## M4: A Visualization-Oriented Time Series Data Aggregation

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## I. Introduction

Visualization of large scale time series data is a crucial need of modern exploratory bigdata analysis [1]. But the huge size of the data is a barrier to visualization [2], [3], [4]. In this review paper we present a review of the paper [5] and present some related works in the line. The paper appeared in the Proceedings of the VLDB Endowment, 2014.

II. QUERY REWRITING

**TODO** 

III. TIME SERIES VISUALIZATION

**TODO** 

IV. DATA REDUCTION OPERATORS

TODO

V. TIME SERIES DATA REDUCTION

VI. EVALAUTION

VII. RELATED WORKS

**TODO** 

VIII. OUR PROPOSAL

TODO

## IX. CONCLUSION

The conclusion goes here, this is more of the conclusion

## REFERENCES

- [1] T.-c. Fu, "A review on time series data mining," *Engineering Applications of Artificial Intelligence*, vol. 24, no. 1, pp. 164–181, 2011.
- [2] A. Labrinidis and H. V. Jagadish, "Challenges and opportunities with big data," *Proceedings of the VLDB Endowment*, vol. 5, no. 12, pp. 2032–2033, 2012.
- [3] J. Fan, F. Han, and H. Liu, "Challenges of big data analysis," *National science review*, vol. 1, no. 2, pp. 293–314, 2014.
- [4] C. P. Chen and C.-Y. Zhang, "Data-intensive applications, challenges, techniques and technologies: A survey on big data," *Information Sciences*, vol. 275, pp. 314–347, 2014.
- [5] U. Jugel, Z. Jerzak, G. Hackenbroich, and V. Markl, "M4: a visualization-oriented time series data aggregation," *Proceedings of the VLDB Endowment*, vol. 7, no. 10, pp. 797–808, 2014.