C868 – Software Capstone Project Summary

Task 2 – Section A

Capstone Proposal Project Name: AppTrack- Appointment Tracker

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Business Problem

The Customer

The customer is OneTech, a computer tech repair shop which is responsible for performing computer repairs and upgrades for its clients. The current computer shop houses 5 employees ranging from computer technicians to mobile technicians. OneTech's main objective is to provide exceptional service to their customers.

Business Case

AppTrack - the proposed software application is an appointment management system that tracks upcoming appointments and stores customers in the database. At any point in time the employee can simply log in to the system and see a list of all the customers as well as their appointments. The employee can add, update, and delete the customer or their appointments. The application also gives 3 report types. The first report displays all the appointments of the selected customer. The second report shows the total number of customers in a specific state, and lastly the third report which displays the total number of appointments based on appointment type. AppTrack is a reliable and efficient way to manage and track customers' information and their appointments. No more double booking appointments by mistake and worrying about the customer information from going missing. The web application will be backed by a powerful, relational database capable of handling the load and also scale to accommodate the significant growth in customer and appointment records.

Fulfillment

AppTrack is an appointment tracking software application designed to be used by OneTech computer repair. This application is backed by a secure login and requires employees to provide correct login information in order to access the application. This prevents non authorized users from entering and manipulating the data. The application is broken into 3 sections. The first section is the appointment management section which holds all customer appointment times. The second section manages all customer contact information(customer id, name, address, phone number, state, and postal code). The

employee will also be able to search for the customer contact with the search bar functionality. The third section is the report section which displays three different types of reports for the employee to view. The first report displays all of the appointments of the selected customer. This allows employees to view a certain customer's appointment instead of having to scroll through a list of appointments. The second report shows the total number of customers in a specific state. The third report shows the total number of appointments by appointment type. This report helps the employees track and see how many appointments are of a specified type hence helping out the company prepare for what kind of maintenance needs to be done.

Existing Gaps

The existing system is a manual and handwritten process using a log sheet. Employees write down on a sheet of paper and look over it each day before business hours begin. This is very inefficient because it's not organized and can cause confusion by overlapping customer appointments. Also if the piece of paper gets thrown out by accident could cause a major setback of the business operation. The new and improved Appointment Tracker Management Application will fix these major errors and help this business run alot smoother. The new software application will not only be able to alert the employees 15 minutes in advance before an appointment starts, but also keep track of all customer appointments ensuring no appointment gets overlapped. The appointment tracker application also provides a robust reporting section that provides the business with many insights that can be used to save time and improve business operations.

SDLC Methodology

The method chosen for the AppTrack software application is the waterfall methodology. The waterfall methodology is a simple methodology that moves sequentially to the next phase until the app is ready to be launched. An application that is small and straight forward is a perfect candidate for the waterfall methodology. OneTech repair shop is a small computer/mobile device repair shop that is

growing and needs a simple application to manage customer appointments. Using this methodology is suitable for the project and will ensure the application gets done on time and on budget.

The first phase in the waterfall method is the requirements phase which seeks to understand the client's current situation and needs. In this phase of the development lifecycle we are going to hold a project kickoff that involves stakeholders, including the client, project manager, and software engineer in order to gather the scope, objectives, constraints, and expectations. After the requirements are collected it can be properly analyzed. After the first phase is complete, the second phase, which is the system design phase, will begin. In this design phase the design of the software application occurs from low level mock ups to high level prototypes. No coding is involved in this step.

The third phase is the implementation phase where the actual development of the software application takes place. Programmers use the design that they've gathered in the second phase and translate it into code. By the end of this phase the application should provide all the necessary functions as well as a sleek and user friendly UI design.

The next phase is the testing phase. The testing phase aims to find and report all errors. The software engineer handles locating and debugging the errors. After the errors have been located and fixed the application is ready for the deployment phase which handles deploying the application into a live production environment. The software application is ready to use and has passed the testing phase. The customer can now use the application to improve their business workflow.

The last phase is maintenance which if any errors are to arise in the future they can be reported and fixed. Ongoing maintenance of the application will continuously occur as time passes.

Deliverables

There are 2 types of deliverables that are associated with the Waterfall SDLC that the customer has requested. They are project and product deliverables. We expand more about the deliverables in the following sections.

Project Deliverables

These consist of items that are part of the Project Manager's realm of responsibilities.

- Project Schedule
- Test Plans
- Mockups/Layout

Product Deliverables

Product Deliverables represent what is produced to deliver to the customer.

- GUI Mockups
- Class ERD Design
- JavaFX Application

Implementation

The implementation of this project is expected to run on time with no delays. In the requirements phase, the Project Manager will work directly with the development team in order to understand the business requirements. The stakeholders from OneTech Computer Repair will sign off on the project timeline as well as the wireframes and prototypes. This will ensure the end user knows what they'll receive when the application is released.

Validation and Verification

Testing is a key component for a successful functioning software application. The development team will create unit tests in order to test a single module of code to ensure it meets specification. Unit tests

are used to test an individual component of a software application. They are designed to isolate and test specific parts of a codebase. By verifying that each part of the software works as intended we can help identify and fix bugs early in the development process.

After the unit tests are created and tested. The development team will use integration tests in order to verify the interactions between the components and make sure they work together. System test will then be run to ensure the entire system as a whole meets specified requirements. Lastly, the customer will get involved with acceptance testing to validate that the software fulfills the business requirements and is ready for deployment.

Environments and Costs

Programming Environment

The application will be developed using JavaFX. The programming language used to create this application is Java and the IDE used is Intellij IDEA. The backend database used is MySQL database. The application is a desktop application so it doesn't have to be deployed on a web server.

Environment Costs

The JavaFX application is an open-source framework provided by Oracle for building desktop applications that does not have licensing fees so it's free to deploy. The MySQL Community Edition Database is open source and can be used without any direct licensing cost. There are no other fees.

Human Resource Requirements

The project requires a project manager and a software engineer. The project manager will manage and work through the requirements phase as well as the customer interaction making up about 30% up the budget and costs. The software engineer will be responsible for most of the work and will be in charge of design, testing, and maintenance of the software application and this makes up 70% of the hours and costs associated with this project.

Project Timeline

For this section, you'll need to look at the phases of the project and provide information about the time required to complete each phase.

For example:

Phase	Milestone/Task	Deliverable	Description	Dates
Requirements	Task 1	Requirements	Meeting with customer and review the requirements	8/27/2023 - 8/30/2023
Requirements	Task 2	Class ERD design	Verify accurate database schema with the customer	8/30/2023
Requirements	Task 3	Test Plan	Software Engineers create a test plan that get approved by the customer	8/31/2023
Design	Task 4	Low fidelity wireframe High fidelity mockup	Create the User Interface for the project	8/31/2023 - 9/2/2023
Implementation	Task 5	JavaFX Application	Use design documents and requirements to create the application	9/3/2023 - 9/10/2023
Testing	Task 6	Test Results	N/A	9/11/23 - 9/12/23
Verification	Task 7	JavaFX Application	Run unit test and acceptance test Release the application for the business to use	9/13/23
Maintenance	Task 8		Monitor application and update it based on business needs.	9/13/23 - N/A