

## **REPORT ON INVENTORY MANAGEMENT SYSTEM**

### **INTRODUCTION:**

A software program called an inventory management system aids firms in controlling their inventory levels, sales, and restocking. The objective of this project is to create an inventory management system for a supply business. The system enables the shop owner to add products, view vendors, view products, view bills, issue products, and view products that have been issued. Java and MySQL will be used to carry out the task.

### **Data Structures Implementation:**

We will employ various data structures for various item categories in the system's implementation. For categories 1 through 4, queues will be used; for categories 5 through 7, lists; and for categories 8 through 11, stacks will be used. To manage issued goods, viewing goods, and bills, we will employ iterators, recursion, stack, and queue implementations of the list, among other strategies. Maps will be used to track product sales and hash maps will be used to store vendor data.

### **Java and MySQL Implementation:**

The inventory management system will be implemented using Java programming. Java is an object-oriented language that may be used to create sophisticated programs. Additionally, MySQL will be used as the database management system to store and retrieve data as required. The popular database management system MySQL is quick, dependable, and secure.

### **Search and Sorting Algorithms:**

For categories 6 through 11, we will put search and sorting algorithms into practice. The store owner will benefit from quick and effective item discovery thanks to the searching and sorting algorithms. To find things in categories 6 to 11, we will search using binary search methods. The quicksort and merge-sort algorithms will also be used to order the items in these categories.

### **Performance Analysis:**

We will utilize Big O and Omega Notation to evaluate the system's performance. Big O Notation is a means of expressing the maximum time complexity of an algorithm. It is possible to express the lower bound of an algorithm's temporal complexity using the Omega Notation. We can improve the system's performance by using these notations to evaluate how well our algorithms perform.

### **Reports:**

To demonstrate how the data structure implementation was carried out, reports will be generated. The reports will demonstrate how the system functions as well as how the data structures and searching and sorting algorithms were created. Using Big O Notation and Omega Notation, we will also produce reports that demonstrate the system's performance. The reports will be simple for the store owner to access and examine.

## **CONCLUSION:**

Finally, using Java and MySQL, we created a provision store inventory management system. The technology enables the store owner to effectively control inventory levels, sales, and restocking. To make it easier for the store owner to locate items, we have created searching and sorting algorithms and used various data structures for various types of goods. In order to demonstrate how the system functions and how it performs, we also used Big O and Omega Notation to examine the system's performance.