

## *Singleton Pattern*

The Statistics class is responsible for providing insights into the library's operations, such as information about the books bought and sold on a daily, monthly, or total basis. Using the Singleton design pattern for this class ensures that there is only one instance of the Statistics class throughout the system, providing a single point of access to these statistical computations.

Statistical computations may involve complex algorithms and data processing. By using the Singleton pattern, the Statistics instance can manage computed data efficiently, avoiding redundant operations. Since the Singleton pattern ensures that all parts of the system access the same instance of the Statistics class, it guarantees consistency in the statistical data presented to users. This consistency enhances the accuracy and reliability of the information provided by the system.

As the library management system operates, statistical data may need to be updated in real-time to reflect changes. With Singleton, all components of the system can access the same instance of the Statistics class, ensuring that updates to statistical data are reflected consistently and immediately across the system.

In conclusion, by implementing the Statistics class as a Singleton, our library management system can benefit from an efficient mechanism for gathering, processing, and presenting statistical data, ensuring consistency, accuracy, and real-time updates across the system.