CS5363-Spring2023-Project

Lubbock Supermarket (LS)

Project Description:

Lubbock Supermarket (LS) is a family-running supermarket, which is in Lubbock, Texas. It operates from 6 am until 11 pm, seven days a week. LS has a computer-based system to keep track of products sold daily and inventory ordered to and received from a wholesale company. During the Pandemic, LS has gradually lost profit because it sells products only face-to-face. Many customers hesitate to shop for products in LS due to concerns about virus infections. Even loyal customers change their shopping from face-to-face to online.

The owners (Alice and Bob) running LS believe online sales offer an opportunity to help them earn profit and not lose their loyal customers. However, their knowledge of technology is limited to using their smartphones, surfing the Web, using email, and keeping up with friends and some customers on a popular social networking site. Bob feels that LS needs to hire someone to build a custom application system, but neither he nor Alice has the knowledge and skills to develop and maintain their own system. On the other hand, Alice has researched several online sales software systems designed specifically for supermarkets. Some software packages can be purchased and installed on a workstation, while others are subscription-based and hosted by a third party through the Web. Alice and Bob are willing to spend the time, money, and resources for this project only if they believe LS receives a reasonable return on this investment. They have stated that anything you recommend must pay for itself and provide tangible benefits; otherwise, they will be reluctant to provide online sales.

Alice and Bob have asked your team to develop a viable solution to help them manage their business. Over the project, your team will play the role of consultants or developers who have been hired by LS. Each case assignment will take your team through various situations that might happen on a real project. You will plan, organize, and manage your project throughout the life cycle.

Assignment:

Project Part 1:
Suppose your team has been chosen as a consultant to develop a business case for LS. (See Textbook pp. 78 – Q4, Q5, Q6)

A business case should be the first project deliverable. It provides an analysis of the business value, several alternatives for achieving the project's MOV, the feasibility of the alternatives, and their costs, benefits, and risks. The business case is not a budget or the project plan; however, it does provide all the information necessary for your client to make a decision on whether a specific project should be undertaken.

The following is a suggested outline for developing your business case. Because this is a fictitious case, you will not be able to meet with your client. Subsequently, you will have to make several assumptions about your project if you need them.

1. Measurable organizational value (MOV)
    a. Identify the desired area of impact.
    b. Identify the desired value of the project.
    c. Develop an appropriate metric.
    d. Set a time frame for achieving the MOV.
    e. Summarize the MOV in a clear, concise statement or table.
2. A comparison of alternatives - To keep things simple, you may consider only three alternatives for your client: maintain the status quo (i.e., do nothing), purchase a software package, or build a custom system.
    a. Estimate the total cost of ownership (TCO): **Provide your references (e.g., a website) when the cost is estimated.** Keep in mind that the total cost of ownership should include the following:
        - All direct or upfront costs
        - Indirect costs
        - Ongoing support and maintenance costs

    b. Develop total benefits of ownership (TBO) - Total benefits of ownership should include all of the direct, indirect, and ongoing benefits for each proposed alternative. **Provide your team's justification when you decide on the benefits of ownership.** It should focus on the following:
        - Increasing high-value work
        - Improving accuracy and efficiency
        - Improved decision making
        - Improving customer service

3. Decide a recommendation – Now, you are ready to make a recommendation to your client and support it. Given the limited amount of information and time, you should still be confident that your recommendation provides the best value to the organization and that the benefits outweigh the costs. **Be sure that you not only recommend one of the three alternatives but that you also provide support based on your analysis to back it up.** The client will make a decision on whether to continue to the next phase of the project.

Project Part 2:
The owners of LS have decided that building an online shopping system will provide the most value to LS. Your team has been asked to continue with the project and develop this system. (See Textbook pp. 112 – Q4, Q5, Q6)

1. A list of the resources needed to complete the project. This should include:
    a. People (and their roles)
    b. Technology

    c. Facilities
    d. Other—For example, travel, training, and so on.
2. An estimate for the cost of each resource.
3. Since you will be paid for your work with LS, decide which contract makes the most sense for you and your client.

Project Part 3: (See pp. 140-Q4, Q5, Q6)

1. Develop the use cases proposed for the project and draw the use case diagram. The use case model needs to provide at least 8 use cases, which include Browse product use case, Order product use case, View order use case, and Process order.
2. Modify the deliverable structure chart (DSC) for your development lifecycle. Your team can select a development lifecycle, such as the waterfall, reuse-oriented, incremental, or agile (See lecture 3). For example, the waterfall model (or methodology) can have requirements specification, requirements analysis, software architectural design, detailed design, coding, unit testing, integration testing, and system testing.
3. Convert your deliverable structure chart (DSC) to a WBS.

Project Part 4:

1. Define a table for activities for AON (See Table 6.1).
2. Draw AON Network Diagram (See Fig. 6.4).
3. Find a critical path(s) for your project.

Project Part 5: (See pp. 197-Q6)

A project risk analysis and plan:
1. Using the Risk Identification Framework in Figure 7.2 as a basis, identify a total of five risks to your project. More specifically, identify one risk for each of the five phases of the project methodology depicted in the outer ring of the framework. Then, use the framework for analyzing each risk by moving from the outer ring to the center.
2. For each of the five risks identified, assign an owner to each risk and describe a strategy for managing each particular risk.