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Zürich, 27.06.2011

Implementation of Approximation Functions for Time Series

Summer Project (5 CP):

Work overview:

The aim of this summer project is to investigate and implement different types of functions able to approximate time series. The two main types of functions are the continuous approximation functions and the piecewise approximation functions functions. An empirical comparison between the two types of functions should be provided as a final output of the summer project.

Work tasks:

1. Propose a relational schema for the hydrological data and create an instance of it in an Oracle server (http://horatio.ifi.uzh.ch/) [1 week].

2. Literature research on time series approximation techniques [1-2 Weeks]

3. Implementation of continuous linear approximation functions (Linear interpolation, Spline Interpolation, Cubic Spline) [2-3 weeks].

4. Implementation of piecewise approximation functions (PAA, PLA, PQA) [4 weeks].

5. Empirical precision comparison between the continuous functions and piecewise functions for approximating hydrological time series [2 weeks].

Literature:

1. Palpanas, T., and al., *Streaming Time Series Summarization Using User-Defined Amnesic Functions*, in TKDE, 2008

2. Palpanas, T., and al *Online amnesic approximation of streaming time series*, in ICDE, 2004

Task assignment and supervisor:

- Mourad Khayati

Starting date of thesis: 27/06/2011

Ending date of thesis: 27/09/2011

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