## Introduction:

Medical inventory management is crucial for the many operation of healthcare facilities. As the demand for healthcare services grows and becomes more complex, the need for optimizing medical inventory has never been more pressing. Medical inventory optimization involves the strategic management of medical supplies and pharmaceuticals to ensure that healthcare providers have the right products in the right quantities at the right time. The goal of medical inventory optimization is to balance the dual objectives of minimizing costs and maximizing patient care. On one hand, overstocking can lead to increased holding costs and waste, particularly for perishable items. On the other hand, understocking can result in stockouts, which may disrupt patient care and lead to missed opportunities for timely treatment. To achieve effective inventory optimization, healthcare facilities must employ a combination of advanced forecasting techniques, robust inventory tracking systems, and data-driven decision-making processes. By leveraging technologies such as real-time inventory tracking, predictive analytics, and automated reordering systems, organizations can enhance their ability to manage inventory levels efficiently.

## Business Problem:

Bounce rate is increasing significantly leading to patient dissatisfaction.

## Business Objective:

Minimize bounce rate

## Business Constraint:

Maximize inventory cost

## Statistical insights:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Mean | Median | Mode | Variance | Standard Deviation | Range |
| Quantity | 1.879 | 1.0 | 1 | 12.401 | 3.521 | 150 |
| ReturnQuantity | 0.238 | 0.0 | 0 | 0.817 | 0.904 | 20 |
| Final\_Cost | 132.872 | 54.292 | 42.464 | 243015.231 | 492.966 | 33138.0 |
| Final\_Sales | 229.889 | 85.812 | 0.0 | 475084.669 | 689.264 | 39490.0 |
| RtnMRP | 28.497 | 0.0 | 0.0 | 33075.687 | 181.867 | 8014.0 |

|  |  |  |
| --- | --- | --- |
|  | Skewness | Kurtosis |
| Quantity | 17.078 | 463.54 |
| ReturnQuantity | 7.8 | 97.1 |
| Final\_Cost | 32.73 | 1813.45 |
| Final\_Sales | 21.77 | 967.45 |
| RtnMRP | 16.8 | 449.71 |

## Business insights:

* In this data, we understood that there is nearly injections in SubCat are widely used in medical inventory rather than others.
* Nearly 30% customers returnquantity in inventory optimization.
* Department 1 has more quantities < Department 1 < Department 2.
* There are less numbers of drugs are frequently available.
* Final\_cost of medicines are slightly costable than RtnMRP.