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Figure 1: SuiteStock

SuiteStock

Many hospitality businesses, such as hotels, require a systematic system to manage their inventory effectively. This Python system focuses on developing a Hotel Inventory Management System. Hotels struggle to properly track and manage their inventory due to outdated methods, such as manual logging, which can lead to various problems, including inaccurate stock counts, slow restocks, material loss, and extra costs because of overstocking. Without proper and accurate tracking, adverse effects can occur in hotel operations, leading to a poor guest experience. To address these problems, the proposed system will provide accurate inventory tracking, prevent delayed restocks, material losses, and offer cost-effective management. Utilizing an improved inventory management system enables hotel establishments to enhance their organizational efficiency by preventing material losses and providing cost-effective solutions [1].

Problem 1: Inaccurate Stock Counts

Inaccurate stock counts in hotel inventory can lead to inconsistencies between recorded and actual inventory stocks, which can cause problems with stockouts, overstocking, and potential loss in revenue. One of the common causes of inaccurate stock counts is human error, which can happen when incorrectly logging or entering data into the system. Additionally, not regularly checking the stock counts or inventory can lead to significantly inaccurate records over time. Inventory accuracy is not fixed. Even minor errors in recording hotel inventory may seem insignificant, but they can result in substantial financial losses [2] .

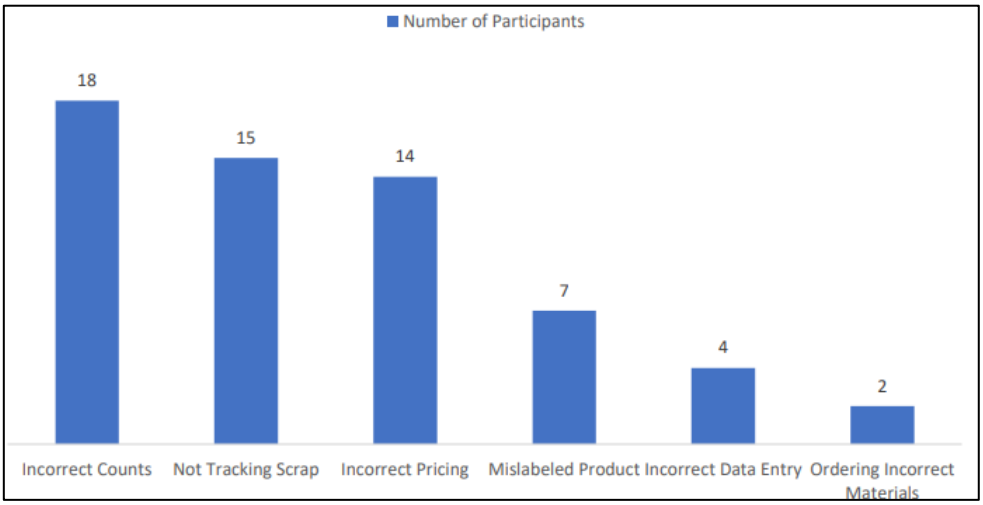

Figure 2: Inventory errors that impacts financial well-being

Solution 1: Standardized Stock Operations

To address the problem of inaccurate stock counts, SuiteStock will have a better way of managing inventory stocks by implementing standardized stock operations, where they can add, view, update, and delete stocks in a centralized section of the system. The Staff can view all the stocks to check the most recent stock counts in a clear and organized format, which ensures they have access to accurate and updated information. Staff can also update existing stocks to correct mistakes easily. Items that are no longer needed can be deleted, making the system clean and accurate if the stock count of the items is almost depleted. Data validation will also be implemented to prevent invalid entries, making it safe and flexible.

Problem 2: Delays in Restocking

Having a delay in restocking is another problem. For instance, if items such as soaps, shampoos, and toiletries are not restocked on time, it can lead to a poor guest experience. Guests expect quick service, having poor inventory management causes bad guest experience. This is consistent with a correlation analysis (Figure 3) which showed that responsiveness has a significant positive relationship with customer satisfaction ($r = .252^{**}$, $p < 0.01$) [3]. These often happen because staff are not notified or they don't have an idea when the stocks are running low. Without a systematic way to track items' stocks that are close to depletion, restocking may be too late, resulting in service disruptions and unhappy guests.

Factors	Pearson Correlation	Customer satisfaction
Empathy	Pearson Correlation	.812(**)
	Sig. (2-tailed)	.000
	N	111
Reliability	Pearson Correlation	.675(**)
	Sig. (2-tailed)	.000
	N	111
Assurance	Pearson Correlation	.789(**)
	Sig. (2-tailed)	.000
	N	111
Responsiveness	Pearson Correlation	.252(**)
	Sig. (2-tailed)	.008
	N	111
Tangible	Pearson Correlation	-.265(**)
	Sig. (2-tailed)	.005
	N	111

Figure 3: Correlation Analysis

Solution 2: Automated Restock Alerts

To address the problem of delays in restocking, SuiteStock will have a low-stock alert feature. This feature will automatically notify the staff when an item's stock is reaching the minimum threshold and need to be restocked. For instance, the minimum stock for soap is 20, the system will automatically alert the staff when the stock count is below 20. The alerts will have a designated section in the system for staff to view. This will help staff to be aware and to take quick actions and restock before they run out completely.

Problem 3: Overstocking

Overstocking is a major problem in hotel inventory management. It often happens when hotels order too many items than necessary without realizing they have enough in storage. This can lead to increased storage costs, and having the risk goods becoming expired or obsolete. In addition, when the storage areas become full, items may not fit, making them prone to misplacement, theft, or damage [4]. Overstocking does not only reduce profits but also increases the risk of material losses.

Solution 3: Organized Tracking

SuiteStock will organize inventory data in a structured and transparent way. Each item's data will have details such as name, category, description, supplier, stock quantity, expiration date, minimum stock threshold, price, location, and date of entry. Staff can add, view, update, and delete these items in a designated section in the system. By keeping each item's data updated, the staff can easily identify which items are being used frequently, rarely, and which are close to depletion. This will help hotels to make better decisions when ordering supplies. Instead of restocking every item randomly, staff can use the

system's records to check what items need restocking. This will prevent overstocking, reduce wasted resources, and make inventory management more cost-effective.

Conclusion

SuiteStock Hotel Inventory Management System addresses various issues like inaccurate stock counts, delays in restocking, and material losses or overstocking. The system offers easy-to-follow processes to prevent mistakes, sends alerts when stock is running low, and keeps inventory information organized and clear. This helps everyone make smarter decisions while saving money. By utilizing technologies like Python, PyQt, MySQL, and XAMPP, SuiteStock enhances inventory accuracy, prevents unnecessary costs, and improves hotel management, leading to a better guest experience and smoother operations.

Tools

The Hotel Inventory Management System will be developed using the following tools: A Laptop will be the primary device for writing, debugging, and running the code/system. Python (version 3.13.7) will be the primary programming language for writing simple and readable code. PyQt will be used for building the graphical user interface (GUI). PyCharm will be used as the integrated development environment (IDE). MySQL will be used as the database provided through XAMPP to store and manage hotel inventory records. Python will connect to the MySQL server in XAMPP using a connector, allowing the system to handle different operations like adding, viewing, updating, and deleting records. Git and GitHub will be used for version control and project management. This will help ensure that the project files are properly managed and that the changes made to the code are tracked, making the development process more organized.

Use Cases

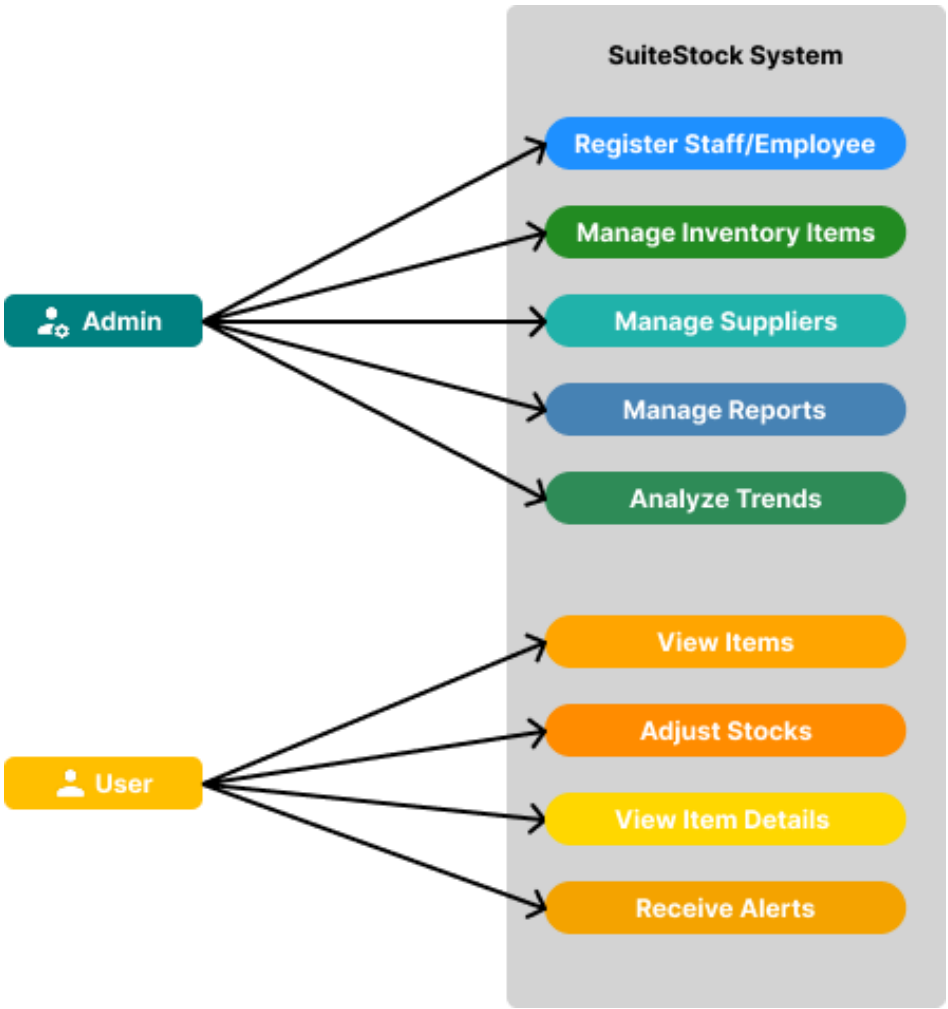

Figure 4: SuiteStock Use Cases

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