**D424 – Software Capstone**

**Task 2**



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# **Business Problem**

**The Customer**

PurpleCat PC Store is a business that prioritizes the needs of its customers, focusing on creating personalized computer systems for both individuals and businesses. The store operates in a competitive market, serving a wide range of customers with different needs and preferences. They operate as a small store in the PC customization market. The company is managed by a passionate owner who actively manages both daily operations and long-term strategic planning. The mission of PurpleCat PC Store is to deliver high-quality, affordable, customized computer systems that meet the unique needs and budgets of its clients. It provides not only hardware but also offers technical support, maintenance, repair, and installation services.

As the business offers a wide range of customization options and services, tracking the availability of parts and finished products has become increasingly complex. Manual inventory management methods are no longer sufficient, leading to potential stockouts, overstocking, and missed sales opportunities. The existing processes are time-consuming and prone to errors, impacting operational efficiency and customer satisfaction. In anticipation of further growth, PurpleCat PC Store recognizes the urgent need for an automated Inventory Management Software solution to effectively manage inventory and enhance the overall customer experience.

PurpleCat PC Store has set several short-term goals to improve their operations. Firstly, they plan to enhance their order management system to ensure a more efficient process for customers. By doing so, they aim to increase customer satisfaction by ensuring that all custom PCs meet or even exceed customer expectations. Additionally, PurpleCat PC Store intends to transition from manual record-keeping to a robust IT solution. This will not only enhance their ability to serve customers but also enable them to effectively manage their inventory. By implementing this technology, they will be better equipped to handle their increasing customer base and optimize internal processes.

In the long term, PurpleCat PC Store aims to expand their market reach and diversify their product offerings. The company is dedicated to establishing itself as the premier destination for custom-built PCs by providing superior products and exceptional customer service.

The PurpleCat PC Store is aiming for significant growth in both their customer base and operations. To achieve this, they plan to expand their services and product line, with the goal of increasing their market share.

## **Business Case**

The PurpleCat Pc Store is currently facing a significant challenge with their inventory tracking system. The current system has a limited ability to effectively monitor and keep track of product availability. As a result, there is often uncertainty regarding which items are in stock and the exact quantities available. This uncertainty poses a challenge for the staff in fulfilling orders promptly and accurately. Assembling custom computers is a significant part of their business. PurpleCat PC Store struggles to link the various computer parts effectively. This difficulty means they sometimes face issues in ensuring that all the necessary components are available for customer requests. Manual inventory management method is error-prone, time-consuming, and does not provide a comprehensive view of the inventory situation. This lack of accurate inventory information can ultimately lead to situations of stockouts or overstocking, which can have negative implications for the business.

The proposed software application will be a user-friendly, real-time inventory tracking system. It will offer features to customize product and part tracking. An advanced feature of the system will be predictive analytics. It will anticipate when specific parts might run low based on historical sales data and trends, and then suggest reorder quantities. This foresight will prevent stockouts and ensure items are replenished at the right time. This application will provide a centralized database to streamline inventory management, ensure consistency, and provide real-time updates for staff.

## **Fulfillment**

The application will be designed with simplicity and intuitiveness in mind. It will feature a clean and user-friendly graphical interface accessible through standard web browsers or a dedicated desktop client. The user interface will comprise visually appealing dashboards and easily navigable menus, ensuring that both experienced staff and newcomers can efficiently use the system.

The application will offer real-time inventory tracking. As products are purchased or new stock is received, it will be instantly updated in the system. Staff can search for specific items, view product details, and monitor current stock levels in an instant. This ensures that staff have access to the most accurate information, minimizing the risk of overstocking or stockouts.

PurpleCat PC Store will have the flexibility to customize the application according to their specific needs. This includes the ability to create custom categories, list components specific to custom computer builds, and manage individual items with ease. This feature allows for precise monitoring of parts required for custom PC assembly. For assembling custom computers, the application allows the easy tracking of individual parts. Staff can link the necessary parts for each build, making it simpler to ensure that all required parts are in stock.

The system will utilize predictive analytics to anticipate when certain items may run low. It will provide suggestions for reordering quantities based on historical sales data and trends. This feature helps in proactive inventory management, minimizing the risk of running out of popular products.

It will interface with the vendor management system to provide insights into order histories, vendor information, and procurement statuses. The application will feature a centralized database as the repository of all inventory-related information. This database will store product descriptions, part details, vendor information, and pricing data. All changes, additions, or deletions to the inventory will be instantly updated, offering real-time visibility to the staff.

All authorized staff members will have unique login credentials to access the system. Permissions can be tailored to their roles within the store, with different staff having varying levels of access to features and data.

The users can generate reports on specific product categories or parts to gain a deeper understanding of their inventory. These reports will provide insights into inventory levels, sales trends, and reorder suggestions.

***B.  Describe the software development life cycle methodology you will use to guide and support software development activities.***

***1.  Describe the deliverables associated with each phase of the applied software development life cycle methodology.***

***2.  Describe the development plan for your software product, including the anticipated outcomes from development.***

***3.  Develop a projected timeline, including milestones, start and end dates, duration for each milestone, dependencies, and resources assigned to each activity.***

***You can remove this before submitting as well as any other sample text or instructions.***

# **SDLC Methodology**

Considering the nature of your project, select a Software Development Life Cycle (SDLC) methodology that will be used to manage the project. Those may include…………. Be sure to describe the process you select first and why it’s a good fit. Then review the methodology phases and what part of the project will align with each. It is important to be clear about what is being proposed.

For the successful development of the Inventory Management Software for PurpleCat PC Store, we propose to utilize the Agile software development life cycle methodology. The Agile methodology is well-suited for this project due to its iterative and flexible approach, which allows for changes to be made as the project progresses.

PurpleCat PC Store operates in a dynamic and competitive market, and the ability to adapt to changing customer needs and market trends is essential. Agile methodologies emphasize flexibility and rapid response to changes. Agile emphasizes customer collaboration throughout the development process, ensuring that the software closely aligns with the customer's evolving needs. Given the dynamic nature of the retail industry, this ongoing collaboration will be highly beneficial. PurpleCat PC Store anticipates rapid growth and changes in their operations. Agile's iterative approach will enable us to adapt to these changes effectively. Agile promotes the delivery of working software in small increments. This will allow PurpleCat PC Store to start realizing the benefits of the software sooner rather than waiting for a lengthy development cycle to complete. Agile emphasizes continuous testing and validation, ensuring that the inventory management software effectively meets the client's needs.

Agile Methodology Phases

1. Planning and Requirements Gathering:

Deliverables: Project Scope Document, Product Backlog

Description: During this phase, we will define the project scope, gather initial requirements, Agile's focus on customer collaboration ensures that the software product will meet the specific needs of PurpleCat PC Store.

2. Development:

Deliverables: Working increments of the software

Description: The project will be broken down into iterations, typically 2 to 4 weeks in length. and will focus on implementing specific features or functionalities. At the end of each iteration, The product owner from PurpleCat PC Store will have the opportunity to review and provide feedback.

3. Testing and Quality Assurance: Testing is integrated into each iteration. Agile methodology emphasizes continuous testing, ensuring that the software is thoroughly checked for quality at every stage of development. This aligns with the goal of delivering a high-quality inventory management solution.

4. Implementation and Deployment:

Deliverables: Deployed software

Description: Once the software meets PurpleCat PC Store's requirements and passes acceptance testing, it will be deployed in a production environment. Deployment will be staged to ensure minimal disruption to the business.

5. Ongoing Maintenance and Enhancement:

Deliverables: Post-implementation support plan

Description: The Agile methodology allows for ongoing maintenance and enhancements based on real-world usage and feedback. We will continue to work with PurpleCat PC Store to address any issues, make improvements, and add new features as needed.

# **Deliverables**

Provide information about what deliverables are related to your SDLC method. List and describe those deliverables. Also, include examples to help clarify what specific type of artifacts will qualify.

For example:

There are 2 types of deliverables that are associated with the Waterfall SDLC that the customer has requested. They are project and product deliverables.

## **Project Deliverables**

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

* Project Schedule
  + When and what will be worked…
* Test Plans
  + The testing steps that the customer uses to perform validation…
* Requirements Traceability Matrix (RTM) …etc…

## **Product Deliverables**

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

* Wireframes
  + A low fidelity, rough representation of the application…
* Mockups/Layout
  + These are designs that are typically high fidelity but contain no functionality. The customer can review…
* Prototype…etc…

# **Deployment Plan and Outcomes**

Explain how the project will be deployed. This has to do with how the software application will be put into the production environment, not how it will be created. So, consider the customer and timing required to meet its needs. When will validation and verification take place? What personnel will be part of the implementation and what roles will they serve?

For example:

The implementation of this application is simple…of this being a new system no outages are necessary and the deployment to production can be staged prior to the customer communicating with the user base to start…

Implementation is coordinated by the Project Manager and involves several different groups in a variety of capacities. The Web Administrators …etc…

Be sure to identify any tasks that have dependencies. If certain tasks can’t begin until other tasks are finished, make sure to state this when discussing the task that will be held up without the completion of the required deliverables.

# **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:

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| Phase | Milestone/Task | Deliverable | Description | Dates |
| Pre-development | Task 1 | Requirements | Meeting with customer and procedure review | 10/1/2023 – 10/7/2023 |
| Design | Task 2 / Design files | Low fidelity wireframe  High fidelity mockup | Create the UI that relates the look and feel of the project | 10/8/2023 – 10/14/2023 |
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**C.  Justify the programming environments included in the development of the software product, including the following:**

**●  any related costs**

**●  the human resources that are necessary to execute each task**

**Removed the instructions in red and any other sample information before submitting.**

# **Environments and Costs**

## **Programming Environment**

Provide a clear picture of what hardware and software are required to complete the project.

For example:

* Windows 2016 Server running IIS 7.5 or higher
* Microsoft SQL Server 2012 or higher
* …etc..

## **Environment Costs**

Provide an explanation of the costs associated with the software application. Some might be startup, first-time costs while others might be a percentage of licensing costs. Environment costs are relatively minimal. The environment where the system resides in a shared environment where costs are shared by the organizations. There is a nominal fee associated with maintaining the database of $500 a year that allows for unlimited storage size and 99.8% uptime. The web server is another fee of $300 a year that includes maintenance and upgrades of the following; Windows Server, IIS, and ColdFusion. The final cost is based on the thick or thin clients utilized by the customer. Each device that is attached to the network has a $40 annual fee which covers Operating System and Network upgrades.

## **Human Resource Requirements**

What is the time and cost for the labor to complete the application?

For example: The larger share of human resource is by the developers of the project followed by the PM. Developers consume approximately 75% of the hours and dollars associated with …etc.

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*D.  Explain how the proposed software product will be tested by doing the following:*

*1.  Justify the methods for validating and verifying that the developed software product will meet customer needs.*

*2.  Explain how your test results will be analyzed.*

# **Validation and Verification**

Describe the methods that you'll use to prove that the software application functions sufficiently well to meet the customer's needs. Does it provide all the functionality required? How will those tests be performed and by whom? Identify how segments of the code will be tested. The Customer will perform Acceptance Testing prior to taking ownership of the application.

For example:

Testing will be a comprehensive full lifecycle test to ensure that the application has met the requirements as designed. The customer will complete multiple testing sessions with multiple users…etc..

E.  Acknowledge sources, using in-text citations and references, for content that is quoted, paraphrased, or summarized. Only include if needed. This is a proposal; you are providing information about your application. There is no real need for additional references. You are the subject matter expert of your project.

F.  Demonstrate professional communication in the content and presentation of your submission. Use Grammarly.com and a good proofreading before submitting.