Software Project Management Plan

Software Engineering

The Interior House

An Online Marketplace for Interior Design Products

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Introduction

Project Overview

The goal of the project is to build an Interior Marketplace web application. The Interior House web application will be the first-of-its-kind marketplace for Interior products. The web application will conglomerate all the various offline and online interior companies into one place where users can easily find their requirements. The application should be easy to use and give the end users a simple and fast shopping experience. The application will be developed using open, standards-based technology that facilitates integration with other systems, additional development, and significant scalability.

Project Deliverables

We will deliver to the customer at the completion of the project all the following

Task/Deliverable	Completion Date	Status
Feasibility Report	18/09/19	Complete
Software Project Management Plan (SPMP)	22/10/19	Complete
Software Requirements Specification (SRS)	22/10/19	Complete
Software Design Specification	22/10/19	Complete
Mock Backend setup	05/11/19	In Progress
Mock Frontend setup	05/11/19	In Progress
Implementing API's	05/11/19	In Progress
Refined Backend	15/11/19	Pending
Refined Frontend	15/11/19	Pending
Final Testing	20/11/19	Pending
Release of Product	25/11/19	Pending

We will also deliver a presentation to University faculty. The presentation will cover:

- Software Overview
- Software Design
- A demonstration of the delivered Prototype

Evolution of SPMP

This project management plan is a living document and as such will be subject to change as the term of the project moves forward.

Reference Materials

R. Pressman, Software Engineering: a Practitioner's Approach. Boston McGraw-Hill 2005

Project Organization

Process Model

We will be using the Agile model for planning our product, specifically, the Scrum approach. This will be suitable to our organization because we could divide the team as per microservices and the teams can independently work based on the tasks assigned.

Since this is an online marketplace, the possibilities are endless, and with the help of Agile model we will be able to adapt to changes with low latency. The duration of each sprint will be one week long and we will have sprint retrospectives after each sprint. Each team member will be part of the development team and we will have one product owner and one scrum master.

Organizational boundaries and interfaces

While certain persons will be delegated specific tasks, all of the members shall function as both developers and testers throughout the development of the product.

Project Responsibilities

The responsibilities of the various positions are described below:

- Requirement manager
  - Communicates with the customer
  - Responsible for eliciting all requirements
  - Verifies that all customer's requirements are met
  - Researches existing/competing products
- Project Manager/Lead
  - Oversee all aspects of the project including backend and frontend development and testing
  - Verifies that all requirements received from the Requirement Manager are met by the code.
- Developers
  - Back-End Developers
    - Responsible for setting up and maintaining the database
    - Managing all code for communication between the front end and the database.
  - Front-End Developers
    - Responsible for developing the user interface for the product.
  - Software Developers
    - Responsible for developing all the back-end algorithms (like Recommendation Systems etc.) for the web application.
- Tester
  - Responsible for stress-testing the product and identifying any bugs/faults in the product development phases.

Managerial process

Management objectives and priorities

Team leads will maintain the responsibility of maintaining and containing the project schedule and ensuring that all work items are completed and on schedule. Leaders are also responsible for the creation of all deliverables and scheduling/running meetings.

Assumptions and Constraints

Assumptions

- Operational life : The system is assumed to be active 24*7 once it has been deployed. Until then the system is expected to be operational during all tests and presentations in local environments.
- Skill set : The members of the team are assumed to have sufficient knowledge in all the required areas, such as Web Development, Backend Development, Flask, communications and project management.
- Date of release : The application is supposed to be ready for deployment and release by the end of November. Date of release is assumed to be met on time.
- Development and Operational costs : The cost for managing the server and the databases while running microservices the same are assumed to be sufficient for development as well as operations and maintenance.
- Payments : The application tries to simulate to just initiate the payment. But the actual payment task cannot be performed pertaining to the security reasons.

Constraints

- Availability : Since the initial version of the platform will be hosted locally on small scale servers the availability of the application will be limited to the few hours of voluntarily keeping the servers running.
- Scalability : The platform will not scale as long as it is running on local machines. Assuming that the platform will be built to be easily deployable in a cloud environment, scaling and orchestration can be considered to be out of scope as of right now.
- Updates / Versioning : Since the application source will not be hosted and controlled via any version control mechanism which can be used to roll out patches, the application will be shut down to add or make changes to the code. This in turn affects the availability constraint.

Risk Management

Risk Identification		Assessment					
ID	Description	Probability	Impact	Risk Level	Mitigation	Trigger	Monitoring and Controlling of Plan
1	Inappropriate versions of the tools and components	High	Low	Medium	Select specific versions of tools and components to use.	Functionalities are not functioning in the correct way	Make sure all members of the team are adhering to the versions specified
2	Product team falls behind schedule	Medium	High	High	Careful planning should be done and should be communicated to the team.	Product is nowhere near completion even as the deadline is approaching.	Make sure the team is following the schedule on a daily basis.
3	Hacker corrupts privileged database data	Medium	High	High	Apply security measures on the server-firewall protection, two-factor authentication	Poor security measures are applied. Non-privileged employees can access data easily.	Make sure the security guidelines are being met.
4	Employee may resign and leave	Medium	Medium	Medium	Have a backup plan by cross-training.	Change in behavior of employee. Employee over-qualified for job.	Make sure the cross-training is happening.
5	Accidental loss of valuable information	Medium	High	High	Store most information securely online. Copies of work not stored online will be kept by all team members.	Valuable information is not kept in a safe place and can be easily lost.	Check to make sure that copies of the information is being kept.
6	Team lead may leave	Low	High	Medium	Train a successor to take over the position.	Employee not happy(compensation, career progression, etc.)	Check if successor is being trained.

Monitoring and controlling mechanisms

We will use Git as a version control system to prevent accidental issues from affecting the prototyping code. It is designed to handle everything from small projects to very large projects with speed and efficiency and since it is open source, it is the most ideal version control system to use.

We will use the DevTools in a web browser for debugging, conducting audits and know the internal workings of the web browser.

Technical process

Methods, tools and techniques

The system will consist of an intuitive UI and backend database store.

- HTML, CSS, Javascript - For implementing the frontend.

- Python (Flask) - Server side scripting

- Ajax - In order to make it more efficient and improve the user experience

- MongoDB - To make it more efficient and improve the user experience.

- Chrome Developer Tools - for editing the pages on-the-fly and diagnose problems quickly, which helps build better websites.

Software documentation

All the documentation such as the Feasibility Study, Requirements Specification, Design Specification will be accessible to all the developers and managers. Hence all participants are allowed to review and annotate the documents during the review cycle.

Project support functions

The Project Manager will assign the task of improving ad correcting the software to the Developer. The Developer is responsible for implementing changes as per the request and is responsible to keep the software up to date with the current technology.After the appropriate changes are made, the Developer must ensure that the changes are reflected in the application.

The documentations provide the process and procedures that the management team should follow. The procedures are used to monitor and manage the team by the team leaders, thus providing a clear set of responsibilities for the team members.

Work Packages, Schedule and Budget

Work Packages

A work package is a group of related tasks that are defined at the same level within a work breakdown structure. It is the smallest unit of work that the project can be broken down into. Hence, the work package is divided into three functional sections:

- Software Engineering

  This section encompasses all the essential engineering research, planning, design and required documentation.

- Software Quality and Test

  This section involves testing and validation of the project design and documenting the development process.

- Software Implementation

  This section involves software integration and module programming need for a   successful project implementation.

Budget and Resource Allocation

A resource is any person, item, tool, or service that is needed by the project that is either scarce or has limited availability.One or more resources must be allocated to each task. To do this, the project manager must first assign the task to people who will perform it.Depending on the task, the relevant resources are identified and assigned to it. The resources must be sufficient and must be used effectively.

Budget is developing an approximate value of how much the resources identified are going to cost. The process involves identifying and examining different pricing alternatives with the aim of going with the option that is most profitable for the company without necessarily compromising on quality.

Schedule

The Interior House - an online interior marketplace is expected to take three months from project approval to launch of the system. The system has to be developed from scratch since it's a new idea. The following is a high level schedule of some significant milestones for this initiative.

August 2019 : Initiate Project

September 2019 : Project kickoff meeting

September End 2019 : Ready with the complete design and kickoff the development phase

October 2019 : Complete the individual microservices and start integration

November 2019 : Ready with the fully integrated system and initiate the testing of the software

November Mid 2019 : Final project submission