RSLingo: Towards a better System Requirements Specification Template

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Activities Report

Abstract—During this activity I made a System Requirements Specification Template, worked in group with a teacher and colleague, had regular meetings and did a presentation about the work done for Modeling students. Where I did put in practice not only my technical skills but my soft-skills too.

Index Terms—Requirements Engineering, System Modeling,RSLingo, **IT** ,**SRS** ,Teamwork

1 Introduction

THIS report have the goal of telling a little bit of my experience with the RSLingo activity in terms of technical and soft skills, but my focus will be in the soft skills. This report talks about my motivation for the chosen activity, why I have chosen a specific software and methodologies, what is RSLingo, what is a **SRS** template, what role I had in this activity, where that activity happen and the purpose of it.

2 Acronyms

- **SRS** - System Requirements Specification
- **IST** - Instituto Superior Técnico
- **PhD** - Doctor of Philosophy
- **IT** - Information Technology

3 Choices Made

3.1 Motivation for the chosen activity

When I had my first modeling class at **IST**, I liked it very much. I was studying to be an engineer but I always liked things like management and business too, in modeling I understood how much important is to understand the business requirements and systems modeling to really help businesses. In that time a listened about the **IT** Consultant job, about how a consultant need to be complete in three areas, technology, management (including businesses), organizations and it needs to have good social skills. I always liked technology but I'm not the type of guy of being all time at the front of the computer without socializing and without making high level decisions, so I decided that being **IT** Consultant is my goal.

Without understand what the business and people in it need, is almost impossible to do a useful system, no matter how much the programmers are experts because even if the system is able to do the most complex tasks, it will not be able to add value to the client business if is not made according to the requirements and clients needs. Normally, programmers have difficulties in understanding the business people and vice versa. The **IT** Consultant job is about understanding both languages and develop a bridge between them, that increase the communication between all and makes everyone understand what is the purpose of the system and what they need to do.

In this activity I knew that I would be able to practice tasks in the Requirements Engineering and System Modeling areas and practice my social skills because I would need

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(1.0) Excellent	ACTIVITY						DOCUMENT						
(0.8) Very Good	Object×2	Opt×1	Exec×4	Summ×.5	Concl×.5	SCORE	Struct ×.25	Ortog×.25	Exec×4	Form ×.25	Titles ×.5	File ×.5	SCORE
(0.6) Good													
(0.4) Fair	1.0	1.0	0.8	0.5	0.5		1.0	0.8	0.6	1.0	0.8	1.0	
(0.2) Weak													

to work in a group, have regular meetings to discuss the work to be done and do a presentation about the work. That is why I decided to do this activity.

3.2 Chosen software and methodologies

The chosen software to do the **SRS** template was the Excel 2013 because was the preference of our teacher and because we could structure well the template.

To modeling the systems we decided to use Enterprise Architect 10 because it was free for **IST** students, had everything that we needed and we had practice with this software.

To write some texts about the work done we used Microsoft Word 2013.

During this month we will also write an article about the work done and the software that we will use is latex.

Some of the methodologies that we used in this work to model systems was Use Cases and Domain Model.

4 RSLingo Activity

4.1 What is RSLingo?

RS means Requirements Specification and Lingo means Language. Basically RSLingo is a requirements formalization approach based on linguistic patterns which have been developed during time as the solution for addressing the aforementioned requirements analysis and documentation problem.

RSLingo ultimate goal is to automate, as much as possible, the linguistic analysis typically performed by requirements engineers, in order to formalize requirements originally documented in natural language, including the the future transformation of the requirements in our template to visual models in the Enterprise Architect, which must be kept synchronized with their respective natural language descriptions.

Some of the problems that this approach should be able to resolve is ambiguity of the requirements and increase the automation of all the requirements elicitation, validation and change. I will not try to be more detailed because the goal of this report is not to be too technical but in the appendix we have one image with the RSLingo Overview.

4.2 What is SRS template? Advantages?

SRS means System Requirements Specification and a template is basically a predefined format to do something, in this case we are talking about a predefined format for requirements specifications, not only that but a template that can in some way automate some tasks like giving predefined options (decreasing user writing mistakes), detecting some user error in terms of Requirements Engineering good practices and in the future we want to automate the transformation of these requirements to visual models.

This template is done using Excel 2013 and with this software is possible to do some of the tasks mentioned above and was developed to support the business stakeholders and goals of any software system during the requirements validation and until the end. In this this template we have views like glossary, stakeholders, goals, actors, structural, use cases, requirements, providing a framework for requirements specification, in the appendix we can view the dependencies between the views. All sheets are arranged in the same format, allowing this template to be used for modeling any systems. From the information contained in the sheets it's possible to prepare the necessary diagrams to model systems, such as the sheet related to the structural view has all the information needed to represent the domain and data models.

To try to illustrate the importance of a **SRS** Template, I will explain one passed experience that I had recently and that I believe to be useful to understand the importance of this template. Recently I worked as a developer for a company where I needed to develop a

middleware in java and a database in MySQL Server, this middleware would be able to connect with the database and with a Front-End layer, where the Front-End designers where also the people responsible for defining the requirements of the System. The first thing that I asked to the designer was "Can I see the requirements document?" and they answered "What is that?", then I asked "Where do you put the things that the System should be able to do?" and the answer was "We have it all in our heads". In the beginning I demonstrate my opinion about the importance of having a requirements documents, everyone agreed with me but they said that they were late on their schedule. The result was that many times, me and another colleague discovered that somethings that we were doing was in reality wrong, sometimes the cost of that mistake would be do a week work over again, this happened more than one time. Other problem was the fact that sometimes was difficult to communicate some technical words, because the same word could have different meanings between developers and designers, this problem could be in most part resolved with a glossary (which our template have). At the date of the first version deliver of the Application, we were delayed and what we delivered was much less that was suppose. All these problems could be highly decreased if at the beginning they spent more time planning and documenting the requirements which everyone would follow, decreasing the misalignment between all and the mistakes. This template is being done to make that work and to make it much faster.

4.3 Activity Realization

This activity started before the Portfolio Course, in the beginning of January with my colleague Tiago Catarino and my Teacher Alberto Silva. First of all we had a meeting with the teacher and he explain us what the work was about and what we needed to do, we needed to do an innovative and modern SRS Template or at least do some of that and in the future other students could continue our work or even make a thesis.

Our first task was to read the PhD thesis "RSLingo: a Formal Requirements Specification Approach based on LInguistic Patterns" made by David Ferreira and read some other tasks about the this approach and the theoretical overview of how the SRS Template should be done. This will allow us to better understand what the template is about and how to do it.

Next task was to start doing the template using Excel, this was the most slowest task because we needed to have many technical knowledge about Requirements Engineering and Systems Modeling, that mean that we would need to have more meetings with the teacher and establish good communication to coordinate between us.

Next task was to model a system as an example that could be used to provide us the requirements to put in the template. We decided to make a Billing System and modeled it using the Enterprise Architect. After this task we were able to see some error in the template and correct them.

Next task was to prepare and do a presentation to Modeling Students of the Bachelor Degree, where we had the opportunity to test our communication and presentation skills. It was a 30 minutes presentation and in general the presentation was good, only missing a little bit of more practice in doing it.

This activity is not finished yet for us, we still need to do an article, explaining in more detailed the developed template, in a way that can be used by future students with the intention of increasing even more the automation and validation provided by the template.

5 Conclusion

This was an Activity where I could test my knowledge in the Requirements Engineering and System Modeling areas and try to increase not only my technical skills but my Soft-Skills

too. I had fun doing it while I gain some experience. I am happy with good choices that I made and with my bad choices because these last make me learn some lessons (better explained in Learning Report). I am sure that the next similar activity that I will have will be even better.

ACKNOWLEDGMENTS

I would like to thanks my Coach Team, my teacher Rui Cruz for answering my emails and teaching Latex, teacher Alberto Silva for giving me the opportunity to work in this project and for helping me with it and my colleague Tiago Catarino for the help in this work.I can also say that, to do this activity I used the references [1], [2], [3], [4], [5].

REFERENCES

[1] A. Silva, J. Verelst, H. Mannaert, D. Ferreira, and P. Huysmans, *Towards a System Requirements Specification Template that Minimize Combinatorial Effects*, IST, INESC-ID, 2014.

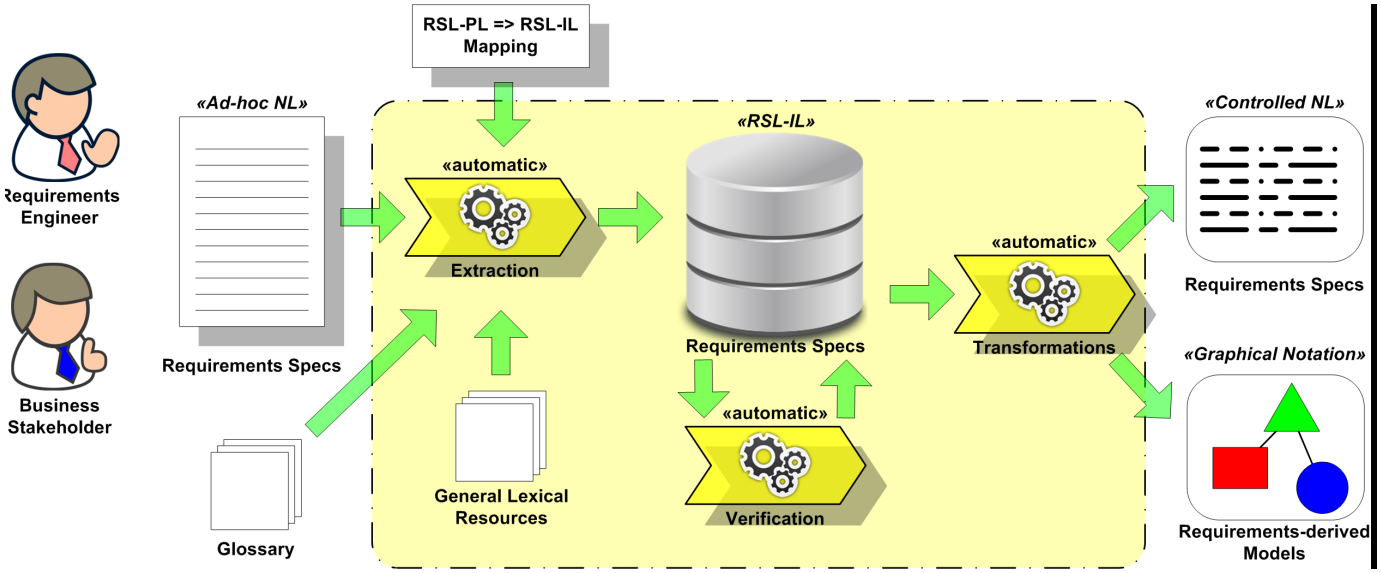
[2] D. Ferreira and A. Silva, *RSLingo: An Information Extraction Approach toward Formal Requirements Specifications*, IST, INESC-ID, 2013.

[3] ——, *RSL-IL: An Interlingua for Formally Documenting Requirements*, IST, INESC-ID, 2013.

[4] D. Ferreira, *RSLingo: A Formal Requirements Specification Approach based on Linguistic Patterns*, IST, INESC-ID, 2014.

[5] K. Pohl, *Requirements Engineering, Fundamentals, Principles and Techniques*, Springer, 2010.

APPENDIX
RSLINGO OVERVIEW



APPENDIX
VIEWS DEPENDENCIES