

Research and demonstration of data aggregation and monitoring technology for water replenishment dispatching based on multi-source data fusion.

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Objectives

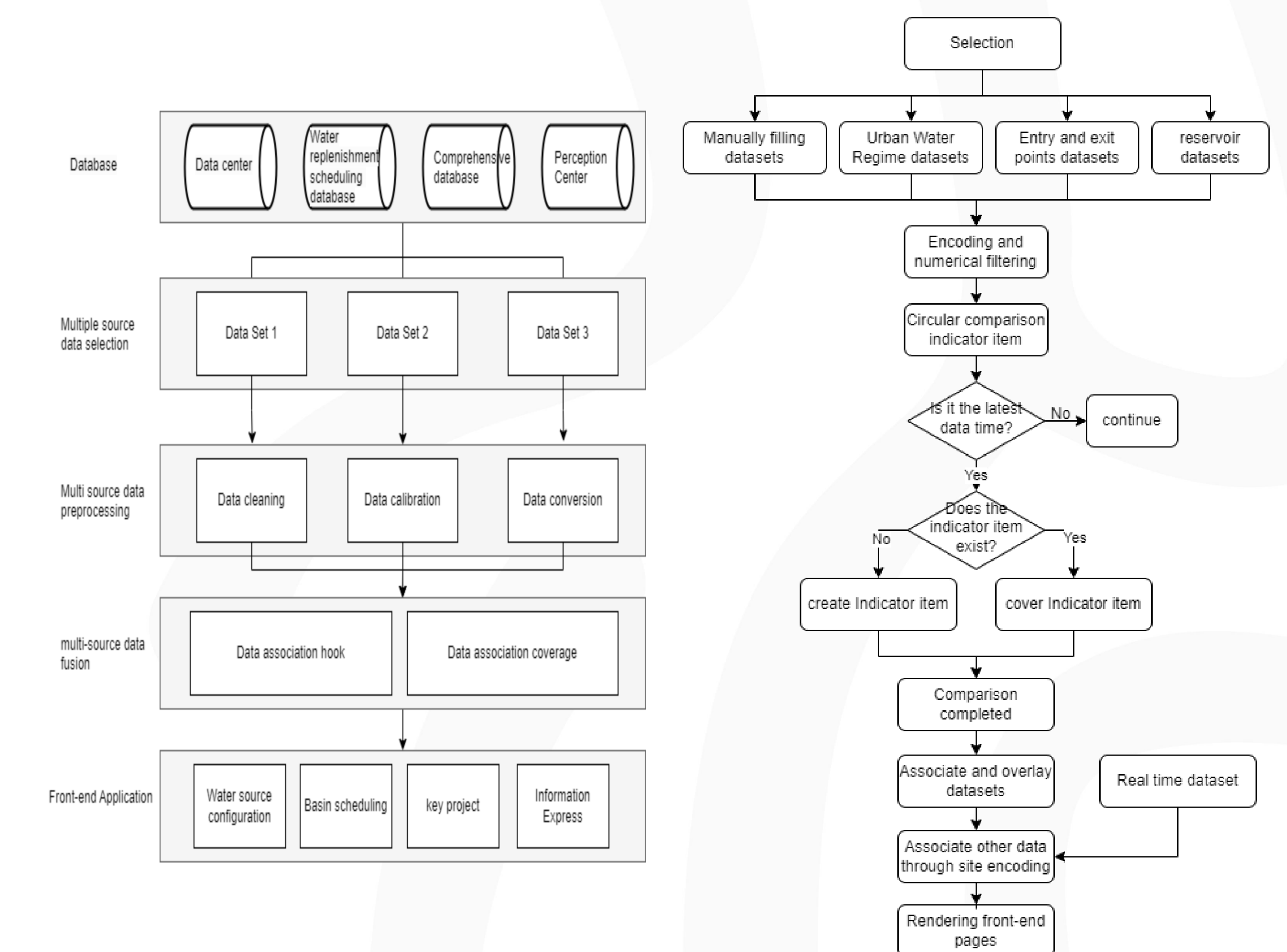
Multi source data has multidimensional characteristics, that is, data extracted from different perspectives on the same object, such as content theme dimension, type dimension, structural dimension, time dimension, spatial dimension, etc. As a business application display system, the replenishment scheduling app needs to organically integrate multi-source data, select the most suitable data source based on the current business scenario, and ensure its timeliness and accuracy. To achieve multi-source heterogeneous aggregation and full lifecycle monitoring of replenishment data, we can explore the implementation of unified data aggregation and management for replenishment systems based on multi-source data fusion technology, timestamp algorithms, and replenishment business logic architecture

Methods

At present, multi data source association queries are mainly divided into four implementation methods: multi data source queries, multi data source association queries based on structured data, multi data source association queries based on heterogeneous data, and multi data source fusion queries. The technical means based on query results and subsequent operations can be summarized as multi-source data fusion technology. The purpose of multi-source data fusion technology is to extract unified, better, richer, and more accurate information from different data sources after absorbing their characteristics. This technology can not only achieve optimal data selection, but also preprocess the data for data fusion and analysis. This is a characteristic of multi-source data fusion technology and its specific application operation process. The process of multi-source data fusion can be roughly divided into three steps: multi-source data selection, multi-source data preprocessing, and multi-source data fusion.

Results

Based on research results and ecological water replenishment scheduling work, watershed water replenishment information as the data foundation, and multi-source data fusion technology, efficient aggregation and integration of various types of data have been achieved in the "Beijing Office" water resource scheduling and configuration system. Clear and accurate organization and display of various data items in functional modules such as watershed scheduling, hub engineering, and site overview, achieving the effect of "gathering the strengths of a hundred experts" in data aggregation



Conclusions

- (1) The multi-source data fusion and dynamic monitoring technology proposed in this study can effectively solve the problems of association fusion and information supervision of various types of data. This technological achievement can not only assist in the aggregation management of water replenishment scheduling data, but also be applied to various water business data aggregation scenarios based on business work needs, promoting the interconnection and interconnection of water data.
- (2) It is recommended to strengthen the refined monitoring of each data item in the dataset in various data monitoring scenarios, which can significantly improve data assurance efficiency, save operation and maintenance costs, and ensure the stable development of business work.