**C868 – Software Capstone Project Summary**

**Task 2 – Section A**



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| **Capstone Proposal Project Name:** | Ticket Management Application |
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# **Business Problem**

**Customer**

The customer IT Associates, a small IT vendor has been rapidly expanding in recent years due in part to strong leadership, growth in the IT sector, & growing need for improved industry security. This has allowed IT Associates to grow their internal employee count by approximately 200 employees.

**Problem**

Currently the IT department of IT Associates handles tickets via an excel spreadsheet. This solution was appropriate for the initial size of the company however with the increase of the head count by 200 employees’ difficulties have risen. Currently tickets are being duplicated, double work has been increased, ownership of issues has been difficult to ascertain, previous tracking of work has been overwritten, & tickets have been unworked for several days. This method of ticket handling creates information gaps among employees where only one employee can maintain and resolve a specific issue.

## **Case**

IT Associates on averages handles between 8-14 help ticket requests per day. These tickets can vary from break/fix for hardware, software install/uninstall requests & troubleshooting, facility tickets, as well as network & planned outages. Prior to their recent employee head count increase maintaining and processing these requests via excel was a viable solution however there have been multiple instances of double work, rework, & overwritten work that has posed difficulties withing the company. With the increased head count it was determined that this method will no longer suit their increased needs. There is a strong need for a ticketing system that can provide ticket tracking, allow multiple agents to process tickets & work on the same ticket at the same time, & allow reporting of tickets by type, user, & urgency. By developing & providing this application we will provide IT Associates more room for growth by providing technicians a location to log in, view tickets assigned to them as well as providing clarity on internal employee’s issues & needs.

## **Solution**

Project One Channel will be a standalone application written in Java 11 & the database will be MySQL (InnoDB). Multiple technicians can log in using the provided credentials & the application will allow for the creation of additional technicians as employee churn as well as employee head count increases occur. Upon login the technician will see a dashboard that shows the available tickets, customers, as well as agents at a glance. The technician can also utilize the search fields for each of these respective tables. The technical can search the tickets table for ticket\_id, customer\_id, ticket\_status, ticket\_notes, the customers table for customer\_id, customer\_name as well as customer\_email, & the agents table for agent\_id or agent\_name. From here they will also be able to open, modify & delete tickets. The technician will also be able to view and generate reports to make informed decisions and view previous tickets that may pertain to the issue they are currently working. The reports available are tickets by type, tickets by urgency, & tickets by the user.

# **SDLC Methodology**

The Software Development Lifecycle chosen for the One Channel project is the waterfall method. This was chosen due to the straightforward & well understood requirements of this application. Prior to coding the application, we will agree upon the design & agree on the functional requirements needed. To get the project functional in the timeframe required by IT Associates and due to the well & clearly defined functional requirements we will not be providing customer Alpha, Beta testing or prototypes.

The following phases will be used during the waterfall method:

Requirements Phase:

* The Project Manager will be responsible for gathering the necessary functional requirements for the application.
* These requirements will be maintained in a word document & will be dispersed amongst the design & coding teams.

Design Phase:

* The design team will first provide the low fidelity wireframe to the Project manager who will get approval from the IT Associates.
* After approval the design team will develop their final High-Fidelity wireframe and provide this to the coding team.

Development Phase:

* The Software Engineers within the coding team will develop the application providing feedback to the Project Manager after each module is completed.
* The application will be stored & backed up using CI/CD pipelines within a git repository.
* After each module is complete the testing team will be notified.

Testing Phase:

* Upon notification that a module is completed the Software Engineers in Test will build out their testing plan for the module.
* The testing team will implement their testing plan and perform the necessary testing on a module-by-module basis.
* The testing team will provide the Testing plan to the Project Manager.

Deployment Phase:

* Upon completion of the development phase the git repository will be archived & the CI/CD pipelined will be deactivated.
* The source code of the application as well as the respective archived git repository will be provided to IT Associates for internal use.

Maintenance Phase:

* IT Associates will log any software issues & concerns with the Project Manager who will handle the requests if they fit the agreed upon maintenance plan.

# **Deliverables**

The deliverables are broken down into two types, Project deliverables which are provided by the Project Manager & Product Deliverables which are represented by the application developed & provided to the customer.

## **Project Deliverables**

Items provided by the Project Manager.

* Project Schedule/Timeframe
  + The completed project schedule/timeline noting all key milestones & events within each phase.
* Project requirements & Specifications.
  + This document will contain the detailed functional requirements signed off during the design phase by the Project Manager & IT Associates. This document outlines the functionality of the application needed to call the application completed.
* Technical Specification Documents
  + The Technical Specification Documents will include the ERD diagrams showing relational fields within SQL.
* Testing Documentation
  + The Testing Documentation provided by the testing team to the Project Manager will contain all the relevant testing of the application modules used to validate the application.

## **Product Deliverables**

The product delivered to IT Associated.

* Wireframe/UI Documents
  + This consists of the low fidelity wireframe as well as the high-fidelity wireframe developed during the design phase.
* Source Code
  + The archived git repositories containing the applications source code.
* Application
  + The developed fully functional application with the GUI matching the provided wireframes.
* SQL Database
  + The fully functional SQL database with the custom schema that matches the ERD diagram.

# **Deployment**

Deployment of Project One Channel will require coordination between the manager of the IT Department as well of the help desk agents within the IT Department. Deployment of the application will require minimal resources as the pre-requisites have already been met. The application will be installed on all help desk agent’s machines with the executable available for the help desk agent to open the application. The IT manager will be invaluable in providing the help desk agents with the training documentation necessary to operate the application. This process should take approximately 2 days for application deployment and 2 days for user training.

# **Testing Methods**

The software engineers in test will be responsible for testing the application and providing validation and verification of the tests. The tests will begin upon the completion of each module and documentation of the tests will be stored in a test document. Once development of the application begins the software engineers will produce the application module by module. Upon completion of the module, they will provide the software engineers in test the module. The software engineers in test will execute their pre-defined tests and log the necessary bugs & improvements in their test document. They will also verify the necessary functions of the application, mainly the ability to create, update & delete tickets, users & customers. Upon verifying the CRUD operations, they will verify the search capabilities for each table. Once the previous tests are complete and there are no issues present, they will run a final black box test will be run with the IT Manager present. After completion of the testing phase we will proceed with delivery & maintenance.

# **Resource Requirements**

## **Programming Environment**

Project One Channel is designed to run on a windows environment. We are targeting a minimum windows OS of Windows 10 Server Enterprise for the SQL database & Windows 10 for the client application. The database will be hosted on MySQL.

* Windows 10 Server Enterprise
* MySQL
* Microsoft Windows 10

## **Environment Costs**

Environment costs are low with regards to Project One Channel. The IT Associates have a majority of the infrastructure required to run the application sans the MySQL License. The current user workstations will support the minimum requirements needed to run the client application. The MySQL license used within an enterprise environment will cost $1800 billed annually.

## **Human Resource Requirements**

The following resources needed including their salary, hours & total are defined below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Role | Count | | Salary (Average) | Hours | Total |
| Project Manager | | 1 | $140/Hour | 84 | $11,760 |
| Designer | | 1 | $64/Hour | 48 | $3072 |
| Software Engineer | | 2 | $84/Hour | 120 | $19,200 |

# **Timeline**

Below is the final overview of the project timeline & respective dates.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| Phase | Milestone/Task | Deliverable | Description | Dates |
| Planning | Gather Requirements | Requirements | Meet with clients – Create document containing application requirements conveyed & agreed upon with clients. | 3/26/2022-3/30/2022 |
| Design | Develop Application Design | Low fidelity wireframe  High-fidelity wireframe | Develop the low fidelity wireframe & upon approval develop the high-fidelity wireframe & provide to the development team. | 3/31/2022-4/02/2022 |
| Development | Develop Application Modules | Application Modules & Final Application. | Implement the application according to the previous requirements document and the high-fidelity wireframe. | 4/04/2022-4/15/2022 |
| Testing | Application Testing | Test Document. | Testing will begin upon receipt of the first module & progress through the completion of each module. | 4/04/2022-4/18/2022 |
| Deployment | Deploy Application | Application. | Deploy the application to the help desk agents. Deploy training to the users. | 4/20/2022-4/24/2022 |
| Project Sign Off | Project Completion | Signed Project Documents. | Review project documentation & confirm receipt & acceptance of application requirements | 4/26/2022 |