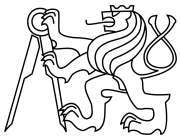
CZECH TECHNICAL UNIVERSITY IN PRAGUE
FACULTY OF INFORMATION TECHNOLOGY



ASSIGNMENT OF BACHELOR'S THESIS

Title:	Numerical database system
Student:	Viacheslav Kroilov
Supervisor:	doc. Ing. Ivan Šimeček, Ph.D.
Study Programme:	Informatics
Study Branch:	Computer Science
Department:	Department of Theoretical Computer Science
Validity:	Until the end of summer semester 2017/18

Instructions

1) Study and explore the current concept of numerical database system (see [1] and [2]) that stores most frequent search terms in a weighted search tree.

2) Discuss advantages and drawbacks of different types of weighted search trees in application to the algorithm.

3) Explore different strategies for storing terms.

4) Implement a parallel version of the described algorithm.

5) Perform a performance measurement (throughput and latency) of the parallel version on a multicore system. Tests are based on common usage scenarios of this algorithm.

6) Implement a ready-to-use open source library in C++ programming language.

References

[1] S. C. Parkb, C. Bahria, J. P. Draayerb, S. -Q. Zhengb: Numerical database system based on a weighted search tree, Computer Physics Communications, Volume 82, Issues 2-3, September 1994, Pages 247-264.

[2] CTU FIT Bachelor Thesis 2016, Miroslav Mašat: Numerical database system, Prague, February 4.

doc. Ing. Jan Janoušek, Ph.D.
Head of Department

prof. Ing. Pavel Tvrdík, CSc.
Dean

Prague February 11, 2017