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Epidemic Forecasting Using an Improved frequent Pattern Procedure and Multivariable Time-Based Association Pattern Extraction

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Abstract: Global health crises pose risks to the global healthcare system and economic systems. Preliminary forecasting of an illness epidemic may help administrations and healthcare institutions perform precautionary measures. The article suggests an improved frequent pattern growth method. It gets put together with extracting patterns from time-based relationships across multiple dimensions to help with health crisis forecasting. Conventional frameworks rely primarily on automated training and quantitative methods. This approach may overlook some latent time-based associations in the medical data. It seems like those connections could matter, but they are often missed. Maybe the time aspects are what stand out here. There is more to consider with how the data actually flows over periods. This suggested picture combines medical data, Weather-related variables, Population-based data, time-based variables, and the calendar month to detect epidemic structures. That identified relationship pattern may assist a timely alert framework and enhance the formulation of community healthcare policy.

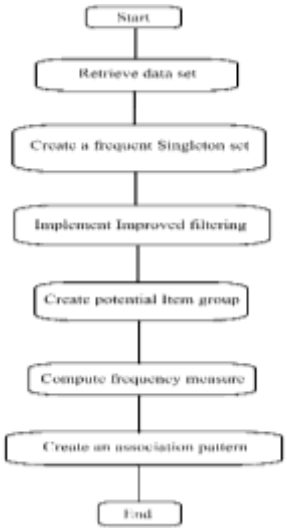
Keywords: Global health crisis, Association rule, Frequent pattern growth algorithm, medical care data analysis, Data extraction.

1. INTRODUCTION

Infectious diseases keep showing up more often these days. Coronavirus and influenza are good examples of this. We really need a solid way to forecast these outbreaks before they get out of hand. Medical records contain many details that could point to trends that are not obvious at first. Frequent pattern growth helps pull out repeated patterns from data. It seems like there are limitations with the basic version, though. So, they came up with a better architecture for it. This might connect environmental stuff with population health factors in useful ways. Some parts of the original method still feel unclear to me.

2. PROPOSED METHODOLOGY

This suggested framework adopts the process illustrated below



Fiq.1. Proposed improved Frequent Pattern Algorithm Workflow.

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This framework extracts time- and population-based features, builds an improved frequent-pattern tree, and produces relationship patterns for epidemic forecasting.

3. EXPECTED OUTCOME

That suggested method is anticipated for

- Enhance extraction performance
- Identify Implicit epidemic trends
- Produce significant time-based Connection patterns
- Facility timely epidemic forecasting

Sample pattern;
{Cold season, Elevated moisture level, Concentrated inhabitant}→{Flu epidemic}
Like patterns may help medical agencies detect vulnerable conditions before widespread illness spreads.

4. CONCLUSION

The present article introduces an architecture for epidemic forecasting that utilises an improved frequent-pattern growth method and multidimensional, time-based relationship-pattern extraction. The suggested framework is intended to enhance the precision of epidemic forecasting and assist in the formulation of community health care strategies.

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BIOGRAPHY

Tasleem Rafiq Sheikh is a final-year Bachelor of Technology (B.Tech) student in Computer Science Engineering (Artificial Intelligence and Machine Learning) with a strong passion for research, innovation, and technological advancement. Her areas of interest include Artificial Intelligence, Machine Learning, Data Mining, Deep Learning, Association Rule Mining, Temporal Data Mining, Multidimensional Data Analysis, and Big Data Analytics. She is particularly interested in exploring intelligent techniques for extracting valuable insights from complex datasets and developing innovative solutions to real-world challenges. With a research-driven mindset and dedication to continuous learning, she aspires to advance AI and data-driven technologies through impactful academic and scientific research.