Knowledge Graphs within VALOORES Crowd Intelligence System - Retail Scenarios

Introducing our cutting-edge "Knowledge Graph" feature, a game-changing element within our software platform that unlocks the power of graphical interpretation and link analysis. At its core, the Knowledge Graph delves into Cross Node and link behavior, providing users with a dynamic and interconnected view of data relationships. Users can explore a Diverse Set of Graphical Interpretations, offering versatile representations of complex data scenarios.

Graphical Interpretation and Link Analysis.

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Introduction

In the dynamic landscape of retail business, the amalgamation of data from diverse sources is pivotal for informed decision-making and strategic planning. In the context of the VALOORES Crowd Intelligence System, this process of interconnecting data transcends traditional boundaries, seamlessly integrating information from ecommerce websites, inventory management systems, customer insights platforms, and more. The system's prowess lies in its ability to forge connections across disparate data silos, creating a unified ecosystem. This interconnected web enables a thorough analysis of sales data, unveiling valuable insights into customer behavior, market trends, and inventory performance. As we delve into the realm of knowledge graphs within VCIS we explore how this innovative approach enhances the understanding of complex relationships within the data, fostering a more intelligent and agile retail environment.

Business Needs

To conduct a comprehensive analysis, we conducted several scenarios to explore different aspects. These scenarios included:

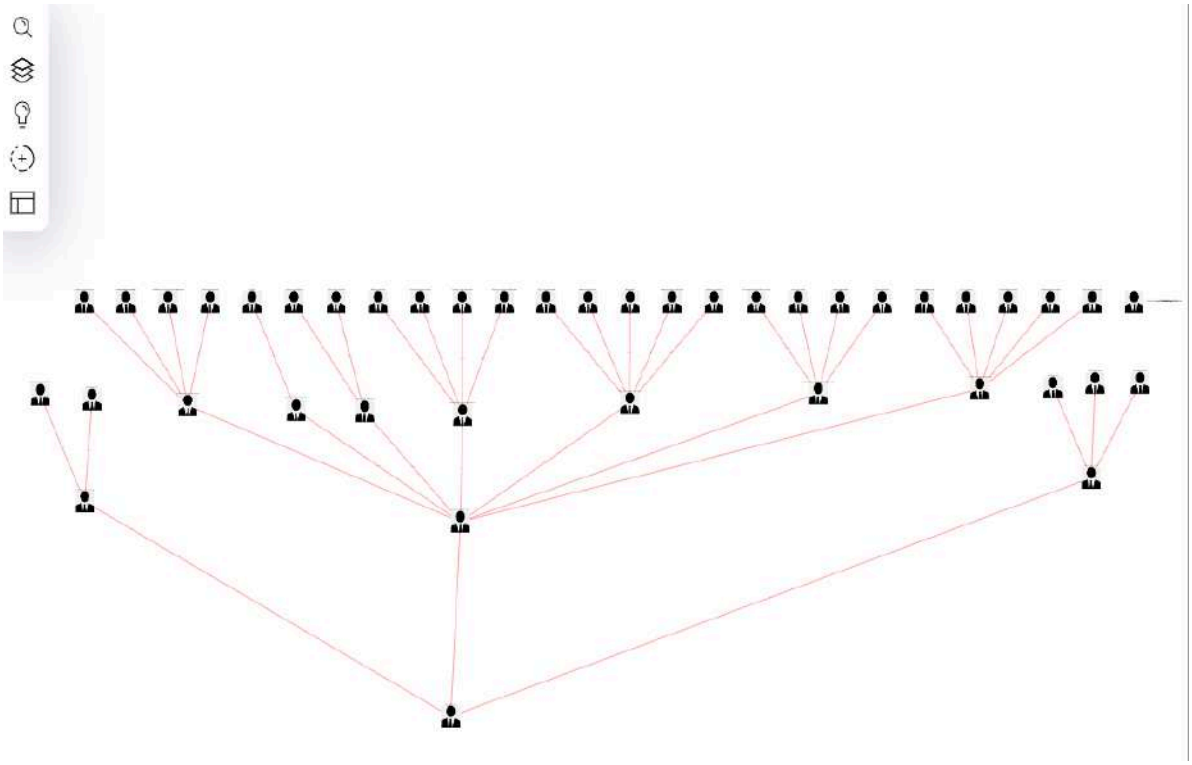
1. Investigating the hierarchical structure of positions within the store to understand the organizational setup.
2. Assessing employee punctuality by examining whether they adhere to their designated working hours or leave before their scheduled shift ends.
3. Identifying the most frequently stolen items within the store to gain insights into potential security concerns.
4. Analyzing the frequency of item theft by determining the specific days and hours when theft incidents occur most frequently.
5. Examining the suppliers from whom the stores source their products to understand the business partnerships and supply chain.
6. Analyzing invoices exchanged between the stores and their suppliers to gain insights into the financial transactions and relationships.

By conducting these scenarios, we aimed to gather valuable information and insights to address various aspects related to store operations, employee behavior, security concerns, and supply chain management.

Scenarios

1. Hierarchy Position

The dataset provides information about positions and personnel in a CVS store.



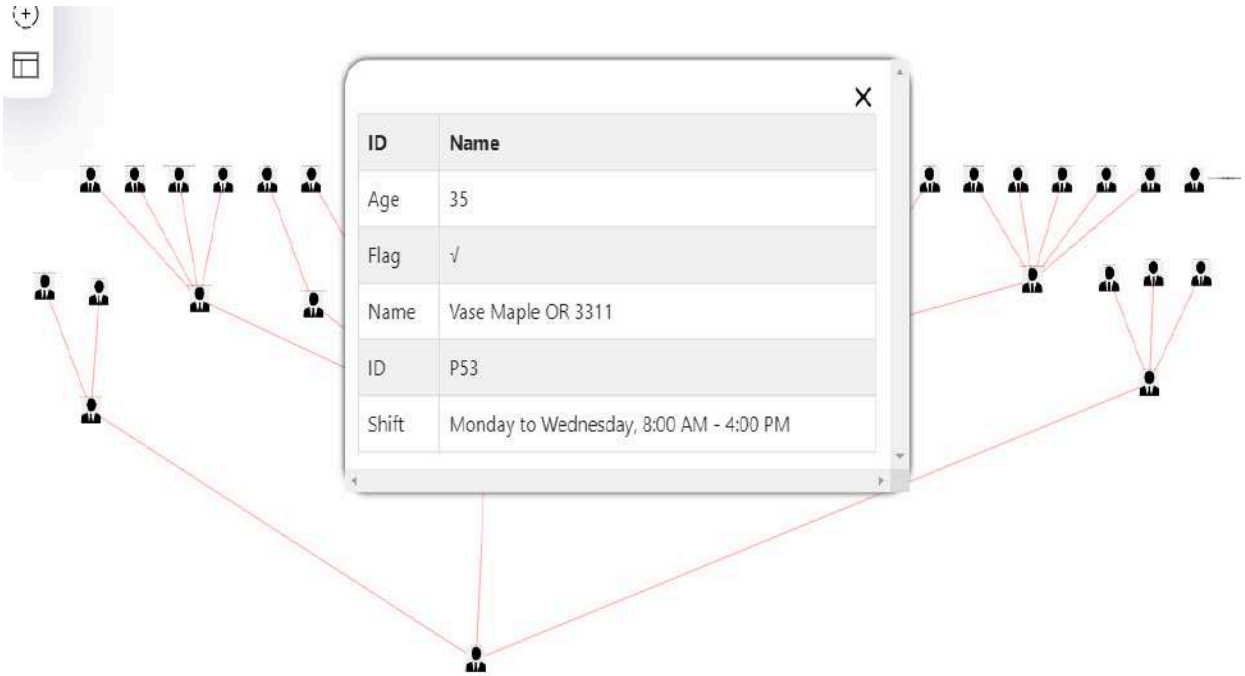
Layer 1: The store manager is the overall manager of the store.

Layer 2: The store manager is responsible for supervising and managing a group of department supervisors.

Layer 3: The department supervisors are responsible for overseeing specific departments within the store, such as the cosmetics and drug departments.

Layer 4: Each department supervisor is responsible for managing a team of employees within their respective departments, such as cosmetics sales associates, beauty consultants, stocking and inventory personnel, pharmacists, patient care associates, and pharmacy clerks or assistants.

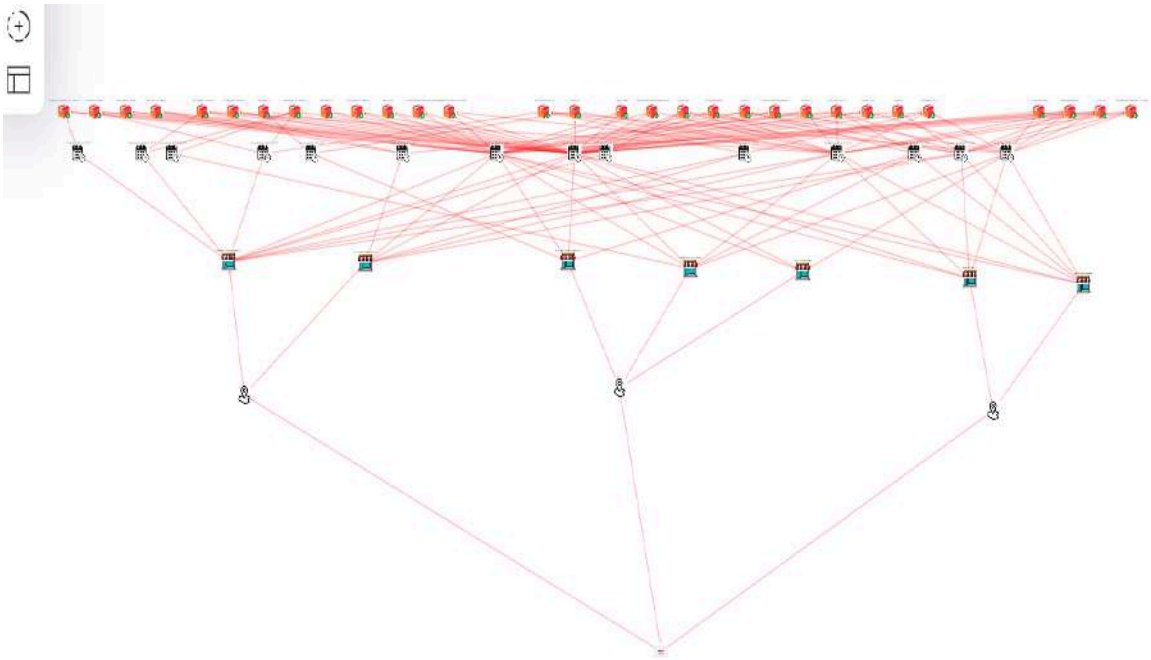
You can check the more info for the last layer only:



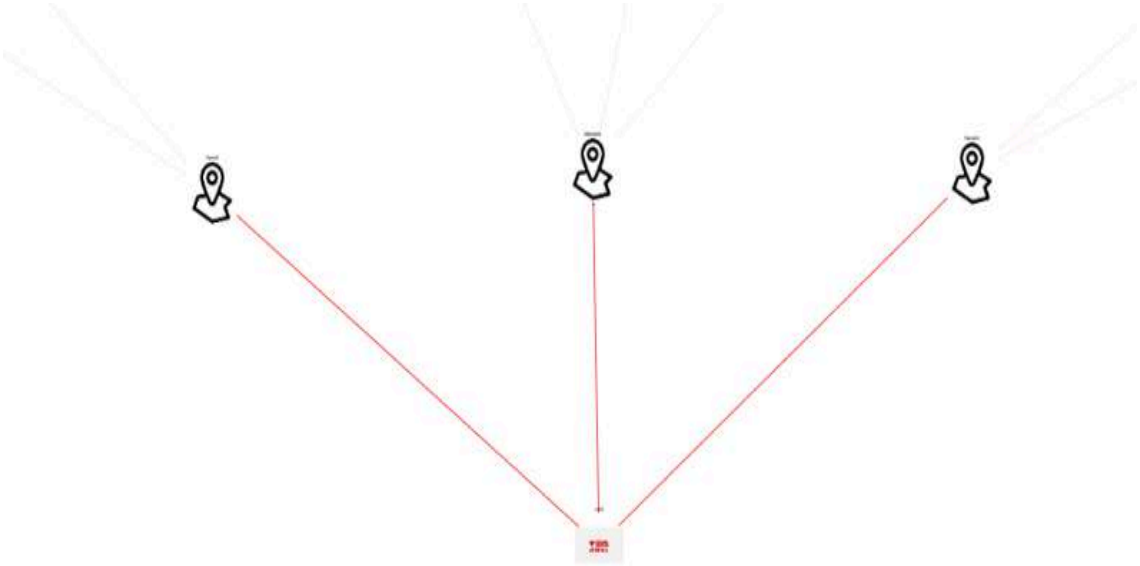
- Flag: √ tells that the employee was present till the end of his work hours.

2. Thefts Details

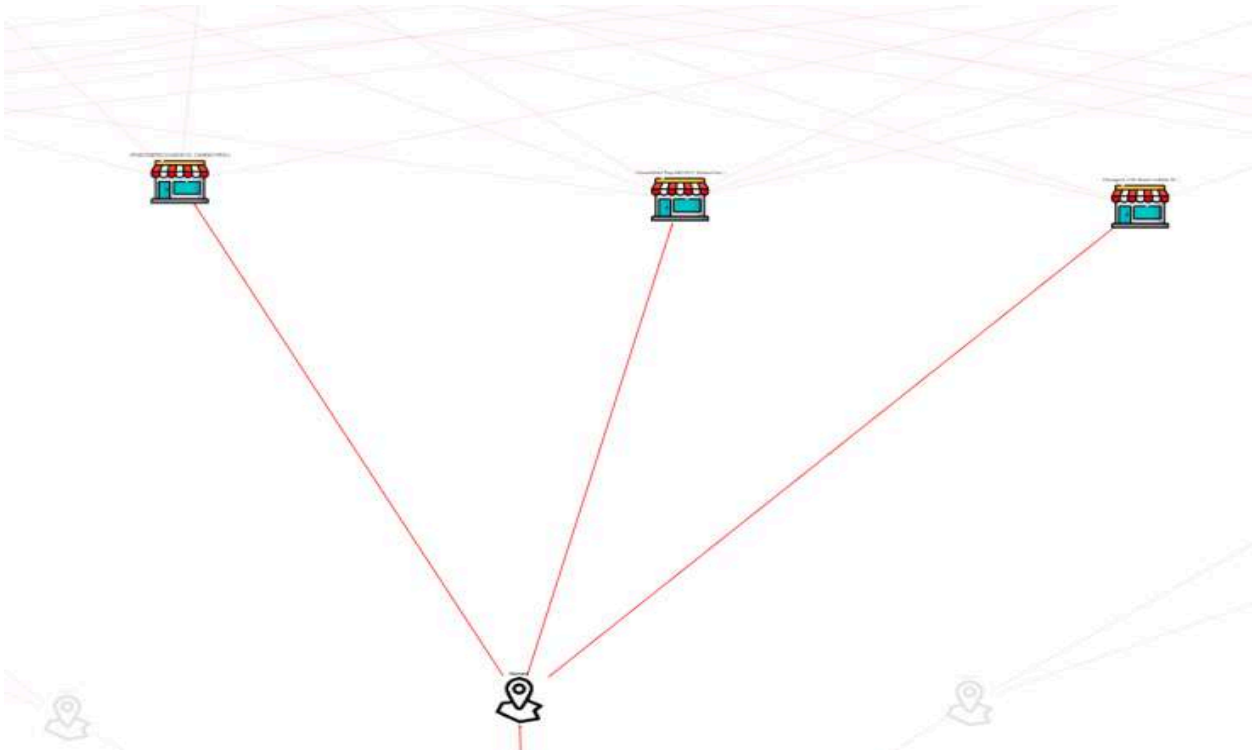
The data consists of theft incidents at CVS stores in Hawaii, Navarro, and Mainland. The dates of theft and the stolen items in each date, in each store.



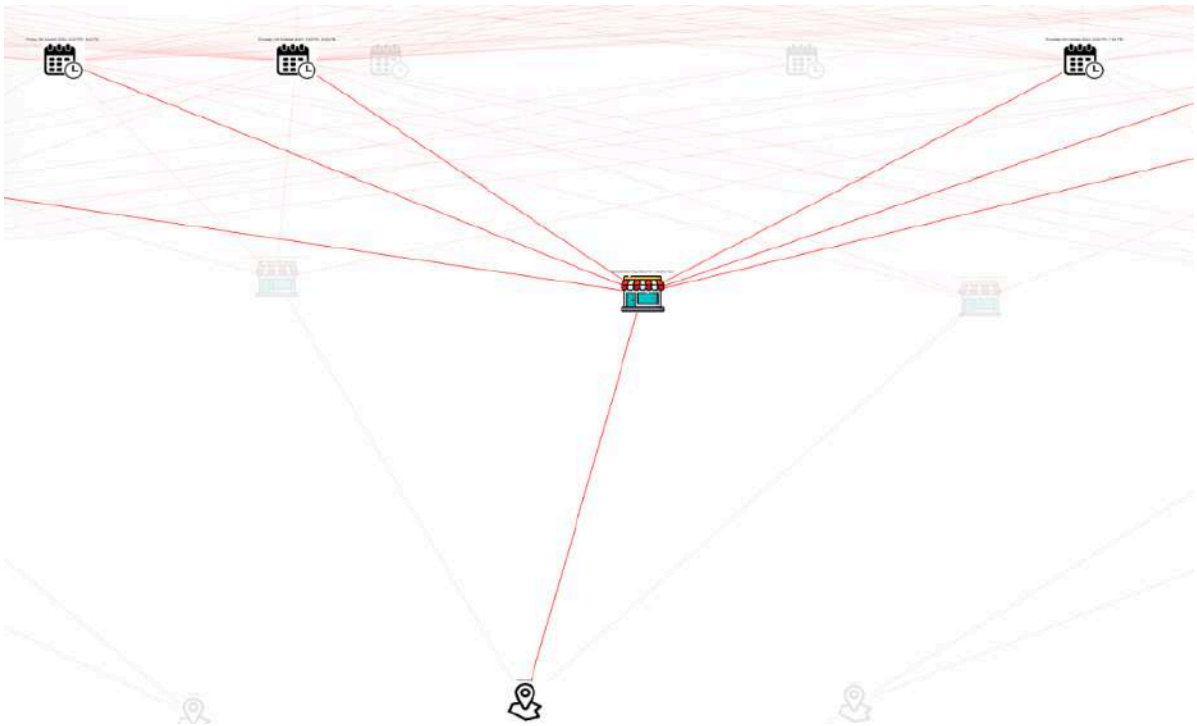
- Layer 1: CVS Company
- Layer 2: Zones of CVS (Hawaii, Navarro, Mainland)



- Layer 3: Stores in Each Zone (e.g., Mililani, HI; Chesterfield Twp, MI)

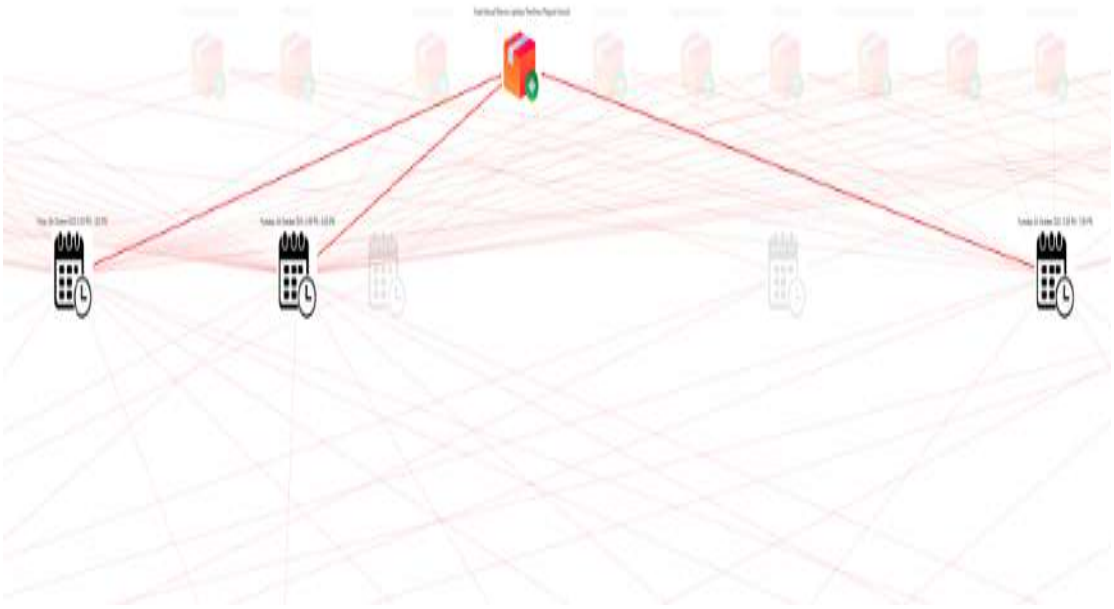


- Layer 4: Dates of Theft in Each Store



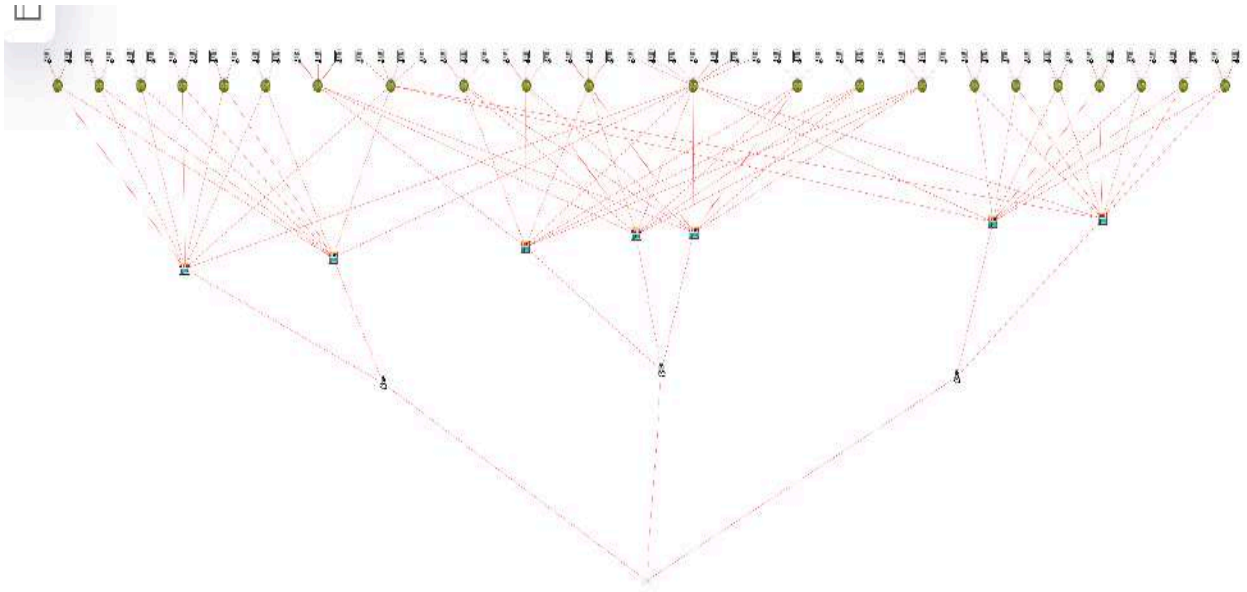
- Layer 5: Stolen Items in Each Date

  You can check on each date what the stolen items are.
  You can check a specific item in which dates are stolen and in which stores.



3. Suppliers Details

The provided data represents transactions and inventory information for CVS stores in Hawaii, Navarro, and Mainland. The data includes details such as the store location, suppliers, items, invoice numbers, send and receive dates, transactions, and payment methods.



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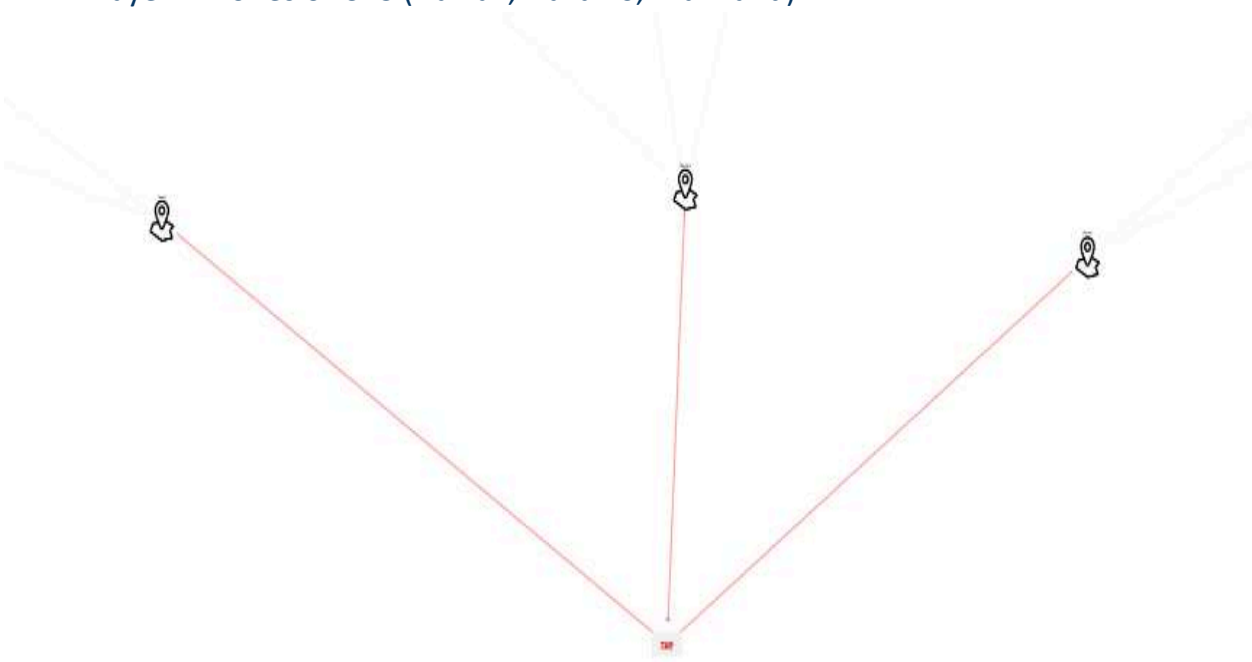
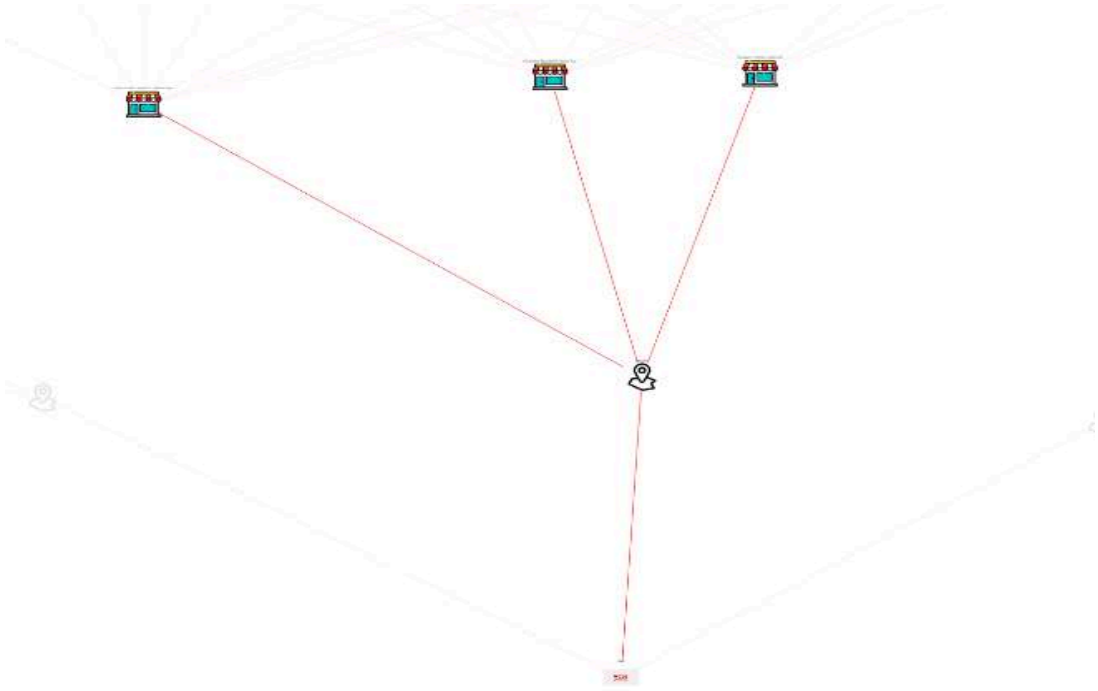
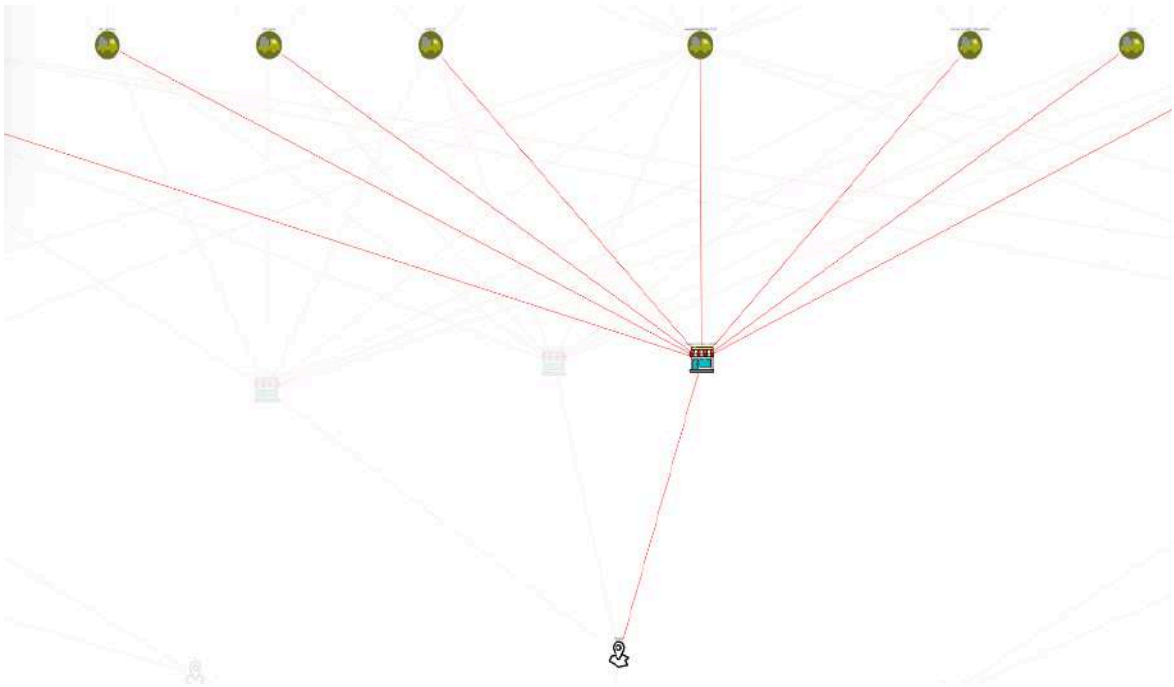


- Layer 3: Stores in Each Zone

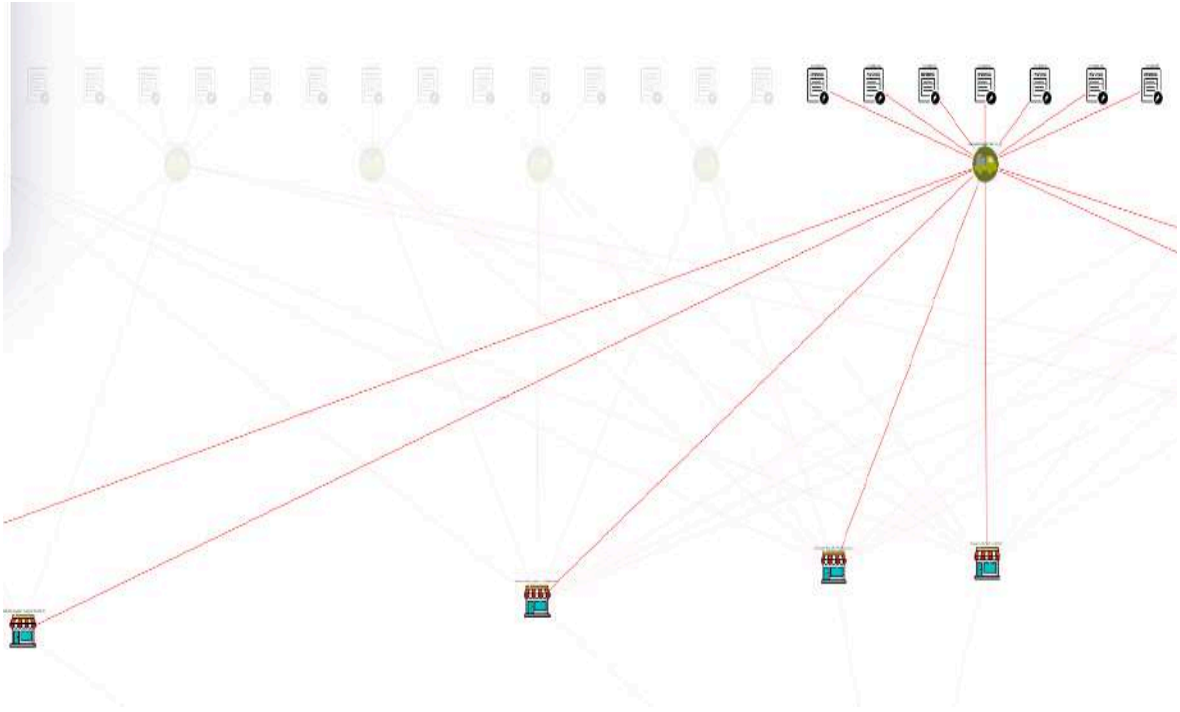


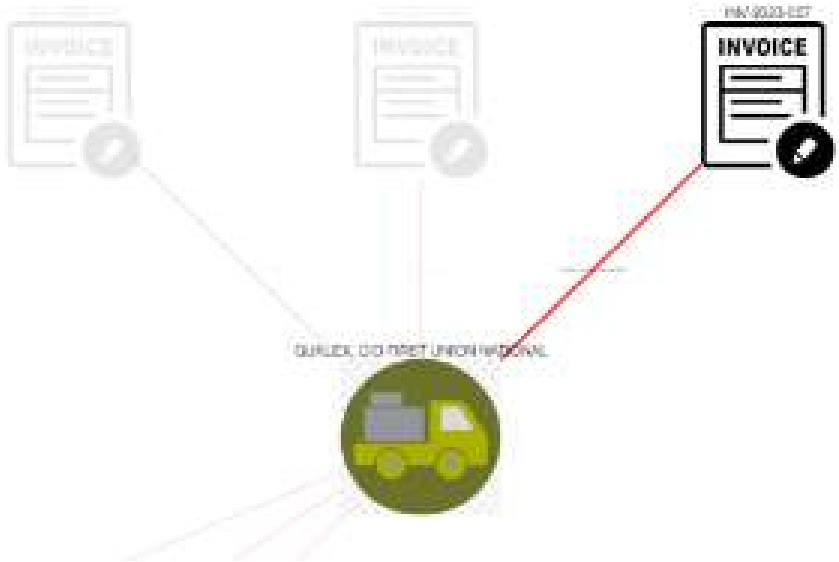
- Layer 4: Suppliers

To determine the suppliers from which each store obtains their items ,we can examine the sources that these stores rely

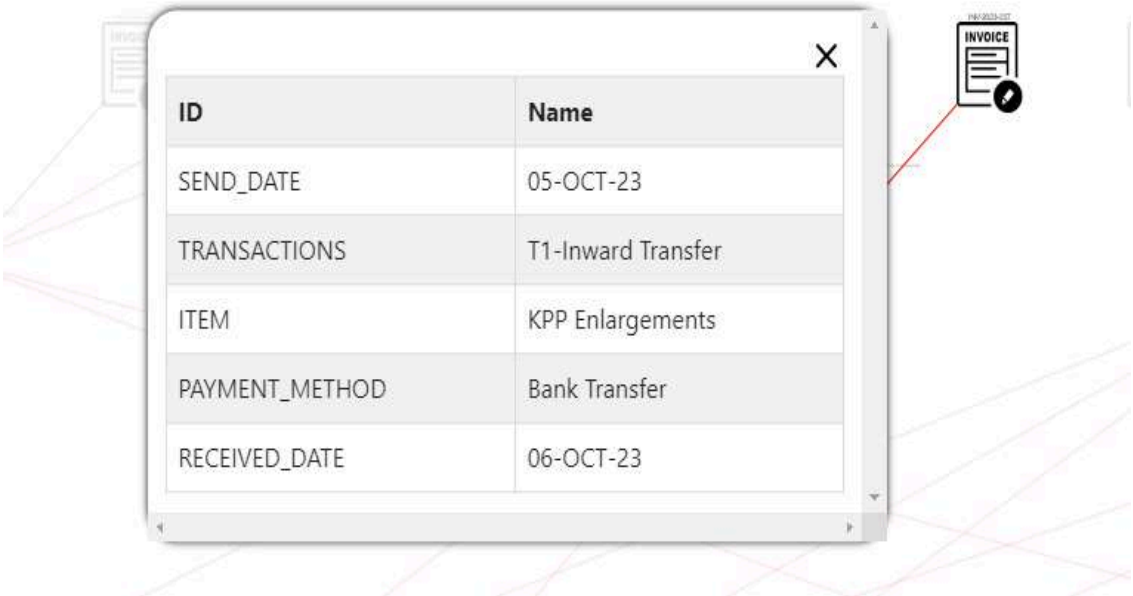


- Layer 5: Invoices for each Supplier





You can check the more info for the last layer only, it gives you information about the invoice.



Conclusion

Leveraging the integrated data and Knowledge Graph, businesses can employ advanced analytics to identify and understand patterns related to thefts and shoplifting incidents. This analysis involves a multifaceted approach, combining data from various sources to extract meaningful insights. Here's an elaboration on the key components mentioned:

Identifying Most Frequent Thefts and Shoplifting Patterns

By analyzing historical data, businesses can pinpoint the most common occurrences of thefts and shoplifting incidents. This involves considering factors such as the frequency of incidents, locations, and times.

Categorizing Stolen Items

The system can categorize stolen items based on patterns and frequency. This categorization helps businesses prioritize security measures and focus on protecting the most targeted products.

Mapping Devices with Time & Space

Integrating data from surveillance devices, such as security cameras or sensors, allows businesses to map the occurrences of thefts in both temporal and spatial dimensions. This mapping can reveal trends in specific areas or during particular time periods.

Dashboard Sharing and Reporting

The insights derived from the analysis can be shared through a user-friendly dashboard. This allows relevant stakeholders to access real-time information and make data-driven decisions. Reports can also be generated for further analysis and documentation.

Time and Date Analysis

Identifying specific days and times when thefts are more likely to occur provides valuable insights. This information can be used to optimize security staffing, implement targeted surveillance, or take preventive measures during vulnerable periods.

Key Performance Indicators (KPIs)

The system can generate KPIs related to theft and shoplifting incidents. These KPIs might include metrics such as the number of incidents, the average value of stolen goods, detection rates, and response times. Displaying these KPIs on a dashboard provides a visual representation of security performance.

Knowledge Graph Integration

It helps establish relationships between different data points, enabling a more holistic understanding of theft-related events. For example, it can link stolen items to specific locations, times, and even potential culprits.