**Homeowner Association and Property Management Application**

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CSC480A Computer Science Capstone Project I

Project Proposal

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# Introduction

Our project consists of a mobile application that allows its users to submit work requests, such as exterior and interior home augmentation, to their Homeowners Associations for approval. An application like this has several benefits in today’s business environment. First, we believe it will improve communication between homeowners and the Homeowners Association, along with expediting the approval process for the desired work. Second, we believe the application will offer a better way for the Homeowners Association to track projects and homeowner requests within the community.

# Background and the Need for the Project

A key part of Homeowner Associations has been the communication between homeowners and the association’s board of directors. Excluding financial exchange for membership, there exists a need for members to communicate with the Homeowners Association to obtain approval for changes to the exterior and interior of their homes. This is traditionally done using phone communication and paper forms that need to be submitted for processing by the board of directors. The board members may also need to communicate new Covenants, Conditions and Restrictions to the Homeowners Association members, which is typically done through a notification placed in the homeowner’s mailbox or taped to their door.

This process is inefficient and error prone, physical copies can be lost and the homeowner has no record of the progress of the approval for their request. The Homeowners Association must spend time to keep track of all requests and any physical notifications to the homeowners may also be lost. Implementing an application to handle communication between homeowners and the board of directors will provide a digital record that can be tracked by all parties. It will nearly eliminate the need to maintain and track any physical paperwork and allow all homeowners access to the most current Covenants, Conditions and Restrictions.

# Project Objectives and Scope

The objective of this Homeowners Association application, from the board of directors and homeowners perspective, will provide a streamline ability to submit and view work requests. The work requests submitted by homeowners might include, but are not limited to, changes in yard configuration, replacement of outdoor light fixtures, and the repairing or replacement of electrical or plumbing components. Work requests can be made by providing homeowner contact information along with unit number and a description of the desired work, attaching images to their request as needed. The work requests submitted will be reviewed by board of directors for pre-approval and final approval. Upon pre-approval, homeowners must provide contractor information, if necessary, along with contact information and appropriate licenses of said contractor. Homeowners will also need to attach a quote from the contractor, if necessary, and date(s) of intended work. Once the request is approved by the board of directors the homeowner can set their appointments and begin work. The board of directors will also be provided with a means of viewing requests, communicating with the homeowner, adjusting approval levels, and monitoring the progress. The board of directors will also be given the ability to maintain a community calendar as to monitor the work that is in progress or is set for a future date.

The scope of the Homeowners Association application is relatively straight forward. The application will require the user, homeowner or board member, to login to the application. The login will establish the identity of the user and their residence or if they are a board member. Once logged in, the homeowner will be able to not only create new work requests but also view, the community calendar, create or edit their requests and its status, as well as provide and receive feedback and documentation about the job performed. Additionally, the homeowner will be able to cancel their requests at any time during the process. Not only will the Homeowners Association application provide homeowners with a portal for making requests, but the board of directors will also be able to log in and review requests, provide feedback to tenants, maintain a community calendar, and ultimately approve or deny requests.

# Customers and Stakeholders

For the Homeowners Association application, the stakeholders of the project are the Homeowners Association board of directors, the homeowners and our team developing the application. Communication will be maintained with homeowners on issues of concern or type of problems they want to commonly report to the Homeowners Association board of directors. In addition, the homeowners can correspond with the us to discuss the best way serve their needs of communication with board of directors. The Homeowners Association board of directors will be provided a portal that allows the tracking of work orders and its progress, as well as functionality to provide feedback. Ultimately, we expect the board of directors to be the end customer and financially support the development of this application. Having these stakeholders interact with their portion of the system will help us define if there are any overlapping portions between the groups that we as agile developers must account for during planning.

# **Project Requirements**

For each of the major objective above, based on the customer need, list the performance expected from the customer and these will drive the architecture, platform and other design criteria. There may be other performance requirements not related to the objective. Break the requirements as functional (features from customer/owner) and non-functional. Suggest creating a table with list of the objectives from 3.0 above and the expected performance for each one. There could other indirect performance expectations too – e.g. downtime and recover timings; reports, metrics, etc.

Performance expectations also become criteria for testing.

High level use case scenarios

Break down the requirements in to three subsections as shown below.

## Functional Requirements

## Non-Functional Requirements

## 5.3 High Level Use Case Scenarios

# 6.0 **Project Assumptions and Constraints**

List all the project assumptions as you start the project

Constraints could be budget, time, staff, technology, etc.

List any project priorities as a part of this section

# Project Delivery Methods

Clearly state how the customer is expecting the system to be delivered – website, mobile or both

What are requirements from the customer’s perspective required on their system to run, if any. This would apply to enterprise systems.

# Project Issues and Risks

List all the items that are obstacles now (issues) and in the future (risks) that would prevent the team from accomplishing their project objectives. Categorize the risks as low, medium and high on their impact to the project to complete.

Also, propose mitigations for the risks.

Simple and effective approach for this is to create a table (see sample below). Add additional columns as needed (e.g. due date) for tracking during implementation

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Issue or Risk Brief Detail | Risk Probability:  High, Medium, low | Mitigation Plan | Responsibility | Status: Open, WIP, closed |
| 1 |  |  |  |  |  |
| 2 |  |  |  |  |  |
| 3 |  |  |  |  |  |

(Instructor’s Note – all above 8 sections are due at the end of second week).

# 9.0 Evaluation, Selection of Technology and Tools for Project Implementation.

The teams would need to do some research for the appropriate technology and tools for the project. Implementation/development requirements: Software, hardware, network, database, platform, etc. Although the goal is not to do any implementation in this first course, but identification of technology and tools are needed at this stage.

# 10. Product Backlog: Prioritized Feature List and Effort Estimates (hrs.)

Breakdown the project main requirements in to prioritized feature list for implementation by the Agile team with estimates for each. This would be the first pass at this stage.

# 11.0 Initial Architecture Design

This will be the initial design aspect when the team designs the high-level architecture using Object Oriented design principles: students should identify the top-level subsystem and components and how they are interconnected. UML activity and class diagrams, objects, etc.

Include a brief description of why the team chose this approach.

(Instructor’s Note – all the above 11 sections are due at the end of 3rd week).

# 12.0 Agile Team Formation, Responsibilities and Implementation Iterations (schedule).

12.1. Team Responsibilities: Individual team member assignment will be listed per the Agile process requirements. Project Manager/Scrum Master, Architect, coder, tester, etc. In a small team, one might wear more than one hat. But the responsibilities must be clear. Also, the specific times for meeting each day (as required by the Agile team – need to be agreed up at this stage which guarantees everyone’s participation and contribution. The project manage/scrum master should be given authority to call upon other as required to help meet the iteration goals.

12.2 Iteration Plan: The team should decide the implementation of the prioritized feature list within the 4 iterations for the rest of the eight weeks with each iteration being 2 weeks.

The team will list here the feature(s) that will be completed and working in each iterations and demonstrable. Again, simply create a table for each iterations.

Part of the last iteration will include a final project presentation during the last session of the class (CSC480C) to the Chair and other School Faculty and submitting a final project documentation as required by the Instructor.

# 13.0 Conclusion

Brief summary of this project proposal and the plan to implement it using Agile methodology in iterations/sprints.

# References

# Appendix 1 - Proposal Plan Responsibility List

|  |  |  |  |
| --- | --- | --- | --- |
|  | **CSC480A Project I - Proposal Plan and Responsibility List** |  |  |
|  |  |  |  |
| **Project Section** | **Section Title** | **Author(s)** | **Reviewer(s)** |
| **1** | Introduction | Thomas J Lowe | Revanth Sai Matha |
| **2** | Background and Need for the Project | Brian Spencer Hurst | Matthew Parra |
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| **12** | Agile Team Formation, Responsibilities and Implementation Iterations (Schedule) |  |  |
| **13** | Conclusion |  |  |
|  |  |  |  |

# Appendix X

# Attachments, if any.

# List of Abbreviations

# Definitions

(Instructor’s Note – the full document is due at the end of 4 weeks).