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Software Development Capstone – C868

Capstone Summary

- **The business problem or opportunity you are solving for, including a description of the customers and why this application will fulfill their needs.**

The business problem that needs to be resolved is the customer needs a simple way to track computer inventory and maintenance done on said computers. The customer is a small business' IT department, they have been looking for a cheap solution that isn't too complex. This application would fulfill their needs by providing them a way to enter in computers and track maintenance completed on the computers.

- **Existing gaps in the software application you are replacing or modifying (if applicable).**

There are applications that exist that match the requirements my client is looking into. They have decided to have it developed locally so that can expand the product in the future the way they desire. This gives them the framework that is wildly available on the market but would cost much more for future customizations that they are planning.

- **The software development life cycle methodology you use to guide and support software development activities.**

Since the software will be provided free of charge the waterfall software development life cycle methodology will be used. This will allow the project to go through each step of process: requirement gathering and analysis, system design, implementation, integration and testing, deployment of the system, and then finally maintenance. Once the software has gone through all of the development and deployment phases, the maintenance phase will be provided for a fee.

<u>Breakout of Waterfall SDLC</u>

1. Requirement Gathering and Analysis: Receive software specifications from customers.
2. System Design: Review specifications from customer, and create wireframe.
3. Implementation: Develop the prototype based upon the approved wireframe.
4. Integration and Testing: Test all aspects of the software to make sure it meets customer expectations.
5. Deployment of the System: Deploy the site to Azure, and provide customer with final deliverable.
6. Maintenance: Provide any assistance to customer granted they pay maintenance fee.

- **Deliverables associated with the applied software development life cycle methodology.**

  - ➔ **Wireframe:** A visual representation of the website sketched out to show design and layout.
  - ➔ **Prototype:** This will be a functional version of the website but will not have all of the polish of the fully deployed project.
  - ➔ **Final Project:** A customer reviewed and completely deployed website.

- **The plan for implementation of your software solution, including the anticipated outcomes from this development.**

The website will be developed using C# on the asp.net framework. It will use the Razor pages design pattern as opposed to the MVC pattern, which allows for simpler development. The web app will be deployed on Azure App Services, with the data component hosted on Azure SQL server. The will all for a web accessible application which provided the clients desired functionality.

- **The methods for validating and verifying that the developed software application meets the requirements and subsequently the needs of the customers.**

There will be several stages at which the customer can validate the software being developed to meet specifications. The wireframe deliverable will be the first chance for the customer to confirm that the design and layout of the website are as expected. The prototype deliverable will be the second and final opportunity for the client to verify that the project is going as expected. During the prototype review the customer will be able to request changes to get the project back on course, and if they have enough changes a second review will be requested.

- **The programming environments and any related costs, as well as the human resources that are necessary to execute each task in the development of the software application.**

The software will be developed using C# language with the asp.net framework. The website will be deployed to Azure App Services and the data will be hosted using Azure SQL Database. The human cost will involve roughly 60-100 hours of work to complete the development and deployment of the website. Developing and releasing documentation about the website will involve another 20-40 hours of work.

- **A projected timeline including milestones, start and end dates, duration for each milestone, dependencies, and resources assigned to each task.**

Task	Duration	Start-End Date	Dependencies & Resources
Discuss development requirements with customers	2 hours	Dec 5th	n/a
Wireframe website	8 - 10 hours	Dec 6th – 7th	Customer Requirements
Review Wireframe with customer	2 hours	Dec 8th	Website wireframe
Build site prototype & unit tests	40 - 60 hours	Dec 9th – 19th	Website wireframe and customer approval
Review Prototype with Customer	2 hours	Dec 20th	Prototype built and functional
Make any adjustments to Prototype before deploying to production	20 - 40 hours	Dec 20th – Jan 10th	Prototype built and approved by the customer
Deploy website to production	10 - 20 hours	Jan 11th – 15th	Prototype correct with customer requests
Create Technical documentation for maintenance	5 - 10 hours	Jan 15th – 16th	Website Deployed, Resource are ASP.NET and Azure documentation
Create user documentation	5 - 10 hours	Jan 16th – 17th	Website Deployed
Final review and customer approval	2 hours	Jan 18th	Website Deployed