Independent Studies Platform Development

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Activities Report

Abstract—The Independent Studies course gets students to participate in an extra-curricular activity to develop necessary skills for the future. Since it requires a great amount of management, it has a dedicated platform for that purpose.

This report describes the activity performed by me during this semester, namely the participation in the development of the new Independent Studies platform. It describes what was done to adapt to an ongoing project, the technology behind this project and the problems encountered during this activity.

Index Terms—Independent Studies, Platform, Ruby

Although well written and described, the execution of the activity was limited in duration, not fulfilling the required effort

1 INTRODUCTION

THE Independent Studies course has been around for many years now for students of Licenciatura em Engenharia Informática e de Computadores (LEIC) and Mestrado em Engenharia Informática e de Computadores (MEIC) at Instituto Superior Técnico (IST) as a way to introduce students to a more real work environment outside school, giving students the opportunity to gain/improve certain necessary skills for the future. For a better management of the course, a platform was created, where the students could submit their activity suggestions, their reports, and where professors had access to functionality that was not available at the Fénix system. The platform served its purpose but is becoming outdated, adding more functionality to the existing platform would be difficult because of the outdated code, also since Direcção de Serviços de Informática (DSI), the entity responsible for maintaining the Information Technology (IT) systems at IST, started to change the hardware that supports the entire IST IT infrastructure, it was inevitable that the platform had to be changed to keep up with the times.

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So instead of changing the old platform, a new more modern platform was created. With the objective of having the same functionality as the old one while providing even more functionality that would make it easy to use and easy to access information for both professors and students. The platform went online in early October but it was very incomplete as the person developing it was also working a full time job and attending classes. As it began to be used and as students started to find the various problems that existed with the platform, they started complaining. Hearing these complaints and taking advantage of the fact that the professor was looking for students to help on the development of the platform, I decided to choose this as my activity for the course in an attempt to on one hand to participate in a large-scale project, as it is something that is going to be used by thousands of students, but on the other hand to help fixing the problems that caused so many complaints and help developing the platform that will substitute the old one.

This report focuses on what was done during this semester in the scope of this activity. It will start with a description of the meetings held to discuss the project, followed by the software components that the project uses. Since it was an ongoing project, a learning phase was required to introduce the programming language used and to learn the existing code. This

(1.0) Excelent	ACTIVITY					DOCUMENT						
(0.8) Very Good	Objectives x2	Options x1	Execution x4	S+C x1	**SCORE**	Structure x0.25	Ortogr. x0.25	Gramm. x0,.25	Format x0.25	Title x0.5	Filename x0.5	**SCORE**
(0.6) Good												
(0.4) Fair	1.6	1	2.8	0.8	5 2	0.25	0.25	0.25	0.25	0.5	0.5	2
(0.2) Weak												

learning process will be discussed in another section. Then there is a brief discussion on the development that was done and the problems encountered during the duration of this activity, finishing the report with the conclusions taken.

2 BACKGROUND

When I applied to help in the development of the platform, it was already online. It had the basic functionality implemented and working to some extent. Authentication was done using the Fénix API. As opposed to the old platform that required an alternative registration, this functionality allows for students to login using their Fénix information. This authentication method is used in almost all IST services so it is logical that a website from a course of IST should use it.

Another functionality that was present was the application to activities. Students could apply to three different activities that would be later revised by the professor and the Independent Studies' coaching teams. This functionality however had some bugs, the most noticeable one was if the student made a mistake when applying and deleted one application, that student would no longer be able to apply to three activities. The students were also capable of accessing the information about the institutional activities.

It also had a tracker for the activities in which students could see which activities they applied too, which ones were in reviewing process, which ones were accepted and which ones were rejected.

3 TEAM AND COMMUNICATION

Since this is a large-scale project, there was a team involved in the development. The professor was responsible for supervising the project and, since he is the one responsible for the course and who knows what a platform for this course would need, was responsible for giving the guidelines of what features the platform would need.

Alexandre Quitério was the developer of the platform. He alone had created the platform,

implemented the existing features and got it to work online.

When I applied for the activity my job was to help Alexandre in maintaining the platform, fixing bugs and implementing new features.

Since this was a team working, communication is essential for the project to move on. The initial communication was done via email where details of the project were discussed and a meeting was scheduled.

The first meeting was held on the first weekend after the initial contact. This meeting was to discuss the state of the platform and to prepare the development environment for me. This meeting did not go much beyond that since the Operating System (OS) I was using was not compatible with some of the software needed for the development so it ended up being a meeting mainly to introduce me to the platform and the tools that I had to install at home.

The second, and last meeting, was held three weeks later with the objective of introducing me to the development and the distribution of tasks.

4 DEVELOPMENT ENVIRONMENT

In order to participate in the development of the platform, some tools had to be installed in order to facilitate that work.

The platform was done in Ruby[1], a dynamic, object-oriented programming language. This language is well known for facilitating the development of web applications and is an easy to use general purpose language.

To facilitate compatibility between machines when developing, Vagrant[2] was used. This software is responsible for creating and configuring a virtual development environment. This way when switching to another machine all it was needed was to install vagrant, access the vagrant file in the project and run the configuration to configure the environment.

Also since sharing the project is vital between the elements of a team, a Bitbucket[3] repository was used. Using a repository makes

1. https://www.ruby-lang.org
2. https://www.vagrantup.com/
3. https://bitbucket.org/

the project available in every machine with an (internet) connection, as long as the user is allowed access to the repository.

In my case, since Vagrant had a compatibility issues with Windows 8 OS, I had to install a Linux OS. I decided to go with the Ubuntu 14.04 LTS distribution as it does not require much configuration and is easy to install. After changing to Linux the software worked without problems.

5 LEARNING THE BASICS

Since this was an ongoing project there was a period of adaptation for me. Also since I had never used Ruby before that point this period was crucial in order to avoid delaying the project further. Therefore, at home, I took some time to study the basics of Ruby and to learn the code of the project.

For Ruby I did tutorials available on the Internet[4]. These tutorials went from the most basic features of the language, the typical Hello World, to some of the more advanced ones. This helped me get into the language following simple steps and by using practice instead of reading as the tutorials use an interactive shell so you can practice the steps.

As for the code, it is never easy to learn the code of an ongoing project. Thankfully the code was well structured so it was somewhat easy to comprehend by reading and testing it a bit in an offline environment.

6 DEVELOPMENT

My contribution to the development of the platform was very little. Mainly due to incompatibility of schedule between me and Alexandre, the amount of work that I had for other courses and being in the middle of writing the Thesis Project Report.

During the second meeting, me and Alexandre worked on implementing a feature related to the translation of the website when the students choose between Portuguese and English and on fixing the bug of the three applications described earlier.

4. http://www.codecademy.com/pt/tracks/ruby; http://tryruby.org

Some days were scheduled to work on the project in IST but Alexandre could not be present due to professional reasons. Since there was work that had to be done for other courses which was taking almost all of my time (possible bad time management by me), my contribution was limited to the work done on the meeting.

7 ENCOUNTERED PROBLEMS

This activity did not go as smoothly as expected. Due to the problems the platform had the start of all activities was delayed, including this activity. This made the activity collide with other projects, leaving not much time to work on the activity.

Since Alexandre was maintaining a full time job and attending some courses at IST there was a severe schedule incompatibility between us and, due to some bad time management by me and some fear to not undo the work that had been done, I did not work alone on the platform and that greatly reduced my contribution to this project.

Also the adaptation period delayed the start of the activity since I was not familiar with some the technologies used by the project.

8 CONCLUSION

The new Independent Studies platform was created to substitute an outdated platform that was not serving well its purpose anymore. It was launched at the beginning of the semester but had some problems that hindered the normal process of the course.

Seeing that it was being heavily criticized by the students of the course and having the opportunity to help in the development, I applied to this activity. Some adaptation was needed as it was an ongoing project and used technology that I was not familiar with.

Even though there was little contribution from me to the development this activity allowed me to discover these new technologies and to learn some rules on how a large-scale project should work.