Saber com Lógica
Website Content improvement

Ricardo Ângelo Costa Maia, Dinis Pedro Pinto Marcos Madeira,
João Manuel Policarpo Moreira, João Pedro Canha Raimundo,
Sharareh Shakoori Moghadam Monfared

Which one?

Activities Report

Abstract—In this activity we worked in *Saber com Lógica* website website content improvement. Several aspects have been setup which have to do with security: authentication and authorization. We created the concept of membership, to grant user access to certain contents. We have categorized the website contents in free and premium. The free one requires the user log in, only registered members have access to it, the premium one requires a paid subscription. To process the payment we developed a payment gateway with MEO Wallet.

Index Terms—WordPress, memberships, learning, communication, responsibility, soft-skills, team, plugins.

✦

1 INTRODUCTION

SABER com Lógica [1] is a project that intends to put together all the information about the computer operation, starting with the hardware components (motherboard, cache, main memory, hard disk, processor unity) getting through the operating systems (system files) until the internet.

Saber com Lógica currently showcases a book and a website powered by WordPress [7], which provides an electronic publication of the book, and several other additional features. There are several activities for this project such as interface designing, book content improvement, forum developers and website content improvement. All the activities had to work

- *Ricardo Ângelo Costa Maia, nr. 70252,*
  E-mail: ricardo.c.maia@tecnico.ulisboa.pt,
- *Dinis Pedro Pinto Marcos Madeira, nr. 72957,*
  E-mail: dinismadeira@tecnico.ulisboa.pt,
- *João Manuel Policarpo Moreira, nr. 73887,*
  E-mail: joao.m.p.moreira@tecnico.ulisboa.pt,
- *João Pedro Canha Raimundo, nr. 77064,*
  E-mail: joao.raimundo@tecnico.ulisboa.pt,
- *Sharareh Shakoori Moghadam Monfared, nr. 82359,*
  E-mail: sharareh.monfared@tecnico.ulisboa.pt
  Instituto Superior Técnico, Universidade de Lisboa.

in cooperation due to the work dependencies. Because of that we had to schedule some meetings with other activities members and with the activity promoter Mr. João Silva, Professional Engineer, to discuss some matters and make an introspective view of the entire process. To get some specific feedback about our activity we scheduled a meeting in private with the activity promoter. Our activity consists in creating a user registry to protect some website content. There are two different levels: the free, paid and the VIP level. The VIP level grant the full access to the website content and can be upgraded any time. To do that the client is subject to a payment of a certain amount of money. To support this we developed a payment gateway which uses the MEO Wallet [2] plugin. We made this choice because the MEO Wallet budget can be charged with credit card, Paypal [3], phone money and ATM payment. All the steps of development will be deeply explained into more detail in the next chapter.

2 ACTIVITY CARRIED OUT AND WORK DEVELOPED BY THE TEAM

A short time after we chose the activity, we were contacted by our coaching team, which

(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	0.8	1.0	1.0	0.8	0.6		1.0	1.0	1.0	1.0	1.0	1.0	
(0.4) Fair													
(0.2) Weak													

proposed a meeting with the promoter of the activity, Mr. João Silva. In this meeting, each member got to know each other and also the promoter, we discussed for some time about the work that had to be done for the activity.

Mr. João Silva talked to us in this meeting and told us what was pretended for us to do in the activity. João Silva talked to us a little about his website, what it is about, and also what he pretend to have in the future, in order to improve the website.

One of the things we talked about, which was also the purpose of the activity, was the definition of membership, authentication and authorization. João Silva wanted to be able to control the permissions of each type of user, and also a way for users to register, and choose one of the many possible levels for their membership.

To make things simple, it was decided that there would be two simple levels of membership, a free level of membership, with permission to see free articles, and a paid level of free membership, with access to all the articles.

To fulfill this requirement, we started to look for information about possible plugins that would make it possible to introduce the desired features in the website.

Some of the plugins we found for this purpose were the following:

- Paid Memberships Pro [4]
- Simple Membership [5]
- Membership [6]

All these plugins featured very similar functions, but for us, Paid Memberships Pro (PMP) really seemed like the best choice, as it has the highest rankings, the most active installs, compared to the other two plugins.

Paid Membership Pro is one the most interesting and practical plugins which is completely free. It covers everything which is needed in order to set up a membership site. The plugin also comes with the ability to create discount codes, and a "pay-per-post" option, which are both useful features for membership based sites. It can also be easily extended, for instance, you can create your own template in your theme, such as the pricing table, which is very interesting feature. There are also lots of free add-ons available to extend the native functionality of the plugin. Various free payment gateways are included in PMP. We came to an agreement, and we decided that we would stick with the PMP plugin, as it was our best choice.

2.1 Paid Membership Pro setup

This part was made by João Moreira. He started by installing and configuring the chosen plugin, Paid Memberships Pro. After the installation, he made the necessary configurations:

- Created the user pages and three levels of membership (free, paid and VIP);
- Customized the *Saber com Lógica* website menu to include a button for memberships, so users could access their account and modify it according to their needs.

The PMP plugin did indeed offer a vast range of options to configure and select, for both memberships, authentication, authorization and controlling what a user belonging to a certain membership level could access. However we came across with some issues.

One of the issues found was to apply the user restriction and privileges into the pages. Sharareh and João Moreira made a research in that matter and found out they could create a category (per membership level) under the posts and tell which categories are allowed for that page. If the user is logged out, then redirect him to the registration/login page, if the user has not enough privileges to access that page, then redirect him to the upgrade page in order to buy a subscription.

Other issue was the login system. The PMP plugin uses by default the main WordPress login page, which is shared for both administrators and users registered on the website, which is not the best solution because when a registered user logs in the WordPress login page, he is redirected to a WordPress page that is usually only used by Administrators. To fix this issue João Moreira found out the "theme your login page" plugin which creates a proper login page inside the website. To remove the WordPress administration bar when the user logs in, Ricardo Maia found and installed the "hide-admin-bar-from-non-admins".

João Moreira also briefly experimented with a security plugin that was mentioned in one of the meetings, this plugin was called iThemes Security [8] plugin, formerly known as Better WP Security. It has the purpose of detecting and improving many security flaws that might exist in a WordPress website, if it found any flaws it would give suggestions and possible fixes, in order to maintain the website secure.

2.2 Payment Gateway

One of the biggest issues was the payment gateway. The promoter of the activity wanted to integrate a payment gateway that wasn't supported by the plugin. This payment gateway, known as MEO Wallet, supports easier payment solutions, such as paying for a membership level on a ATM machine, by credit card or phone credits.

The MEO Wallet payment gateway also offers a testing environment using a with virtual currency. This was considered a benefit for us since we could easily test the payment gateway while developing the solution, without actually spending any money, using a Sandbox MEO Wallet account.

Sharareh Shakoori did a research about how to integrate a new payment gateway in the paid membership pro and helped closely the gateway development and integration.

Dinis Madeira and João Raimundo worked together in the creation of the MEO Wallet gateway, Dinis also created a merchant MEO Wallet account within the sandbox environment in order to test the API without leading with real transactions, while João Raimundo created a customer account to test the payment procedure. Ricardo Maia created another customer account and tested the payment API calls with and without promotional codes.

Paid Memberships Pro already offers several gateways, those are implemented as a specialization of the class PMProGateway. In order to create the MEO Wallet gateway they had to create another Hypertext Preprocessor (PHP) file specializing this class, and implement the necessary methods for the gateway to work within the PMP plugin.

The first thing was to customize the settings screen (Figure 1) that is displayed in the admin page of PMP. This settings screen must allow the administrator to define the API key that will authorize the server when it makes the API calls.

After that, we customized the Pay Button, displaying an appropriate image for the MEO Wallet. The implementation of the behavior of this button is different from the other gateways provided by PMP, like Paypal. Unlike the others, that will simply redirect the user to a payment page, directly providing the parameters to that page, in MEO Wallet we have to make an API call, in the first place, to the MEO Wallet's server, with the payment parameters, and then we receive the URL of the payment page to which the customer should be redirected. We also had to extract these payment parameters from the environment variables available within the PMP and the Wordpress itself.

Furthermore, the server communication for the API calls had to be implemented in order to fulfill the MEO Wallet's API requirements, such as providing an authorization header, and the parameters of the request encoded as a JSON string.

Finally, when a payment status change, MEO Wallet's server will make a special callback to *Saber com Lógica*'s website server reporting the status of the payment, allowing us to update the membership level of a customer when the payment is successful. In order to provide additional security, it will first make another API call to MEO Wallet's server to verify if that report is authentic, if so, the membership level is upgraded.

Overall, Dinis and João Raimundo accomplished this task by creating a new PHP file implementing the MEO Wallet payment gateway, and made minor changes to 2 files within PMP, one to register this gateway in order to make it available in the options of PMP, and the other to register the callback function that handles the MEO Wallet's payment status updates.

2.3 Further work developed and issues solved

The activity promoter asked us to figure out a way to make possible to define a promotional code to a certain level acquisition and to create a new membership level that will expire

after a predefined period, requiring a recurring payment. He also wanted to allow some part of the content of his articles to be available publicly, such that a non-subscriber user will be able to read that part of the article, and at some point encounter a hyperlink saying "read more" (Figure 2) that will redirect the user to the subscription upgrade page. These tasks were done by Ricardo Maia. To do the first task Ricardo created a new membership level with a promotional code and and expiration date of 1 month to exemplify the use of the functionality. It was made a small video demonstration to show the promoter how it works. To do the second task Ricardo faced a difficult problem because even though the plugin allows to define the required membership level for a certain article, or a category of articles, and display a small excerpt, it doesn't allows us customize what appears in the excerpt. So what Ricardo did was to set the posts with only free privileges to be accessed by any registered member and inserted a shortcut tag of paid membership pro inside the post: *[membership level="-1"]post part[/membership]* which causes everything under it to be available only to the subscribers with the required level. Then he added a HTML link "read more" (Figure 2) that is just showed when the user have only free privileges and redirects him to the membership upgrade page to purchase a subscription.

3   Conclusion

Which one ?

This report describes our activity as a team along the website membership set up improvement. The main goal in this activity was to go through various type of membership plugins in WordPress, choosing the best for Saber com Lógica website, installation and activation of the plugin, as well as, installation of MEO Wallet gateway plugin which works with Portuguese electronic cards for online shopping. To construct a membership for the site, Paid Memberships Pro is a complete solution with various highly desirable features included as standard, as well as the potential for extension.

References

[1] Eng. João Dias, *http://sabercomlogica.com/*, 2012.
[2] PT Pay, S.A, *https://wallet.pt/*, 2014.
[3] Paypal, *https://paypal.com/*, 1998.
[4] Paid Memberships Pro, *http://www.paidmembershipspro.com/*, 2015.
[5] Simple Membership, *https://simple-membership-plugin.com/*, 2015.
[6] Membership, *https://wordpress.org/plugins/membership/*, 2015.
[7] WordPress, *https://wordpress.com/*, 2003.
[8] iThemes Security Pro, *https://ithemes.com/security/*, 2015.

Dinis Madeira student at Instituto Superior Técnico (IST) attending a Masters degree of Computer Science and Engineering, specializing in Software Engineering and Distributed Systems.

João Moreira I am 21 years old, pursuing my Engineering Studies at IST. I'm taking my Master Degree, with the major as Enterprise Information Systems and minor as Multimedia Systems.

João Raimundo I am 21 years old and I am studying Telecommunications and Informatics at IST.

Ricardo Maia Student at informatics engineering at IST.

Sharareh Shakoori I am 26 and I am pursuing my Engineering studies at IST, I am doing Software Engineering as major and Multimedia Systems as minor for my masters degree.
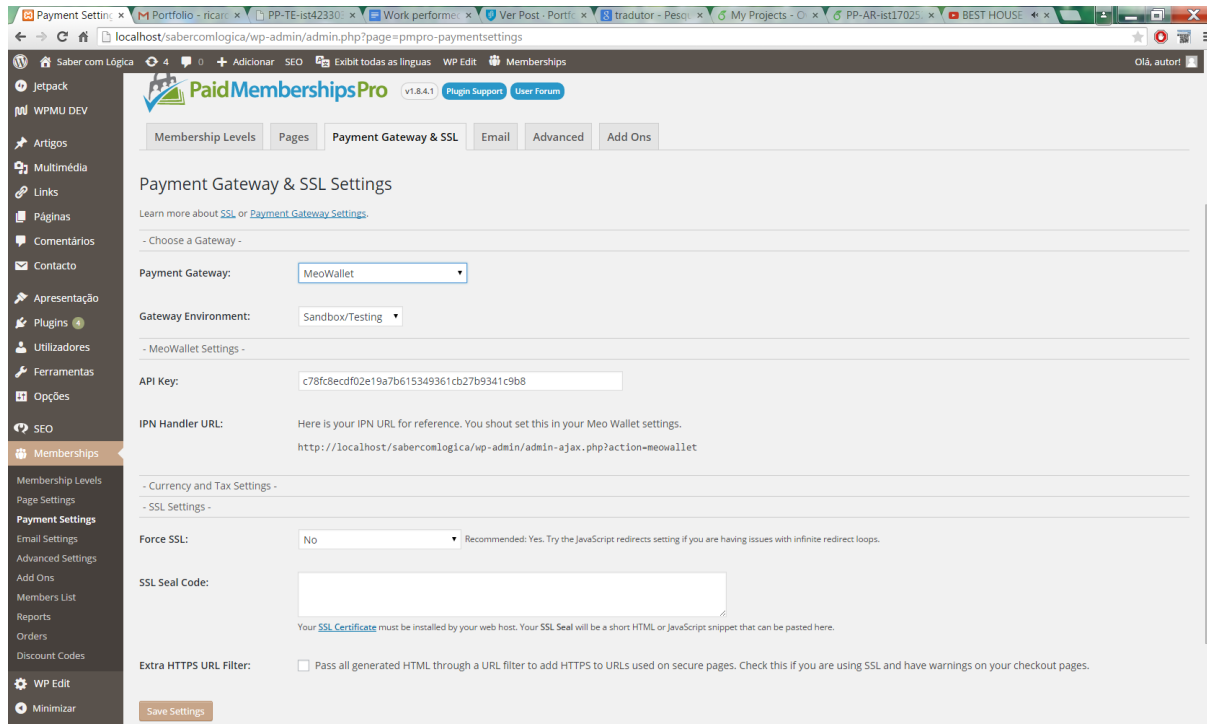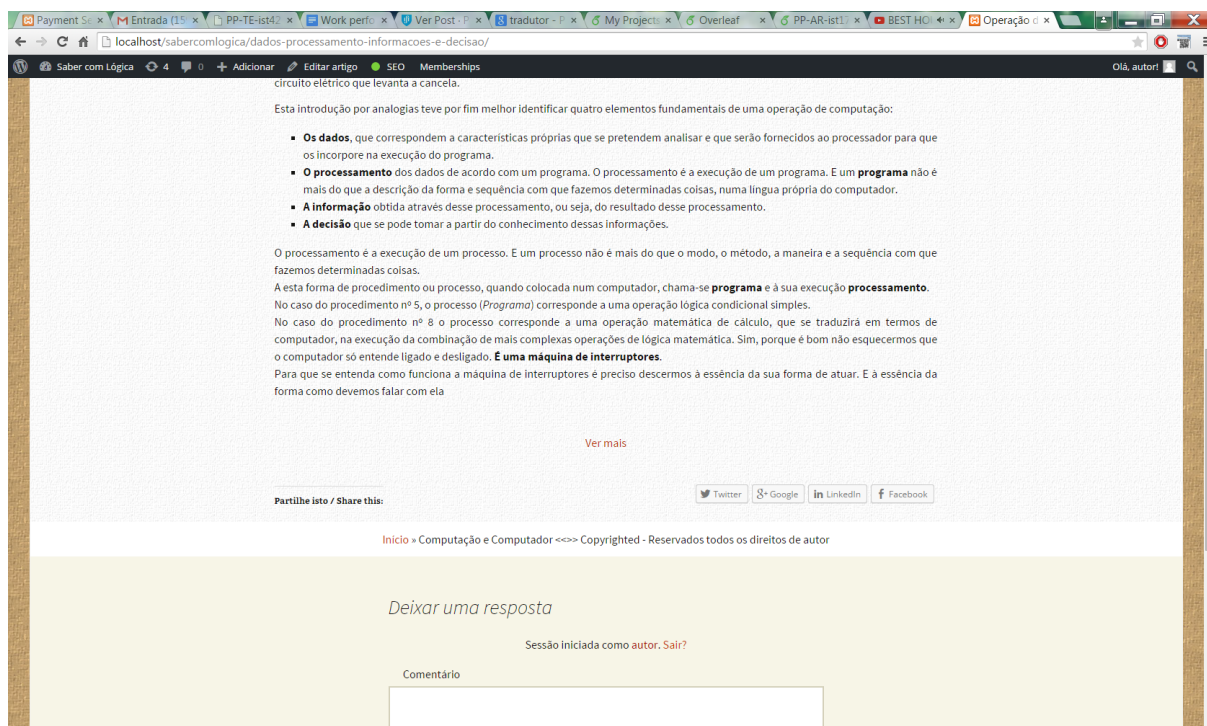
APPENDIX

Figure 1. MEO Wallet gateway configuration

Figure 2. MEO Wallet gateway configuration