Technische Universität Berlin

Chair of Database Systems and Information Management

Bachelor's/Master's Thesis

Thesis Title

Firstname Lastname(s)
Degree Program: Computer Science
Matriculation Number: 123456

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Submission Date
DD.MM.YYYY

Hereby I declare that I wrote this thesis myself with the help of no more than the mentioned literature and auxiliary means.

Berlin, DD.MM.YYYY

. . . . . .

Firstname, Lastname(s)

Zusammenfassung

Tipps zum Schreiben dieses Abschnitts finden Sie unter [4]

Abstract

The abstract should be 1-2 paragraphs. It should include:

- a statement about the problem that was addressed in the thesis,
- a specification of the solution approach taken,
- a summary of the key findings.

For additional recommendations see [4].

Acknowledgments

For recommendations on writing your Acknowledgments see [5].

Contents

Chapters 3-5 are the core of the thesis, whereas Chapters 1, 2, 6, and 7 provide context. The major contributions should be in Chapters 4 and 5. This structure serves as a guideline and should be customized accordingly. In particular, the generic chapter titles should be replaced with more specific ones, where appropriate (e.g., Chapter 4).

List of Figures

List of Tables

List of Abbreviations

DIMA Database Systems and Information Management

List of Algorithms

1 Introduction

... should include the following:

- motivation (why is this problem interesting? offer examples),
- research challenge (what is the obstacle to be overcome?),
- novelty (was this problem already solved?),
- anticipated impact (how does solving this problem impact our world?).

2 Scientific Background

... should include the following:

- definitions / technical terms,
- theoretical foundations / principles,
- descriptions of algorithms, hardware, software, and/or systems employed.

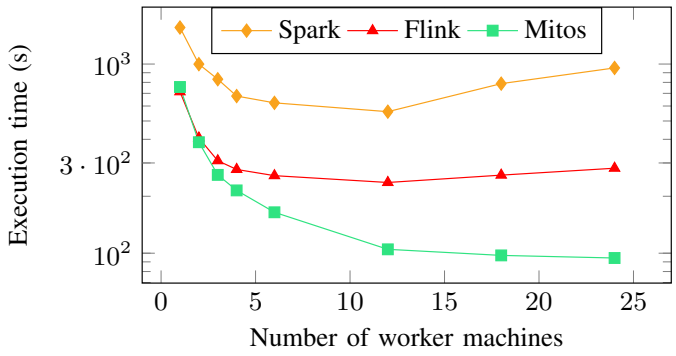

Figure 1: Strong scaling for Visit Count[1].

3 Research Problem

... should include the following:

- a succinct, precise, and unambiguous statement of the research problem or question to be solved,
- goals and subproblems that will be explored, including the scope of the thesis (i.e., what is in and out of scope).

Area (Million sq. miles)	Calling Code
0.29	56
0.3	90
3.8	1
0.5	51
600	9800
Pearson = 1.0	Spearman's = 0.1

Table 1: Correlation in the existence of outlier[2].

4 The Specific Solution Approach

... should include the following:

- research methodology (e.g., prototype and experiments, case study, literature survey, theoretical analysis),
- derivations and descriptions of algorithms, hardware, software, and/or systems developed.

Algorithm 1: Splitting a Session[3].

Parameters:
e : Tuple to be inserted.
te (e) : Event-time of e.

S ← slice that covers te (e);
if *S starts at te (e)* **then**
  //Slice before S must be fixed.
  change the type of the slice before S to combined;
  add e to S;
else
  // S does not start at te (e).
  change tend (S) to te (e) (excluding te (e) from S);
  change type of S to flexible;
  add slice in [te (e), former tend (S)] with former type of S.
  add e to the new slice.
end

5 Experimental (and/or Analytical) Evaluation

5.1 Experimental Setup

... should include the following:

- define experimental data and workload(s),
- discussion about the selection and interpretation of the evaluation metrics,
- discussion about the computing environment, including hardware, software, tools.

5.X Design and an Interpretation of the Results (For each Experiment Class X)

... should include the following:

- which experiments will be conducted and why?
- for each experiment, what are objectives, baselines, and expected results?
- description and an interpretation of the experimental results,
- explanation for any anomalies or any unexpected behavior.

6 Related Work

... should include the following:

- state-of-the-art solutions to the problem,
- related work and a differentiation of your contributions to the related work.

7 Conclusion

... should include the following:

- problem restated and a brief summary of the methodology,
- student contributions (e.g., survey, open-source software, journal publication),
- a brief summary of the findings and results,
- limitations and generalizability of the findings and results.
- lessons learned,
- recommendations for future research.

Bibliography

[1] Gévay, G.E., Rabl, T., Breß, S., Madai-Tahy, L., Quiané-Ruiz, J.A., Markl, V.: Efficient control flow in dataflow systems: When ease-of-use meets high performance (2021), https://www.researchgate.net/publication/349768477_Efficient_Control_Flow_in_Dataflow_Systems_When_Ease-of-Use_Meets_High_Performance, to be published

[2] Mahdi Esmailoghli, Jorge-Arnulfo Quiané-Ruiz, Z.A.: Cocoa: Correlation coefficient-aware data augmentation (2021)

[3] Traub, J., Grulich, P.M., Cuéllar, A.R., Bress, S., Katsifodimos, A., Rabl, T., Markl, V.: Scotty: General and efficient open-source window aggregation for stream processing systems (2020), https://www.redaktion.tu-berlin.de/fileadmin/fg131/Publikation/Papers/Traub_TODS-21-Scotty_preprint.pdf

[4] Wallwork, A.: English for writing research papers, chap. Abstracts, pp. 177–245. Springer International Publishing Switzerland (2011)

[5] Wallwork, A.: English for writing research papers, p. 306. Springer International Publishing Switzerland (2011)

Appendix A. Further Details on the Solution Approach

Appendix B. Extended Version of the Experimental Results