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Software Project Management Plan

Software Project Management
for
MamoBooks

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Version Release	Responsible Party	Major Changes	Date
1.0	MamoCoin Team	Baseline SPMP	2/8/2018

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1. Introduction

The goal of this project is to build an accounting system made available online to be accessed and used for small businesses.

1.1 Project Overview

MamoBooks is an application that can be accessed through various devices via web application. It will be SAAS subscription service which registered users will have access to using industry standard security. This will be an Open Source platform under the Apache License 2.0. As an overview, MamoBooks will be able to chart accounts, journalize transactions, store any additional and/or supplemental documents to MamoCloud, effectively search and display transactions, post transactions with optional administrative procedure and rights, create trial balances for review, and produce ration analytics.

1.2 Project Deliverables

1. Project Proposal
2. Software Requirements Specification
3. Software Design Document
4. Software Test Plan
5. A working accounting web application with Documentation

1.3 Evolution of the SPMP

The basic template to be used is derived from IEEE Std 1058-1998, IEEE Standard for Software Project Management Plans. Sections were eliminated and added as a team.

1.4 Reference Materials

"Accounting Database Design." *Simple Accounting - Database Design*,

simpleaccounting.freeservers.com/database.htm.

“Accounting Databases.” *Data Base Answers*, www.databaseanswers.org/data_models/.

DigitalOcean. “LAMP Stack Tutorials | DigitalOcean.” *Tutorials* | *DigitalOcean*, Digital Ocean, www.digitalocean.com/community/tags/lamp-stack?type=tutorials.

LinkedIn. “Lynda Accounting Principles .” *Lynda Business and Accounting Library* , LinkedIn, www.lynda.com/.

“WordPress.org.” *WordPress Codex*, WordPress, codex.wordpress.org/.

2. Project Organization

2.1 Process Model

This project will follow the Agile process model, using 2 week sprints. Through this process we will tackle modules of the project one at a time, while simultaneously training ourselves in the product domain. During each sprint we will iterate through planning, analysis, design, coding, unit testing, and acceptance testing. After each sprint, the respective module will be demonstrated to the stakeholders to assure product correctness.

2.2 Organizational Structure

The Project Manager will have direct communication with the stakeholders and will serve as a go between for the rest of the development team. The remaining four project members, Lead Architect, Technical Team Leads, and Marketing Team Lead will compile project deliverables and pass them off to the Project Manager for final approval with the stakeholders.

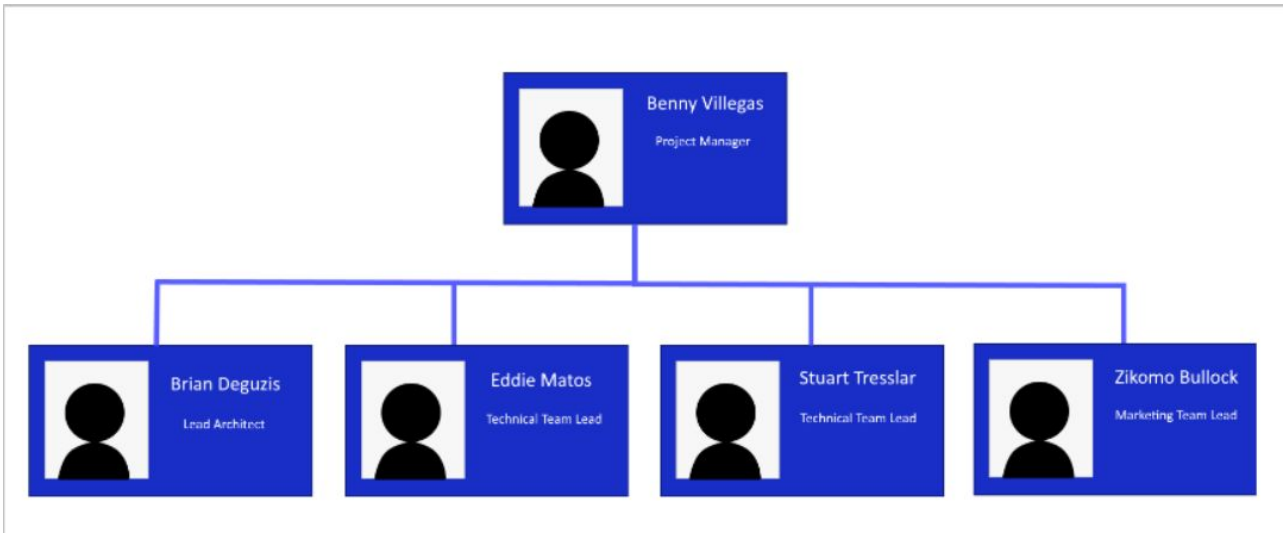

Figure F-2: Organization Chart

2.3 Organizational Interfaces

The only managerial interface for this project is our main stakeholder Dr. Ermias Mamo, whose contact information is as follows:

Organization	Liaison	Contact E-Mail	Contact Phone Number
Kennesaw State University	Dr. Ermias Mamo	emamo@kennesaw.edu	470-578-3790

Table F-1. Project Interfaces

2.4 Project Responsibilities

Role	Description	Person
Project Manager	Leads project team, responsible for project deliverables	Benny
Requirements Engineers	Ability to ascertain the different requirements needed to fully complete the project.	Stuart, Eddie, Benny
Software Design and QA	Create design of the application and responsible for testing and quality assurance.	Brian, Zikomo, Eddie, Benny
Software Programmers	Experience using LAMP and web development networking and the ability to program based on an initial product description.	Benny, Brian, Zikomo, Stuart

Table F-2. Project Responsibilities.

3. Managerial Process

3.1 Management Objectives and Priorities

When managing this project, our philosophy is to be flexible enough in the schedule to allow for our team members to not feel too pressured to hit a hard deadline. With how wildly different each team member's schedule is, some leeway will need to be added to account for any unseen setbacks. Our main goal is to make sure that we at least get the preliminary modules completed before they are required for a future module. We also don't want to add in any unnecessary features that the customer did not ask for, that way time and effort can not be wasted and can be better spent implementing requested features or improving currently implemented features.

Cost associated with this project is not in terms of monetary costs, but instead in hours worked by team members. Monetary costs are not factored into this document or overall project.

Project Dimension	Fixed	Constrained	Flexible
Cost		X	
Schedule			X
Scope (functionality)	X		

Table F-3: Flexibility Matrix

3.2 Assumptions, Dependencies, and Constraints

The team's biggest time constraint is that the project must be completed by the end of the Spring 2018 semester. Within that major deadline, we will have two-week constraints to finish specific modules leading up to the final deadline. On an individual basis, each team member is also constrained by their own schedule, so they might have strict time allotments to work on this project.

It is assumed that the team will be given their goals within the two-week bursts from the professor. These goals will be the immediate priority and once that functionality is finished, the team will work on the next upcoming feature or design.

The project will depend on the functionality of a web-hosting service so the application can be accessed from a web browser. This application also depends on internet access, as it won't be a downloadable application and only accessed through a web-browser.

3.3 Risk Management

Risk 1: Lack of Domain Knowledge - This risk can arise during any step of the product creation. The earlier this risk can be addressed, the better, as an error in design will affect all subsequent parts of the project. This risk can be mitigated by allowing the team to do further research into accounting and into how to best use that knowledge in making the product.

Risk 2: Lack of Necessary Programming Knowledge - This risk can arise mainly during the implementation phase. This risk occurs when a team member has been assigned a task that is out of their range of skills. This risk can be addressed by having the task re-assigned or to have the team member do research into how to accomplish the task.

Risk 3: Unplanned Schedule Issues - This risk can arise during any step of the product creation. This risk occurs when a team member has an issue arise in their schedule that

will directly impact their contribution to the project. This risk can be mitigated by having the team try to get their tasks completed earlier or having the affected task re-assigned to another team member.

For other risks Team MamoCoin expects to see during the development process, please refer to 6.2.1 Expected Risks Chart

3.4 Monitoring and Controlling Mechanisms

Any progress reports are to be posted on the Discord channel so all team members can be updated with the current status of a module. Any changes made to a document should be noted in the appropriate changelog within the document and then be posted to the Discord channel for all team members to see. There will be a weekly meeting to discuss where each team member is within their own task and if they are within the time goal given to the team.

3.5 Staffing Approach

We will not be hiring on any extra personnel into this project, instead we will have a team of 5 for the entirety of the project life-cycle. Team members and roles are stated in Table F-2.

4. Technical Process

This section will will provide an overview of Team MamoCoin's technical process.

4.1 Methods, Tools, and Techniques

The web application will be developed using LAMP Stack and utilize PHP, MySql, Javascript, HTML, and CSS computing languages. The team will be utilizing the Agile software development methodology and work in two week sprints. Within these sprints, different modules and tasks of the application will be completed as the team expands their knowledge of the accounting application domain.

4.2 Software Documentation

The documents that shall be built for this project are a Software Requirements Specification (SRS), a Software Design Description (SDD), a Software Test Plan, User Documentation and finally our plans for Project Support Functions.

4.2.1 Software Requirements Specification (SRS)

The SRS clearly identifies the requirements of the product being developed by the team. It will specify the functional and non-functional requirements of the web application, contain a use case diagram, and also specify quality attributes for the web application to abide by.

4.2.2 Software Design Description (SDD)

The SDD will identify the major components of the software's design and also include information regarding the databases and internal interfaces to be used within our web application. It will also identify any Commercial-Off-The-Shelf (COTS) components that were used in conjunction with the application.

4.2.3 Software Test Plan

The Software Test Plan will describe the testing methods utilized at all levels of development and integration. Due to the nature of web applications and the methodology being implemented, there will be a great deal of Integration testing to ensure that each software component will not only work alone, but also be able to work with other software components. Above all else, Mamobooks must provide validation and verification with all accounting actions.

4.3 User Documentation

User documentation will be provided via a CD/DVD and provide help regarding many of the application's functions and provide instructions in detail on how to utilize them.

5. Work Packages, Schedule, and Resources

Mamobooks will require a team of five people. One general project manager and three other developers each with front-end, back-end, design, and QA experience. These individuals will be developing with certain work packages and under resource constraints.

5.1 Work Packages

Our development environment will be dependent on the LAMP stack due to the fact that it's free, open source, and really powerful. The Apache HTTP server makes up the important part of the LAMP stack and is a free, open-source web server that we will use. It is by far the most popular web server in use today (for now).

In terms of where MamoBooks alpha will be hosted, Team MamoCoin will be using Digital Ocean. On DO, we will spin up a VPS with 2GB of memory, 2 vCPUs, 80 GB of SSD Disk space.
Digital Ocean offers these resources for $20 a month or $0.030/hr.

With DO, we will have control over DNS to route MamoBooks' exisiting domain, set up Cloud Firewalls to increase VPS security, implement load balancers to distribute traffic effectively, and even install alert policies for monitoring and response to MamoBooks' clients.

5.2 Resource Requirements

Human Resources:

Job Title	**Number Needed**	**Skills**
Requirements Engineers	3	Ability to ascertain the different requirements needed to fully complete the project.
Software Designers and QA	4	Ability to test the product based on black-box testing and integration testing.

Software Programmers	4	Experience using LAMP and web networking and the ability to program based on an initial product description.
Project Manager	1	Ability to manage the different phases of the software development cycle.

Other Resources:

Tool Name	Description
Digital Ocean	Programming environment being used in development of the product
LAMP	Necessary framework required. Includes Linux, Apache, MySQL, PHP
FTP Clients	Necessary for access into the server repository, given with write, right, execute rights
Brackets	Text Editor for Web Development
Browser Stack	Necessary for running the web application

5.3 Schedule

Task ID	Task Name	Description	Person Hours	Est. Time Allocation
Sprint 1	Planning	SPMP	12	1 week (8-Feb)
Sprint 2	Module 1	Dr. Mamo will announce / Software Requirements Specification Software Design Document Software Test Plan	40	1-2 week(s) (Date TBA)
Sprint 3	Module 2	Dr. Mamo will announce/ Software Requirements Specification Software Design Document Software Test Plan	40	1-2 week(s) (Date TBA)

Sprint 4	Module 3	Dr. Mamo will announce / Software Requirements Specification Software Design Document Software Test Plan	40	1-2 week(s) (Date TBA)
Sprint 5	Module 4	Dr. Mamo will announce / Software Requirements Specification Software Design Document Software Test Plan	40	1-2 week(s) (Date TBA)
Sprint 6	Module Integration	Developmental focus on combining all modules / Alpha testing	40	1-2 week(s) (Date TBA)
Sprint 7	QA/Documentation	Begin working on our “DVD” / Beta Testing	40	1 week (Date TBA)
Sprint 8	Finalize and Deploy	Review our deliverables, presentation, and deploy MamoBooks into live production	20	1 week

6. Additional Components

6.1 Index

Term	Definition
Agile Development	Agile development describes an approach to software development under which requirements and solutions evolve through the collaborative effort of self organizing cross-functional teams and their customers/ end users. It advocates adaptive planning, evolutionary development, early delivery, and continuous improvement, and it encourages rapid and flexible response to change.
SRS	Software requirements specification is a description of a software system to be developed. It lays out functional and non-functional requirements, and may include a set of use cases that describe user interactions that the software must provide.
SDD	Software design document is a written description of a software product, that a software designer writes in order to give a software development team overall guidance to the architecture of the software project.
STP	Software test plan is a document detailing the objectives, resources, and processes for a specific test for a software or hardware product. The plan typically contains a detailed understanding of the eventual workflow.
WP	WordPress is a blogging platform that is owned and hosted online by Automattic. It is run on WordPress, an open source piece of software used by bloggers.
DO	Digital Ocean is an American cloud infrastructure provider headquartered in New York City with data centers worldwide.
LAMP Stack	Linux, Apache, MySQL, and PHP
VPS	Virtual Private Server is a virtual machine sold as a service by an Internet hosting service. A VPS runs its own copy of an operating system (OS), and customers may have superuser-level access to that operating system instance, so they can install almost any software that runs on that OS.

GB	Gigabyte a unit of information equal to one billion (10^9) or, strictly, 2^{30} bytes.
DNS	Domain Name System is a hierarchical decentralized naming system for computers, services, or other resources connected to the Internet or a private network. It associates various information with domain names assigned to each of the participating entities.

6.2 Appendices

Other referencing material.

6.2.1 Expected Risk Chart

Risk	Rational
Incongruence of project language experience	The team was not formed based on the members' preferred programming language. Development of the project may be hindered by some understanding the language being used more than others.
Over-specialization of Tasks	It may occur that assigning individual team members an individual aspects of the system without proper understanding of how it interacts with the system as a whole may result in schedule delays or bugs.
Overestimation of Group Consensus	Limited schedules may mean that group discussion and planning of the system may become more abstract than it should be. This could lead to potential confusion with team members in regard to the plan ahead.
Schedule Overrun	Unexpected difficulties regarding a specific task or with the group's ability to collaborate in person may result in a failure to follow the previously developed schedule.
Inexperience with Accounting Principles	Inexperience with accounting principles can lead to some unreliable output.
Misunderstanding of Project Requirements	Misunderstanding of project requirements can lead to incorrect software.

Inability to Communicate with Team Members	It can be hard to communicate with every group member which can lead to problems completing the project.
Inability of Team Members to Complete Assigned Parts.	An inability of team members being able to complete assigned parts can lead to incomplete deliverables