Mimouna Foundation Virtual Platform

FINAL Report-Capstone Project

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Table of Contents

Acknowledgement ........................................................................................................ 3

Abstract ......................................................................................................................... 4

I. Introduction ................................................................................................................ 5

II. Feasibility Study ........................................................................................................ 6

III. Methodology ............................................................................................................ 8

1. Problem Specification................................................................................................. 8

2. Requirement Specification......................................................................................... 8

2.1 Functional Requirements......................................................................................... 8

2.2 Non-Functional Requirements............................................................................... 11

3. Software Selection Criteria ...................................................................................... 12

4. Choice Validation....................................................................................................... 15

IV. System Architecture ............................................................................................... 16

1. Webmin Server........................................................................................................ 16

2. Mailing system.......................................................................................................... 16

3. Database Management System: PHPMyAdmin..................................................... 17

4. Virtual Platform: Mimouna.org .............................................................................. 17

4.1. Database Design..................................................................................................... 17

4.2. Plugins Used.......................................................................................................... 17

4.3. User Roles............................................................................................................. 20

V. STEEPLE Analysis .................................................................................................... 21

1. Social ....................................................................................................................... 21

2. Technological ........................................................................................................... 21

3. Economic ................................................................................................................ 21

4. Environmental ........................................................................................................ 22

5. Political .................................................................................................................... 22

6. Legal ........................................................................................................................ 22

7. Ethical ....................................................................................................................... 22

VII. Results.................................................................................................................... 23

1. Webmin Server......................................................................................................... 23

2. User Roles................................................................................................................ 26

3. Database: PhpMyAdmin.......................................................................................... 27

4. Mailing System: Round Cube.................................................................................. 28

5. Survey: feedback of members.................................................................................. 28

VIII. Future Work ......................................................................................................... 29

IX. Conclusion.............................................................................................................. 30
References ........................................................................................................................................... 31
Appendices ......................................................................................................................................... 32
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Dedicated to those who believed in me

Sarah BENOMAR
Abstract

The purpose of this capstone project is to create an interactive virtual platform for the Mimouna Foundation. The Mimouna Foundation is a non-governmental organization with the aim of promoting Moroccan Jewish culture through its heritage, history, and traditions.

At its completion, the platform should benefit society by improving communication among the different communities interested in Moroccan Jewish culture by encouraging knowledge sharing and dialogue. It will also preserve the trajectory of events and achievements of the club by an efficient management of data.

The project will have two main phases. The first is concerned with the analysis of functional and nonfunctional requirements; the specific technologies to be used will be investigated and chosen. The second focuses on using the support provided by an open-source content-management system to collect all the archives of the organization, including the schedule, list of old, new and board members, as well as inputs from founders and chairmen, among other materials.

Lastly, the project will aim to facilitate continued use of the platform by providing training documents and tutorials to facilitate maintenance of the platform, including future updates or modifications that can improve its efficiency and usefulness, without neglecting agreed upon standards concerning use of open source tools, their development, implementation, and integration.
I. Introduction

As digital as the world is becoming, it also becomes a major necessity to be able to manage our daily life activities through computers and smart machines. The project that I have chosen is not an exception, given how critical computer support is for most companies. A virtual platform system is an efficient management method for maintaining the Mimouna Foundation member’s data and other information, and a content management system is a good choice as a tool if it fits with the requirements and features requested by the association. This capstone project report addresses the system requirements specifications for the system as well as the technical tools we used for the design and development.
II. Feasibility Study

Recently we have witnessed a new wave of digital tools that will significantly improve the way we read and publish content. The aim of this capstone project is to develop a virtual platform that will help the Mimouna Foundation board members manage all of the association’s members, events, archives, photos, video galleries, etc. The platform will be a dynamic one, connecting members in different geographic locations in Morocco. It will allow the foundation’s members to propose content to be uploaded to the platform, and make it possible for the platform administrator to post it easily after need approval while insuring respect of privacy and security. Since not all potential users can be assumed to possess technical knowledge, it will be necessary to create a user friendly environment.

As a first step, it is essential to highlight the importance of designing such a system using a user-interface model that satisfies the intended use of the portal, while reflecting the structure of the content, and the main functionality of the portal.

A top priority in this project is gathering data and archives to determine efficiently the content management needed to fulfill the requirements of the association. Within the timeframe of this project (2 months for implementation), I focused on using an existing content management system (CMS) [1] operating on Windows (the most commonly used operating system). In order to ensure financial sustainability and ease of maintenance, I used a free, available, and ideal open-source CMS that is well documented and has a large user community that can provide support for future maintenance and potential exchanges.

The choice of using an existing CMS is justified by the existence of candidate platforms that offer a wide range of tools for organizing, storing, and accessing material. Fittingly, the interface provided by such systems is user friendly since the content management system offers a template engine presenting numerous prototypes, so that its administration is done
throughout browser-based interfaces [2]. The virtual platforms will provide a dynamic collection of web material (photos gallery, videos, and other forms of media). Any content added to the platform by the administrator will be stored easily by uploading it into the chosen part of the platform. Regular users will log into the platform through a ‘log in’ to view existing content and recommend any need additions. If new modules or other modifications are needed, they can easily be performed via submenus allowing for the possibility to establish new sections of the interface.

The project will have a positive impact on the management of the association. It will make any information relevant to the Foundation’s members available regardless of geographical location, and support the variety of information that members may submit. Based on my experience as a board member, I understand the need for an organized virtual platform that can provide both simplicity in design and management. Additionally, the project will be economically sustainable, since no costs will be incurred through the use of freely available systems such as Drupal, Joomla, or WordPress. The goal is to release a full prototype by the end of this capstone.
III. Methodology

1. Problem specification

Morocco, as a developing country, is still in need of technological improvement, especially regarding associations and non-governmental organizations management. As an NGO, the Mimouna Foundation, with more than 60 members, faces a number of challenges regarding the organization of its members, documents, and data, in addition to the increased necessity to address matters such as transparency and virtual facilitation of every aspect. Thus, we propose the design of a virtual platform that will enable members to pass in data efficiently through an individual Login access as well as a mailing system for effective communication.

2. Requirements Specification

2.1 Functional Requirements

My virtual platform system project contains 6 different modules:

✓ Finances
✓ Multimedia
✓ Calendar
✓ Database
✓ Press/ Communication
✓ Suggestion Box
2.1.1 Finances

2.1.1.1 Income

The user should be able to know how much money the association is incoming monthly in terms of:

- Members contributions
- Fundraising
- Donations

2.1.2.1 Expenses

This module shall keep track of the expenses. Board members can easily know about all the payments regarding events, transportation, housing, flyers, handouts, advertising, etc.

2.1.2 Database

The user shall access any file in the database using the virtual platform in terms of:

⇒ Members profile: Board members will have access to every profile of persons taking part of the association including:

- Picture: to recognize the identity of the member. (Optional)
- First and Last name
- CIN or Passport number (Secured access)
- Profession (student, engineered)
- History (former experience in associations, interfaith dialogue, etc)
- Contact (Phone number, email and address)
Documentation: This function will tackle all the files that members need to download without getting back to the general secretary, the documents will be presented as the following:

- Event planning form
- Registration form
- Sponsoring form
- Press release template

Archives: This segment of the software is concerned with archiving all the reports of the association, since the hand written documents are more likely to be lost than documents stored in a computer. Therefore, all reports will be stored in the database’s archive in as described below:

- Meeting minutes
- Yearly General Assembly’s reports
- Other archives.

2.1.3 Calendar

Event dates: This part addresses the updated date and time of every event including the title and small description about it.

Task update: The board members will update the tasks assignment of every concerned members, and post it accordingly in the calendar with regards to the due date and time of accomplishment.
2.1.4 **Multimedia Gallery**

This function exhibit videos and pictures organized by dates as the following:

- **Videos:** There will be a plugin that allows the user to easily attach a single video to any post, page or custom post type. Or add multiple instances of the Video Widget (flash videos) to any sidebar(s). Both display types are fully responsive and fast loading [3].

- **Photos:** Photo Gallery is an advanced plugin with a list of tools and options for adding and editing images for different views. It is fully responsive. This plugin will help in adding image galleries and albums within posts. Pictures will have detailed descriptions, and organized into different albums.

2.1.5 **Press / Communication**

This function is a kind of archive that will exhibit all the press articles from the creation of the association, as well as communication advertisement handouts, flyers, and events promotion [4].

2.1.6 **Suggestion Box**

This feature will provide an opportunity for all members to propose their suggestions on every aspect of the association’s organization and management for a positive, efficient, and fruitful improvement.

2.2 **Non-Functional Requirements**

- Use the existing templates and features [5].
- Include the old database in the system (history of the association).
- Provide the virtual platform at the deadline agreed.
✓ Use a simple Graphical User Interface (GUI) in French and Arabic (especially for registration forms) [6].

✓ Choose the most accurate plugins that are friendly and include clear and meaningful icons, text, buttons, etc.

✓ Assure security, in terms of confidentiality of many information and electronic files.

✓ Provide a virtual platform that is compatible with windows XP/7/8 and Mac OS.

3. Software Selection Criteria

Fitting with the association’s needs, the most suitable tool to be used is a **Content Management System (CMS)** [1]. The latter is a system that will facilitate the management of the virtual platform in terms of creation, modification and elimination of content, since it leverages web-based publishing as well as controlling format and revision. It is an appropriate tool for allowing users to change Web content, which includes the feature adjustment of legal electronic documents formatted into HTML or PDF format for the virtual platform. Additionally, the board members of the association can track the posted files through the indexing of data using keywords and retrievals. Based on design and implementation, the choice of CMS technology was due to the geographical dispersion of Mimouna Foundation members in Morocco, so the electronic data forms can be more accessible throughout this virtual platform.

In fact, the selection of the most appropriate tool that will be adapted in designing this virtual platform, so that it would fit the association’ requirements, was a difficult choice. The main aim was to reduce time, improve system quality, make an operational design, and able any user (from any field of proficiency) to use it efficiently. Therefore, a content management system was a good choice, one that satisfies the needed software criteria for this kind of web management system. CMS and other blogging platforms simplify publishing and sharing
information in a cost effective way via a group of applications and tools that facilitate the organization of electronic data through creating, editing, reviewing, and publishing, in addition, to many web-provided features and options to index and search documents using different engines.

Not every CMS fits the requested requirements; as a result, a search through the open source community was performed to find the tool that best supported the most important needs for the platform and could be customized to provide an appropriate solution. The investigation yielded three CMS choices:

- **Moodle**: Designed for educators and learners to build a personalized environment within a secure and robust integrated system. But it copies not suitable for this kind of projects since it has a lack of flexibility especially in terms of video customization, CMS integration, layout, colors, and plugin functionalities. [8]

- **Drupal**: A CMS that allows several levels and varieties of categories for content types. Unfortunately, there are many constraints regarding changing appearance as well as adding non-content elements. [9]

- **WordPress**: This is the CMS that provides the best solution, since its real power is manifested in plugins, of which there are more than 38,000 available for free in the official WordPress plugin directory. It began as a personal publishing system by 2001, but it progressed into a complete CMS in 2008. It is made using fully tested programming languages including (PHP and SQL) in order to achieve any task asked of a website. [3] The usefulness of WordPress is concretized through its web template system:

  - **Themes**: This is done through installation and switching between themes by allowing users to change functionalities using WordPress standards that include PHP, HTML and CSS. Designers can acquire free and/or premium themes purchased by
marketplaces or private developers. Otherwise, users can develop and build their customized themes to get advanced features depending on their needs. [4]

- **Plugins**: WordPress is mainly designed to maximize the flexibility and at the same time minimize code bloat. Thus, plugin architecture can extend and personalize the function of a website or a blog, which fits accurately with the modules of Mimouna Foundation virtual platform. Users can have access to this feature (widgets and navigation bars) throughout client portals using search engine optimization that is considered as an internet marketing strategy [4]

- **APIs**: This is a plugin/theme/add-on that stands for ‘Application Programming Interface’ parted into several sections and topics built by WordPress project.

Also, WordPress comprises different templates files as the following [10]:

- **Header.php**: This is related to the header and navigation that can be edited within the php file or through the Admin Panel.

- **Index.php**: This displays the posts of the virtual platform (website) that contains a loop as PHP codes. It is displayed in excerpt or full-length form in the front or a separate static page of the website.

- **Home.php**: This displays the home front page as well blog post index.

- **Front-page.php**: This template displays the front page.

- **Page.php**: This displays the title of the page within its content.

- **Single.php**: This concerns all the detailed information concerning the template file.

- **Category.php**: This controls the way category pages are displayed.

- **Author.php**: This is concerned with the author page that should be displayed.

- **Search.php**: This is related to the search result page to be displayed.

- **404.php**: This informs that the post or queried page is not found by WordPress.
> **Footer.php**: This file is used to change the footer of every web page of the website so that JavaScript code should be added before the `</body/>` tag.

> **Comments.php**: This concerns the way comment need to be displayed.

> **Style.css**: This is a sheet file of WordPress used to manage the design and layout of the web pages.

> **Sidebar.php**: This concerns the way the sidebar is displayed.

> **Functions.php**: This is meant for users who are looking to customize their themes’ features. This is not provided by all WordPress themes, so it needs to be created under ‘wp-content/themes/ThemeFolder’ within PHP functions.

> It was concluded that, due to its rich set of plugins, WordPress is the best content management system to be used to satisfy the association’s requirements within a user friendly interface, easiness of use, cost effectiveness and flexibility.

### 4. Choice Validation

In order to make sure that the virtual platform satisfies the requirements of Mimouna foundation with regards the user interaction with the website and its features, a survey was carried out with some members, in order to ensure the usefulness of the functions despite the fact that users may not be specialized in the field, in addition to verify the fulfillment of specifications (Appendix A).
IV. System Architecture

1. Webmin Server

The server, where the website of Mimouna foundation is hosted, is managed by Webmin. The latter is a web-based system that let the designer control services as well as configure open source applications [12]. This is an online interface that allowed the management of the server (operating system of the hosting machine), and through it the creation of virtual hosts can be done which contain WordPress and the PhpMyAdmin online database [11]. It includes two modules:

- **Usermin**: It controls features (user tasks) of Webmin.
- **Virtualmin**: This is the control panel that controls hosting websites under specific domains through a user friendly interface that help the user of the server to manage easily the website.

2. Mailing system

The mailing system used in this virtual platform is ‘Round Cube’[13], which is an open source free solution coded mainly in PHP. It offers a friendly user interface that allows the creation of email to be hosted in an IMAP (Internet Message Access Protocol) web server that manages email messages and stores them. Accordingly, Mimouna Foundation members will have their own mailing system to communicate within their personal domain part ‘@mimouna.org’. For instance: ‘sarah@mimouna.org’ which will be applied to all members. An administrator (board member) will be enabled to add and delete users’ emails accounts based on membership status.
3. Database Management System: PHPMyAdmin

WordPress offers a bench of free applications coded in PHP, to manage MySQL databases. The queries are ran, optimized and repaired by the user through creating, altering, dropping, deleting, importing and exporting tables (columns, relations, indexes, users,…). The latter is called PhpMyAdmin [11] software that is integrated as well in the CPanel so that the user can execute any SQL statement using the interface. This online database supports LTR (left to right) and RTL (right to left) languages within 72 translations available.

4. Virtual Platform: Mimouna.org

4.1. Database Design

The database design is shown in Figure 1.

4.2. Plugins Used

- **Embed Any Document**: WordPress plugin for embedding forms, meeting minutes or any other form that concerns Mimouna Foundation into the virtual platform pages. It is a suitable tool that displays documents without the need of many browsers like Flash or/and Acrobat Reader.

- **Layerslider WP**: A premium plugin that displays nice sliders on the website (the homepage slider) by generating visual arts gallery, multipurpose slideshows with effects within WordPress effects. In this virtual platform, html codes were customized to get personalized multimedia contents.

- **Nav Menu Roles**: The pro-version of a plugin that is based on user roles by making menu items appear depending if the current user is logged in or not. It is flexible in terms of customizing functionalities by customized labels in every check box. Thus, this plugin is useful in hiding and showing Nav Menu items.
Figure 1. Database design

- **Profile Extra Fields:** This plugin extends WordPress basic profile fields to include customized ones such as CIN (identity number), Phone Number, etc.

This is an efficient tool to extend the functionality of a profile or/and
registration page that includes social media accounts like (Twitter, Facebook, etc.).

- **Unyson**: A powerful page builder that simplifies to users building nice WordPress pages, so that maintenance or any further modification can be easy even for users without coding knowledge. This is a framework that is based on dragging and dropping theme through 10 built-in extensions: Backup, Mega Menu, Portfolio, Drag & Drop Builder, Shortcodes, Slider, SEO, Breadcrumbs, Sidebars and Styling.

- **WP Accounting**: This is a plugin to add accounting functionality to WordPress, to be used for adding the association’s income and expenses within generated financial reports.

- **Events**: This WordPress plugin can be embedded within any page to show the upcoming events. Events can be easily added from the dashboard by allowed members.

- **User Role Editor**: This is a plugin that lets the administrator set specific permissions depending on the logged in user rank, either Board Member, Normal Member or just guest.

- **Scifi Task Manager**: It allows the administrator to assign tasks to different members, set deadlines and view progress.
4.3. User Roles

4.3.1. Board Members

Administrators (Board Members) have access to the whole virtual platform by being enabled to edit events, tasks, finance, pages, profiles, documents and features are enabled for administrators as well as creating new users. They also have user modules to manage access of members, especially communication members who are privileged.

4.3.2. Members

- **Communication members** have privileged access (allowed by board members) by being enabled to edit pages, press (releases), Multimedia (images/videos) and events as well as view tasks, user profiles, documentation and Archive.

- **Normal members** have restricted access to modules and functions. They are not allowed to edit, they only view tasks, Events, User profiles, Documentation and Archives.
V. STEEPLE Analysis

1. Social

The social impact of the Mimouna Foundation virtual platform is highlighted by creating an environment where members can be linked virtually to overcome geographical constraints, and keeping all Foundation’s members updated about the different events, tasks, meetings dates and future actions.

2. Technological

The chosen content management system, WordPress, fits with the association’s requirements in terms tools and features offered. It is the world’s most popular CMS, modernized with thousands of plugins available for free, and allows small modifications that need PHP knowledge to alter data fields.

3. Economic

The Mimouna Foundation virtual platform will have a slight economic impact, since the foundation is a Non-Profit organization with the vision of promoting Moroccan Jewish culture via events that generate no financial benefits. However, the association organizes occasionally fundraising actions supporting a number of projects with a remarkable influence on society. Moreover, the intended platform would able to support communication with a number of targeted social and commercial organizations; as a result, building a profitable and fruitful social network, which can partially elicit many job offerings, especially for graduating students. Such a situation will provide needed benefits for both board and normal members, encouraging them to invest more in the activity of the foundation.
Lastly, the financial part of the platform will enable board members to work more efficiently and transparently, and give clear accessibility to all financial data, in addition to allowing all members to establish a financial accountability with respect to the association.

4. Environmental

The virtual platform will have no direct impact on the environment. However, it can influence people by publishing, promoting and encouraging environmentally friendly events and activities through using electronic soft copies rather than hard copies.

5. Political

The virtual platform will have no direct political impact, and has no diplomatic vision. Yet, the association is gathering resources that many political entities use.

6. Legal

Legally, the association is holding confidential information about members in addition to the entities that it deals with. Hence, permission is needed for all documents, publications and posts coming from external sources, which should be appropriately credited. Consent is also needed in order to divulge personal data (such as pictures and other personal details).

7. Ethical

The Mimouna Foundation virtual platform will enforce ethical behaviors among the members by allowing them to have access to all the archives and documentation, as well as the multimedia side which reflects an aspect of transparency. The task update function within the calendar will assist each member in having greater visibility of his/her own tasks as well as that of other members, which will promote greater responsibility among members with respect to the tasks assigned to them. In case there are any constraints, users can give their
suggestions through the suggestion box to help the board improve the work of the association.

VII. Results

1. Webmin Server

This is the server where the website is hosted represented as the following:

- **WebMin part:**

![WebMin part of the server](image)

- **Figure 2. WebMin side of the server**
- VirtualMin part:
  - To control and manage the database from the server:

> Figure 3. VirtualMin side of the server (database window)
- The PHP files connected to the database:

Figure 4. PHP files

- To control FTP (File Control Protocol) users (communication between client and server):

Figure 5. Users Management (server)
2. User Roles

- **Dashboard:**

  ![Dashboard Image]

  **Figure 6. Dashboard**

- **Front end:**

  ![Website FrontEnd Image]

  **Figure 7. Website FrontEnd**
3. Database: PhpMyAdmin

There will be only one administrator who will have access to PhpMyAdmin to edit MySQL database relatively within credentials:

![Login to PhpMyAdmin](image)

Figure 8. Login : Online Database

- Page titles connected to the server:

<table>
<thead>
<tr>
<th>General</th>
<th>Databases</th>
<th>Text fields</th>
<th>Page titles</th>
<th>Warnings</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Page titles" /></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 9. Connection of PhpMyAdmin to Webmin
4. Survey: feedback of members

The survey was conducted within 2 members of Mimouna Ifrane branch as well as 2 board members of the association in Morocco. The feedback was positive, except regarding the Menu panel settings that need to be well explained throughout tutorials, especially for the administrator, to let him/her to edit easily the platform.
VIII. Future Work

After a whole semester of work on the capstone project, within the fulfillment of the needed requirements, there are still prospective functions that may enhance the virtual platform with regards to requirements and design. Actually, taking many major classes in parallel with my capstone, in addition to many other responsibilities, constrained my time toward a better development and design. To improve the web interface, more improvements can be done to make it more friendly and intuitive by buying more premium WordPress Plugins for a better customization. The idea behind my capstone project is distinctive since it enriches the users’ knowledge regarding many technical tools, despite the fact that they may not be specialized in the field. Accordingly, here the usefulness of WordPress is noticed. Also, it will be efficient and worthwhile to work on a system accessible throughout a mobile virtual platform as a useful future work.
IX. Conclusion

After completing this capstone project, I can now look back and see how much I have learnt and grown as an engineer. As a future graduating student from Al Akhawayn University, I got a vision that incorporates values based on the perception of development, progress and continuous improvement. Hence, my leadership within the student activities office was considered as a crucial factor in acquiring creativity, organization and management.

Throughout this capstone project, there were many constraints encountered. The key one that picked my interest is that most implemented approaches demand the right behavior of the user. For this reason, I am preparing a video so that I can concretize the steps to be followed to simplify the use of the Mimouna Foundation virtual platform.

Finally, I can say that working with a content management system was a skillful experience for me. It was an opportunity that has long term professional and personal goals, by learning new technologies and tools on a practical level. Perhaps the most important thing that I have learnt through this internship is the following: As an engineer, I should adapt to the needs of the market/client, not try to impose my own vision of how things should be. Indeed, it is constant adaptability that is the hallmark of a true engineer, as Carl Sagan said “Science is a way of thinking, much more than it is a body of knowledge”.
References


Appendices

Survey sample

Mimouna Virtual Platform

Instructions
Answer questions based on your use of the website. For most answers, check the box (es) most applicable to you or fill in the blanks.

About You

1. Do you find it easy to navigate through the platform?
   (Select only one.)
   □ Yes
   □ No, why:

2. Are the tabs clear enough to indicate the rubric they represent?
   (Select only one.)
   □ Yes
   □ No
   ⇒ What do you suggest as tabs to be added:

3. What needs to be added to the platform in your opinion?

4. Does the platform respond to your needs as a Mimouna member?
   (Select only one.)
   □ Yes
   □ No
   ⇒ What do you suggest to fulfill the needs?
TUTORIAL 1: Add user to mailing system

⇒ The admin user should login into the Webmin (VirtualMin part) and click on ‘edit user’ to get the following interface:

⇒ Then he/she will click on ‘Add a user to this server’ and fill all the related information in order to create an email in RoundCube system:
TUTORIAL 2: Managing the Virtual Platform Dashboard

⇒ Connect into ‘www.mimouna.org’, then login with the assigned credentials:

⇒ Connect into ‘www.mimouna.org’, then login with the assigned credentials:
⇒ Add a user to the virtual platform (Users in the left) by clicking on ‘Add new User’ to get following window:

⇒ Add an event to the virtual platform (Events in the left) by clicking on ‘Add new Event’ to get following window:
Manage tasks within the priority, status, task id, Title, to whom the task is assigned in addition to the date and deadline of the accomplishment of the task:

Managing the media functionality by adding, deleting or modifying any picture, album or and video:
Managing the accounting with regards to the expenses and sales:

<table>
<thead>
<tr>
<th>Expense</th>
<th>Amount</th>
<th>Vendor</th>
<th>Date</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gathering</td>
<td>MAD</td>
<td>No Vendor Assigned</td>
<td>05/03/2016</td>
<td></td>
</tr>
<tr>
<td>Communication</td>
<td>MAD</td>
<td>No Vendor Assigned</td>
<td>05/03/2016</td>
<td></td>
</tr>
<tr>
<td>Housing</td>
<td>MAD</td>
<td>No Vendor Assigned</td>
<td>05/03/2016</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>MAD</td>
<td>No Vendor Assigned</td>
<td>05/03/2016</td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>MAD</td>
<td>No Vendor Assigned</td>
<td>05/03/2016</td>
<td></td>
</tr>
</tbody>
</table>
Then the accounting entries are generated in the following window: