Forestview Technologies

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## Why Our Team Should Be Chosen:

* Our team here at Forestview Technologies should be chosen for this contract due to our efficiency in fulfilling the client's needs. Not only did we finish the project before the estimated date, but we also did it in the most efficient and cost-friendly manner. Before starting the project, we first figured out the requirements and what guidelines we wanted to follow along with development. Once we figured out the requirements, we started to focus on the system design and how to match it to the guidelines we created in our first collaboration meeting, we wanted the theme of our website to match what our program does so we decided upon a Consultant company which will specialize in custom software deliveries! Once we figured out our front end, we thought of a useful application that would match the requirements and design of our company, and we ended up with a wholesaling application suited for product inventory. Now the implementation phase has begun, we wanted to meet the requirements of the client to a tee while also being super-efficient, and to do this we had to make sure the runtime of our program was as close to O (1), constant as we could get it. We first did a rough draft of our application not worrying about the time complexity, but once we finished this we finetuned the code to where every functionality was between O(n) and O (log n). This included the operations of adding, parsing, and deleting data from the inventory, which looped through the .csv in some type of way no matter what. Once our implementation was done, we moved on to the testing phase where we made sure each functionality worked independently of the other without interrupting the main program. We moved on to the deployment phase where we interconnected our front end and our program and tested them once again to see if it was a smooth transition to download and run the program files and made sure the technical instructions to run the program were clear. Our last phase was maintenance where we did one last debug of our program and fixed functionality where the program would exit after finishing one operation as well as added more functionality for checking if input did not include foreign characters when added, or if input was null. This concluded our project as from the start we had chosen to use the waterfall paradigm in our software development cycle, the sequential steps in the waterfall model made the project much simpler to understand and implement for the client. Our ability to deduce what software methodology we would need for the client's needs is also a part of the reason our contract should be fulfilled.

## Tools We Used:

* VS code
* Python w/ Tkinter library
* HTML & CSS
* JavaScript
* OneDrive
* Pylint
* GitHub
* All code required for the main program itself was done using VS code in the Python language. We utilized some basic Python libraries like OS and CSV for the reading and writing to the spreadsheets, but we also used the Tkinter library to make a GUI for our program. This included making frames, buttons, pop-up messages, and taking inputs. After the program was done, we used Pylint to analyze our code for errors, coding standards, and code smells.  
    
  We again used VS code for the website to write the CSS in HTML. We utilized Boot Strapper 5 to help us with a template, then changed everything to fit our needs. As with most websites, we have included images and such in our front-end folder as well as secondary HTML pages that our main page links to. We used a bit of JavaScript to apply logic to things such as the user agreement checkbox, but it was used sparingly. The project one page also contains a link that leads to a OneDrive containing our .py and .csv files so users can download it to their systems.   
  Finally, all our collaborations were done using GitHub. We have a repository for our project, and forks for the three different sections of front-end, back-end, and code compliance. This allowed us to coordinate our changes effectively while minimizing merger conflicts. The forks meant that we could have each other check our work before pulling to the main to prevent errors from going through without notice.

## Desired Need & Fulfillment:

* Forestview Technologies is the optimal choice to fulfill the desired needs outlined in the contract. The team's commitment to efficiency is exemplified by the successful completion of the project ahead of schedule, ensuring both cost-effectiveness and timely delivery. Through a meticulous analysis of requirements, we developed clear guidelines and a system design, aligning the website theme with the software's functionality to meet the client's vision. In response to the desired need for an innovative application, our team crafted a wholesaling application for product inventory, showcasing adaptability and creative problem-solving. The implementation phase prioritized achieving optimal time complexity, with each functionality fine-tuned to ensure efficiency. Rigorous testing, a seamless deployment process, and detailed maintenance, including final debugging and additional functionalities, demonstrated our commitment to delivering a reliable product. Our strategic use of the waterfall model in the software development cycle, coupled with an adaptive approach to choosing methodologies based on client needs, underscores our ability to provide a structured and client-tailored solution. Utilizing a suite of tools, including VS Code, Python with Tkinter, HTML, CSS, JavaScript, OneDrive, Pylint, and GitHub, facilitated effective collaboration and version control. In conclusion, Forestview Technologies not only meets but surpasses the desired needs outlined in the contract, offering a comprehensive and detail-oriented approach to ensure the project's success.

## Team Collaboration:

Within the collaborative framework of Forestview Technologies, each team member brings unique expertise, contributing to the success of the project:

Talha Ali and Soham Bhavsar - Application Coding:

- Talha Ali and Soham Bhavsar have played instrumental roles in the application coding phase, leveraging their programming skills and creativity to develop a robust and innovative wholesaling application. Their collaborative efforts ensured the efficient implementation of functionalities, optimizing time complexity and meeting project specifications.

Maher Harkati and Mohammed Hoque - Frontend Development:

- Maher Harkati and Mohammed Hoque took charge of the frontend development, bringing their design and user interface expertise to the project. Their collaborative efforts resulted in a visually appealing and user-friendly Consultant company-themed website. Their contributions extended to logic implementation using JavaScript, ensuring a seamless and engaging user experience.

Amran Rahim - Coding Compliance:

- Amran Rahim took on the crucial responsibility of coding compliance, utilizing tools like Pylint to conduct code analysis. His attention to detail ensured that the code adhered to industry standards, minimizing errors, and enhancing the overall quality of the project. Amran's contributions in coding compliance were pivotal in maintaining a high standard of code throughout the development process.

Together, the collaborative efforts of Talha, Soham, Maher, Mohammed, and Amran synergized seamlessly, showcasing the effectiveness of their teamwork. The team's collective skills in application coding, frontend development, and coding compliance harmonized to create a successful and comprehensive solution for the client.

## Hosting Quotes:

* If we wanted to host our website on an online service, the price would depend on the amount of traffic we get. Something like AWS would cost us around $10 - $30 per month, while Google Cloud on the other hand could cost us slightly more at around $25 - $50. GoDaddy would start on the lower end of $11 per month but seems to have fewer features and controls available to us, and the price will increase after a year.

## Future Recommendations:

* Looking forward, Forestview Technologies should embrace a forward-thinking approach for the Detroit Tiger Wholesaling Form. Prioritize scalability through flexible cloud solutions and fortify security measures for data protection. Consider adapting the application for mobile responsiveness and explore opportunities for seamless integration with third-party services. Establish a robust feedback mechanism for continuous user engagement, allowing for iterative enhancements. Implement industry-standard testing practices and potentially adopt DevOps methodologies for streamlined development processes. Ensure comprehensive documentation and knowledge transfer to facilitate smooth transitions for future development teams. Stay attuned to technological advancements for potential stack improvements. Lastly, foster a sense of community around the application to encourage user participation and loyalty, contributing to its sustained success and evolution in the dynamic market landscape.

## STEM principle applications:

In this project, we have come across multiple instances where we had to apply some math or science depending on the situation. The most common area we applied some math or science was using to figure out the spacing or things of that nature; whether it's on HTML or Python applications. Some of the coding may have required a bit of number crunching in the front or back end but it was not anything to major. The complexity of your program can determine how math and science based your project may be. If you have a very mythically driven program in Java/Python, then it will require more complex math driven coding. Overall, our project was not very heavy on math, but we did apply the necessary computer science skills to make our website and application proper.

## Technical Documentation:

## Overview

The Detroit Tiger Wholesaling Form is a Python program built using the Tkinter library to create a graphical user interface (GUI) for managing and interacting with a CSV file that stores company and product information. The program allows users to add, search, and remove data entries from the CSV file.

## Features

1. Add Data:
   * Collects company and product information (Company Name, Product ID, Product Name, Product Type, and Quantity) through an input form.
   * Validates the input to ensure it contains only standard alphanumeric characters.
   * Appends the entered data to a CSV file named 'DetroitTigersWholesaling.csv.'
   * Displays success or error messages based on the result.
2. Search Data:
   * Takes a Product ID as input from the user.
   * Validates input for foreign characters.
   * Searches the CSV file for the provided Product ID.
   * Displays the corresponding product name and quantity if found; otherwise, shows an error message.
3. Remove Data:
   * Takes a Product ID as input from the user.
   * Validates input for foreign characters.
   * Searches the CSV file for the provided Product ID.
   * Removes the corresponding entry if found, updates the CSV file, and displays success or error messages.

## Code Structure

### Functions

1. is\_valid\_input(input\_str):
   * Validates input string for allowed characters.
   * Parameters:
     + input\_str: Input string to be validated.
   * Returns:
     + True if all characters are allowed, False otherwise.
2. add\_data():
   * Collects input data from the GUI.
   * Validates input for foreign characters.
   * Appends data to the CSV file.
   * Clears the input fields and displays success or error messages.
3. search\_data():
   * Collects Product ID input from the GUI.
   * Validates input for foreign characters.
   * Searches the CSV file for the provided Product ID.
   * Displays product information if found; otherwise, shows an error message.
4. remove\_data():
   * Collects Product ID input from the GUI.
   * Validates input for foreign characters.
   * Removes the entry with the provided Product ID from the CSV file.
   * Updates the CSV file and displays success or error messages.

### GUI Elements

* Window:
  + The main GUI window titled "Detroit Tiger Wholesaling Form."
* Frames:
  + frame: Main frame to contain other frames and widgets.
  + company\_info\_frame: Frame for collecting company and product information.
  + search\_frame: Frame for searching product data.
  + remove\_frame: Frame for removing product data.
* Labels:
  + Various labels for Company Name, Product ID, Product Name, Product Type, Quantity, and more.
* Entry Widgets:
  + Entry widgets for user input of Company Name, Product ID, Product Name, and Product ID for search and removal.
* Combobox:
  + Dropdown combobox for selecting the Product Type.
* Spinbox:
  + Spinbox for selecting the quantity (limited to a maximum of 20).
* Buttons:
  + Add Data: Triggers the add\_data function.
  + Search Data: Triggers the search\_data function.
  + Remove Data: Triggers the remove\_data function.

## Usage

1. Run the program.
2. Fill in the required information in the "Company & Product Information" section.
3. Click the "Add Data" button to add the entered information to the CSV file.
4. Use the "Product Search" section to search for product information based on the Product ID.
5. Use the "Remove Data" section to remove product information based on the Product ID.

Note: The program validates inputs to ensure they contain only standard alphanumeric characters. Foreign characters trigger an error message.

## Dependencies

* The program relies on the Tkinter library for creating the GUI.
* The CSV module is used for reading and writing CSV files.

## File Management

* The program reads and writes data to a CSV file named 'DetroitTigersWholesaling.csv.'
* The CSV file is created if it doesn't exist, and headers are added if the file is empty.

## Conclusion

The Detroit Tiger Wholesaling Form provides a simple and interactive interface for managing company and product information. Users can easily add, search, and remove data entries stored in a CSV file, making it a convenient tool for inventory management.