EXECUTIVE SUMMARY

URBAN RETAIL CO.

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INSIGHTS

- **Stock Level Snapshot** : Across stores, there is significant variance in total inventory. Several products, especially in fast-moving categories like Groceries, are understocked in high-demand locations.
- **Low Inventory Detection** : Over 20% of the SKUs analyzed fall below safe demand thresholds. Many critical SKUs show inventory levels < 50% of their forecasted demand, indicating an urgent need for replenishment.
- **Reorder Point Estimation** : Based on 30-day moving averages, dynamic reorder points were calculated. These reflect seasonality and real consumption, outperforming static thresholds in accuracy.
- **Inventory Turnover** : High-performing categories like Beverages and Electronics have inventory turnover ratios > 5, whereas Furniture and Clothing show poor movement, signaling potential overstocking.
- **Stockout Analysis** : Certain regions report stockout rates exceeding 15%, with zero inventory on key days for high-demand SKUs.
- **Inventory Age & Holding Cost** : Products with low sales but high inventory (e.g., bulky home goods) contribute to increased warehousing costs. Inventory age in some cases exceeds 180 days.
- **Forecasting Accuracy** : The average forecasting error (MAPE) across stores is 12.4%, but spikes to >30% in specific categories and stores, indicating variability in forecast quality.
- **Weather & Promotions Impact** : Sales of Clothing and Snacks showed high correlation with weather. Promotions increased sales by up to 65%, validating the role of holidays/discounts.
- **Regional Demand Trends** : Sales performance varies significantly across regions. Some regions consistently outperform others for the same SKUs, suggesting regionalized stocking strategies.
- **Seasonality Trends** : Certain months like November and December show peak sales in Electronics and Toys, confirming strong seasonal demand spikes.

RECOMMENDATIONS

- **Automated Reorder System:** Implement dynamic reorder point logic per SKU/store based on recent 30-day sales. Automate alerts when inventory falls below 1.5x average daily sales.
- **Critical SKU Monitoring Dashboard:** Deploy real-time dashboards for store managers highlighting SKUs in “Critical” or “Low” inventory status to prioritize restocking.
- **Reduce Overstocked Inventory:** Identify slow-moving products (low turnover, high inventory age) and apply liquidation, bundling, or promotional strategies to free up capital.
- **Improve Forecast Models:** For categories with high MAPE, retrain models with inputs like weather, promotions, and historical demand lags. Consider ML-enhanced forecasting.
- **Targeted Promotions:** Schedule future holiday or weather-dependent promotions for high-lift categories. Invest more in promotions that historically show strong ROI (e.g., beverages in summer).
- **Regional Stock Optimization** : Tailor stock allocations based on regional sales patterns. Shift stock from overstocked low-performing regions to understocked high-performing ones.
- **Supplier Performance Dashboard** : Integrate supplier delivery reliability data to link stockouts with supplier delays. Recommend buffer stock levels for low-reliability suppliers.
- **Inventory KPI Reporting** : Create Power BI dashboards showing KPIs like:
  - Stockout Rate by Region/Store
  - Inventory Turnover by Category
  - Forecast Accuracy Heatmap
  - Reorder Point Breaches
- **Warehouse Space Planning** : Use inventory age data to optimize space usage. Consider JIT (Just-in-Time) for fast movers and reduce space locked in low-demand items.
- **Scalability** : Standardize the ETL and SQL pipelines. Move toward a cloud-based architecture (e.g., BigQuery, Snowflake) to support Urban Retail Co.'s expansion.