he/she is responsible for the documentation, analysis, tracing and prioritizing gathered requirements.

### Lead developer

Lead developer’s responsibilities are to manage items and tasks his developing team is supposed to accomplish in the current iteration. He/she is to provide guidance and assistance in case a member of his team is stuck on a certain task. Additionally he is to make sure that his team is adhering to the software quality standards agreed by the project team.

The lead developer also takes the role of system architect and designs the system architecture on an abstract level by defining core framework elements which provide the basis for implementation of functional requirements.

### Testing manager

Testing manager is responsible for leading the test team and effectively implementing a testing process. The testing manager must create a test plan and execute the test campaign described in the plan. Finally the testing manager is responsible for producing test reports and metrics and assuming the role of the quality assurance manager.

### Database manager

Database manager is expected to determine the best possible method of organizing and storing data and then implementing that method. After implementation he/she is responsible for maintaining the database.

### Virtual machine manager

Virtual machine manager is in charge of setting up and maintaining a development environment for the project team. He/she controls which software is installed on the virtual machine.

### SVN manager

The SVN manager is in control of the project SVN repository. His/hers responsibilities are to determine the project SVN policies and to enforce them in the repository.

### Data sources manager

The data sources manager is responsible for collecting and organizing open sources of information found on the web which are required for the project goals. His/hers responsibilities also include studying ways to interface with the data sources.

### Server – Client coordinator

The server client coordinator works with both the server and the client team in order to ensure seamless integration of work into a complete product. He knows what the client side needs from the server side in order to accomplish project requirements and communicates the need to the server side. He understands the server side interface and provides steps to the client side on how to use it.

## Project tools

Project tools used:

* Management: MS Project
* Collaboration: Google groups, Planbox, SVN, Gliffy

## Customer

Customers: Prof.dr.sc. Mario Žagar (FER), Prof. Raffaela Mirandola (PoliMi)

Students, postdocs and generally people who wish to study abroad are the external customers/users for the project. Surveys will be performed targeting this group of people to find out what are some of the important criteria students use to decide where they want to go to study abroad.

## Supervisor

Project supervisor is Ivana Bosnić (FER).

## Others

Marin Orlić (FER) – virtual machine coordinator.

All of the DSD course staff from all three of the countries: Croatia (FER), Italy (PoliMI) and Sweden (MDH).

# Development process

## Personal RUP – overview

Strict deadlines for the first deliverables have been defined, as shown in Section 5. Thus the group doesn't have many options available for the development of the first phases of the project; indeed, to be able to present a Design Description Document in time it will be necessary to focus heavily on the whole system architecture and on the requirements prior to any other kind of activity.

This leads to a preliminary feasibility study followed by requirements specification and design of the system. The nature of our project, that is prone to risks and that tries to produce something innovative, on the other hand, makes it very difficult to really identify and analyze these requirements in the first phases. Thus after the inception phase the group will follow an iterative approach. Each iteration will last exactly one week. More details about these iterations are in the following sections.

The requirements and design documents will be followed as much as possible, but should the requirements change, the group will be able to revise them, as deeply as needed.

The Rational Unified Process will be used as a reference for the development: small and short iterations will focus on relatively small system modules, as in the elaboration phase of the RUP. In this way risks related to the information sources will be addressed immediately, and also preliminary unit testing will take place during the implementation phase.

The picture represents the usual RUP development plan, showing also the effort of a particular kind needed in each of the phases. It is worth noting that analysis and design has a greater importance in our project than in the usual RUP because of the deadlines for the related documents that we must respect.

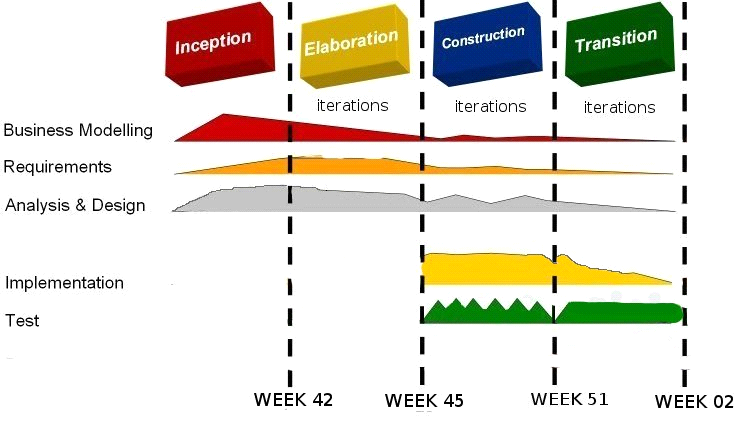
****

Figure . Travel n Study personal RUP

## Detailed process

### Inception phase

All team members build a shared project vision, talking with the customer and adding new ideas, exploring the web sources and interviewing possible stakeholders. The artifact produced is a shared project vision approved by each team member, stating what the project is and isn't about, who are the stakeholders and the users and why they will need and use it.

### Elaboration phase

In this three weeks long phase most of the requirements instability will be targeted. It will be the core of the analysis and design of the project's critical modules. Different local teams will work concurrently and iteratively on designing different system modules based on requirements analysis. The division will be on the server and client side modules (background service and the user interface).

Each iteration will have a fixed time length of 1 week and will result in a documentation paper that may be either a new one or an enhanced version of an existing one, ready for evaluation by the team members.

The phase will have as a final artifact a set of documents. One will describe our business model and our project plan, in terms of artifacts produced and deadlines, work and roles division among the project members and development methodologies. A second one will target the requirements and the use cases of the application, giving them priorities and identifying their stakeholders. The last one will describe the system architecture and design, specifying the main software components and their interfaces, the environment in which they will run and the technologies they will use. It will also give an insight of each component, showing its composition and interactions with other components.

Details of each iteration are in the activity plan table, section 2.1 (i1 to i3).

### Construction phase

This is the longest phase of the whole project. It lasts six weeks. The main task of this phase is the implementation of the core system. Again, an iterative approach is taken; each short and time fixed iteration (one week) produces a working and tested system snapshot. Every iteration will have an assigned time slot for unit testing.

After 3 weeks an alpha version of the system should be ready, having all the high priority requirements implemented. The final artifact should be a working beta of the product, where also the medium priority requirements should be met.

Details of each iteration are in the plan table, section 10.2 (i4 to i9).

### Transition phase

Implementation of low priority features, integration testing, and final polishing are the goals of this phase. Once again each short and time fixed iteration (one week) produces a working and tested system snapshot.

The artifacts produced are the software package containing the final version of the system and an acceptance test plan, defined in collaboration with the customer.

Details of each iteration are in the plan table, section 10.2 (i10 to i12).

## Roles

Reference: <http://www.ibm.com/developerworks/rational/library/apr05/crain/>

An iterative process like RUP defines two kinds of roles: breadth and depth roles. The former kind is such that must focus on the overall process within each iteration; it has a wider perspective, and drives and adjusts the overall solution. The latter instead must focus more deeply on details of a smaller piece of the project within each iteration.

In our project team that is composed of six members, we don’t plan to embrace this separation between breadth and depth roles, but each team member is required to always have an updated view of the overall project, apart from focusing on his specific task.

Indeed every role detailed in section 3.3 is a breadth role, since it is project-wide, i.e. it has responsibility for the whole project. Also each team member will also have the depth role of developer.

## Progress tracking

Project progress reports are written weekly by each team member.

## Quality assurance

Apart from periodic testing during each iteration of the elaboration and construction phases, a constant customer involvement is prospected to keep the project always aligned with the customer desires.

The testing manager will constantly monitor the project and check that it meets the quality standards defined by the group and the customer.

# Deliverables

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| To | Output | Planned week | Promised week | Late +/- | Delivered week | Rem |
| Customers/Project supervisor | Project plan  document | 43 | 44 | +1 | 44 |  |
| Customers/Project supervisor | Requirements definition document | 44 | 44 | 0 | 44 |  |
| Team Members  (internal) | SVN Policy Document | 44 | 44 | 0 | 44 |  |
| Customers/Project supervisor | Design description document | 45 | 45 | 0 | 45 |  |
| Team Members  (internal) | Coding Conventions Document | 45 | 45 | -3 | 42 |  |
| Team Members  (internal) | Domain model class diagram  (Alpha Milestone) | 45 | 45 | 0 | 45 |  |
| Team Members  (internal) | Domain model c# classes – source code (Alpha Milestone) | 45 | 45 | 0 | 45 |  |
| Team Members  (internal) | Data sources DS1, DS2 report | 45 | 45 | +1 | 46 | 001 |
| Team Members  (internal) | C# classes for parsing /scraping data source DS1 - source code (Alpha Milestone) | 46 | 46 | 0 | 46 |  |
| Team Members  (internal) | C# classes for interfacing with data source DS2 - source code (Alpha Milestone) | 46 | 46 | 0 | 46 |  |
| Team Members  (internal) | C# classes for dynamic loading framework (Alpha Milestone) | 46 | 46 | 0 | 46 |  |
| Team Members  (internal) | C# classes for server interface to client (Alpha Milestone) | 47 | 47 | 0 | 47 |  |
| Team Members  (internal) | JavaScript code for client interface to server (Alpha Milestone) | 47 | 47 | 0 | 47 |  |
| Team Members  (internal) | Complete GUI modules source code (Alpha Milestone) | 48 | 48 | 0 | 48 |  |
| Team Members  (internal) | Complete backend modules source code (Alpha Milestone) | 48 | 48 | 0 | 48 |  |
| Customers/Project supervisor | Alpha prototype (Browsing universities by location) – Complete source code | 48 | 48 | 0 | 48 |  |
| Team Members  (internal) | Database ER diagram (Beta Milestone) | 48 | 48 | -2 | 46 |  |
| Team Members  (internal) | Database creation SQL script (Beta Milestone) | 48 | 48 | -2 | 46 |  |
| Team Members  (internal) | Database file (Beta Milestone) | 48 | 48 | -2 | 46 |  |
| Team Members  (internal) | C# classes for a data access layer (Beta Milestone) | 48 | 48 | -2 | 46 |  |
| Team Members  (internal) | Log In / Registration C# classes source code (Beta Milestone) | 48 | 48 | 0 | 48 |  |
| Team Members  (internal) | Log In / Registration GUI source code (Beta Milestone) | 48 | 48 | +1 | 49 |  |
| Team Members  (internal) | Data sources DS3, DS4, DS5 report | 48 | 48 | +1 | 49 | 002 |
| Team Members  (internal) | C# classes for interfacing with data source DS3 - source code (Beta Milestone) | 49 | 49 | +1 | 50 |  |
| Team Members  (internal) | C# classes for interfacing with data source DS4 - source code (Beta Milestone) | 49 | 49 |  | Dropped |  |
| Team Members  (internal) | C# classes for interfacing with data source DS5 - source code (Beta Milestone) | 50 | 50 | 0 | 50 |  |
| Team Members  (internal) | Recommendation system C# classes (Beta Milestone) | 50 | 50 | 0 | 50 |  |
| Team Members (internal) | Recommendation system GUI source code (Beta Milestone) | 50 | 50 | 0 | 50 |  |
| Team Members  (internal) | Google maps API JavaScript source code (Beta Milestone) | 50 | 50 | 0 | 50 |  |
| Team Members  (internal) | Postdocs recommendation system C# classes (Beta Milestone) | 50 | 50 |  | Dropped | 003 |
| Team Members  (internal) | Postdocs recommendation system GUI source code (Beta Milestone) | 50 | 50 |  | Dropped |  |
| Team Members  (internal) | Complete GUI modules source code (Beta Milestone) | 51 | 51 | 0 | 51 |  |
| Team Members  (internal) | Complete backend modules source code (Beta Milestone) | 51 | 51 | 0 | 51 |  |
| Customers/Project supervisor | Beta prototype (Recommendation system) – Complete source code | 51 | 51 | 0 | 51 |  |
| Team Members  (internal) | Commenting system C# classes (Final Milestone) | 52 | 52 | +2 | 02 |  |
| Team Members (internal) | Commenting system GUI source code (Final Milestone) | 52 | 52 | +2 | 02 |  |
| Team Members (internal) | User profile system C# classes (Final Milestone) | 52 | 52 | +1 | 01 |  |
| Team Members (internal) | User profile system GUI source code (Final Milestone) | 52 | 52 | +1 | 01 |  |
| Team Members (internal) | Additional data sources report | 52 | 52 |  | Dropped |  |
| Customers/Venture capitalist | Acceptance test Plan | 01 | 01 | 0 | 01 |  |
| Team Members (internal) | Advanced recommendation system C# classes (Final Milestone) | 01 | 01 | +1 | 01 |  |
| Team Members (internal) | Advanced recommendation system GUI source code (Final Milestone) | 01 | 01 | +1 | 01 |  |
| Team Members (internal) | Complete GUI modules source code (Final Milestone) | 02 | 02 | 0 | 02 |  |
| Team Members (internal) | Complete backend modules source code (Final Milestone) | 02 | 02 | 0 | 02 |  |
| Customers/Venture capitalist | Test report | 03 | 03 | 0 | 03 |  |
| Customers/Venture capitalist | Revised version of all Documents | 03 | 03 | 0 | 03 |  |
| Customers/Venture capitalist | Final product (with Social System) – Complete source code | 03 | 03 | 0 | 03 |  |

### 

### Remarks

|  |  |
| --- | --- |
| **Remark Id** | **Description** |
| 001 | DS1 – Data Source 1 : <http://www.4icu.org/>, DS2 – Data Source 2 : <http://freebase.com/> |
| 002 | DS3 – Data Source 3 : <http://www.numbeo.com/>, DS4 – Data Source 4: <http://www.mendeley.com/>, DS5 - Data Source 5: <http://data.worldbank.org> |
|  |  |
|  |  |

# Inputs

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| From | Required item | Planned week | Promised week | Late +/- | Delivered week | Rem |
| Customers/Project supervisor | Project Vision feedback | 43 | 43 | 0 | 43 |  |
| Customers/Project supervisor | Project Plan feedback | 44 | 44 | 0 | 44 |  |
| Customers/Project supervisor | Requirements and System Design feedback | 45 | 45 | 0 | 45 |  |
| Customers/Project supervisor | Alpha Prototype feedback | 48 | 48 | 0 | 48 |  |
| Customers/Project supervisor | Beta Prototype feedback | 51 | 51 | 0 | 51 |  |
| External testers | Usability Reports | 01 | 01 | 0 | 01 |  |
| External testers | Testing Reports | 02 | 02 | 0 | 02 |  |

# Project risks

|  |  |  |  |
| --- | --- | --- | --- |
| **Dimension** | **Possibility** | **Risk** | **Preventive action** |
| Requirements | High | Requirements inflation | Constantly involve the Project supervisor. Determine a list of frozen requirements that will be delivered and then evaluate whether the schedule allows new ones. |
| Planning & Control | High | Unrealistic schedules | Estimate tasks carefully. Meet internal deadlines established by the Project leader. Let the team know if you are unable to complete a task so it can be rescheduled or distributed. |
| Team | Medium | Lack of technical skills | Identify among the team members the one that is most proficient with the skill as the mentor to the team. If no team member is proficient enough with the required skill then one team member should be responsible for developing the skill and then provide fast track mechanisms/materials for the rest of the team to acquire it. |
| Planning & Control | Medium | Poor productivity | Have short iterations, this way work is time boxed into a manageable iteration(5 days, 1 week, no more than that) and there is always a sense of urgency. |
| Technology | Medium | SVN issues | Adhere to the SVN policy when working with documents or code. The SVN manager should perform the appropriate backups. |
| Planning & Control | Medium | Ineffective communications | Schedule formal meetings at least once a week. Express any concern in the Google group set for it. Contact any team member via email or Skype. |
| Technology | Low | Incorrect technology choice | Have a plan B in case the chosen technology is not suitable for the project. |
| Team | Low | Personnel shortfall | Assign workload based on preferences/skills. Co-locate related workload.  In case any team member is unavailable, distribute the workload among other team members. |

# Communication

Communication in the team is divided in two parts:

* The local communication
* Communication of the whole team.

All communication will be in English, except for communication essential for the local team. In this case, communication can be in Croatian / Italian.

## Synchronous communication

* Local meetings

Meeting if needed - Communication between local team members who discuss about problems or meet with the supervisor.

* Skype

Weekly meeting - The whole team meets Thursdays at 18:00.

Meeting if needed - Communication between team members who work together on a task.

## Asynchronous communication

* Email

For a discussion between one or more members of the team

* Google group

For discussion and information sharing between team members or communication between team members and supervisor

* Planbox

Allows a member of one team to collaborate in real-time with entire team, whether they are distributed or collocated.

# Configuration management

* SVN (Subversion) will be the repository for code and project documentation.
* The SVN policy document provides detailed information about coordinated usage and preventive actions to take.
* Google Docs and Google Groups will be the tools used for drafting the documents when they are initially created.
* The SVN manager and the Documentation manager will handle any corrective action regarding merging or lack of content in code and documents respectively.

# Project plan

## Time schedule

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Id** | **Milestone Description** | **Responsible Dept./Initials** | **Finished week** | | | | **Metr.** | **Rem.** |
| **Plan** | **Forecast** | | **Actual** |
| **Week** | **+/-** |
| / | *---Inception phase---* |  |  |  |  |  |  |  |
| M001 | Project vision | BL | 42 | 42 | 0 | 42 | 0 |  |
| / | *---Elaboration phase---* |  |  |  |  |  |  |  |
| M002 | Project plan | BL | 43 | 43 | 0 | 44 | +1 |  |
| M003 | Requirements Engineering | KS | 44 | 45 | 1 | 45 | +1 |  |
| M004 | System Design | DR | 45 | 45 | 0 | 45 | 0 |  |
| / | *---Construction phase---* |  |  |  |  |  |  |  |
| / | *---Alpha prototype---* |  |  |  |  |  |  |  |
| M005 | Application domain model | MČ | 45 | 45 | 0 | 45 | 0 | 001 |
| M006 | Interfacing/parsing data sources #1 | JH | 46 | 47 | 1 | 47 | +1 | 002 |
| M007 | Dynamic loading framework | BL | 46 | 46 | 0 | 46 | 0 | 003 |
| M008 | Server – client interface | JH | 47 | 47 | 0 | 47 | 0 | 004 |
| M009 | GUI Modules/Mockups #1 | AS | 48 | 48 | 0 | 48 | 0 | 005 |
| / | *---Beta prototype---* |  |  |  |  |  |  |  |
| M010 | Database definition | MČ | 48 | 48 | 0 | 46 | -2 | 006 |
| M011 | Data Access Layer | BL | 48 | 48 | 0 | 46 | -2 | 007 |
| M012 | Log in/Registration system | KS | 48 | 48 | 0 | 50 | +2 | 008 |
| M013 | Interfacing/parsing data sources #2 | JH | 49 | 49 | 0 | 50 | +1 | 009 |
| M014 | Suggestion system | BL | 50 | 50 | 0 | 51 | +1 | 010 |
| M015 | Interacting with Google maps | DR | 50 | 50 | 0 | 50 | 0 | 011 |
| M016 | Postdocs recommendations | BL | 50 | 50 | 0 | never |  | 012 |
| M017 | GUI Modules/Mockups #2 | AS | 51 | 51 | 0 | 51 | 0 | 013 |
|  | *---Transition phase---* |  |  |  |  |  |  |  |
| M018 | Commenting system | KS | 52 | 52 | 0 | 02 | +2 | 014 |
| M019 | User profile system | KS | 52 | 52 | 0 | 01 | +1 | 015 |
| M020 | Interfacing/parsing data sources #3 | JH | 52 | 52 | 0 | never |  | 016 |
| M021 | Recommendation system | MČ | 01 | 02 | +1 | 02 | +1 | 017 |
| M022 | GUI Modules/Mockups #3 | AS | 02 | 02 | 0 | 02 | 0 | 018 |
| M023 | Documentation | BL | 03 | 03 | 0 | 03 | 0 |  |
| M024 | Testing | KS | 03 | 03 | 0 | 03 | 0 |  |
| M025 | Final delivery | BL | 03 | 03 | 0 | 03 | 0 |  |

### Remarks

|  |  |
| --- | --- |
| **Remark Id** | **Description** |
| 001 | Developing C# domain model classes to abstract data gathered from data sources (University, City, etc.) |
| 002 | Parsing/scraping data source DS1; Interfacing with data source DS2 API |
| 003 | Developing a set of C# classes for loading data only on demand |
| 004 | Developing a set of C# classes and JavaScript functions to interface between the client and the server |
| 005 | GUI modules for browsing the universities by location, for displaying university and location information. Also a basic page layout and style |
| 006 | Database model definition and implementation |
| 007 | Developing a set of C# classes to interface with the database |
| 008 | GUI and server modules for enabling user registration and login |
| 009 | Parsing/scraping data source DS3; Interfacing with data source DS4 API |
| 010 | GUI and server modules for a suggestion system |
| 011 | JavaScript functions for interacting with Google maps API |
| 012 | GUI and server modules for a recommendation system postdocs module |
| 013 | GUI modules for preferences questionnaire, registration forms, login dialogs, Google maps holder and controls |
| 014 | GUI and server modules for a commenting system to comment universities and locations |
| 015 | GUI and server modules for a user profile system |
| 016 | Interfacing/parsing any additional data sources needed |
| 017 | Recommendation system, editing recommended universities list, editing preferences |
| 018 | GUI modules for user profile page, commenting sections, recommended for you section |

## Activity plan



|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **ID** | **Predecessor** | **Activity** | **Days** | **Mdays** | **Rem.** |
| / |  | *---Inception phase---* |  |  | 001, 002 |
| M001 |  | Forming project vision | 6 | 36 |  |
| / |  | *---Elaboration phase---* |  |  |  |
| M002 | M001 | Project planning | 5 | 30 |  |
| M003 | M001 | Requirements Engineering | 5 | 30 |  |
| M004 | M003 | System Design | 6 | 36 |  |
| / |  | *---Construction phase---* |  |  |  |
| / |  | *---Alpha prototype---* |  |  |  |
| M005 | M004 | Developing application domain model | 3 | 12 |  |
| M006 |  | Interfacing/parsing data sources #1 | 4 | 16 |  |
| M007 | M005 | Developing dynamic loading framework | 4 | 16 |  |
| M008 | M004 | Server – client interfacing | 4 | 16 |  |
| M009 |  | GUI Modules/Mockups production #1 | 8 | 16 |  |
| / |  | *---Beta prototype---* |  |  |  |
| M010 | M005 | Database implementation | 1 | 4 |  |
| M011 | M010 | Developing a data access layer | 2 | 8 |  |
| M012 | M011 | Developing a log in/registration system | 2 | 12 |  |
| M013 |  | Interfacing/parsing data sources #2 | 6 | 12 |  |
| M014 | M005, M006, M007, M012, M013 | Developing a recommendation system | 12 | 24 |  |
| M015 |  | Interacting with Google maps | 6 | 12 |  |
| M016 | M014 | Developing postdocs recommendations system | 6 | 12 |  |
| M017 |  | GUI Modules/Mockups #2 production | 10 | 20 |  |
| / |  | *---Transition phase---* |  |  |  |
| M018 |  | Developing a commenting system | 2 | 12 |  |
| M019 | M012 | Developing a user profile system | 2 | 12 |  |
| M020 |  | Interfacing/parsing data sources #3 | 2 | 8 |  |
| M021 | M014 | Developing an advanced recommendation system | 7 | 28 |  |
| M022 |  | GUI Modules/Mockups #3 production | 7 | 14 |  |

Total planned calendar days for the project to be finished and total planned man-days required to finish the project:

|  |  |
| --- | --- |
| **Planned effort (days)** | **Planned effort (man-days)** |
| 91 | 386 |

### Remarks

|  |  |
| --- | --- |
| **Remark Id** | **Description** |
| 001 | 4-hours working days supposed |
| 002 | Time spent on documentation/testing of each item is included |