



# Title of the Thesis

Subtitle of the Thesis

## Master's Thesis

for the degree of Master of Science (M.Sc.)

Submitted to  
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Department of Computer Science

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# Abstract

A brief summary of the thesis's purpose, methods, key results, and conclusions.

# Acknowledgments

An optional section thanking people and organizations who supported or contributed to the work.

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# List of Abbreviations

DSR	Design Science Research . . . . .	3
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# 1 Introduction

## 1.1 Section

This is an example of a section.

### 1.1.1 Subsection

This is an example of a subsection.

#### Subsubsection

This is an example of a subsubsection.

## 1.2 Research Questions

This is an example of how to format research questions.

### **RQ<sub>1</sub>: Is this a research question?**

You can refer to research questions like this: RQ<sub>1</sub> is an example of a research question.

## 1.3 Chapter References

You can refer to other chapters like this: Chapter 6 is the conclusion chapter.

## 2 Related Work

### 2.1 Tables

Table 2.1: Inclusion and exclusion criteria for the literature review.

Inclusion Criteria	Exclusion Criteria
English language	Non-English
Published 2015–2025	Published before 2015
Peer-reviewed	Not peer-reviewed
Provides method and empirical results	Irrelevant domain or off-topic

You can create tables and refer to them like this: Table 2.1 shows the inclusion and exclusion criteria for the literature review.

### 2.2 Citations

You can cite sources in parentheses like this: Design patterns make it easier to reuse successful designs and architectures [1].

You can also cite sources in the text like this: Gamma *et al.* [1] provides a comprehensive overview of design patterns.

# 3 Methodology

## 3.1 Abbreviations

You can define abbreviations and refer to them like this: The Design Science Research (DSR) methodology is widely used in information systems research. The DSR approach emphasizes the creation and evaluation of artifacts to solve identified problems.

## 3.2 Figures

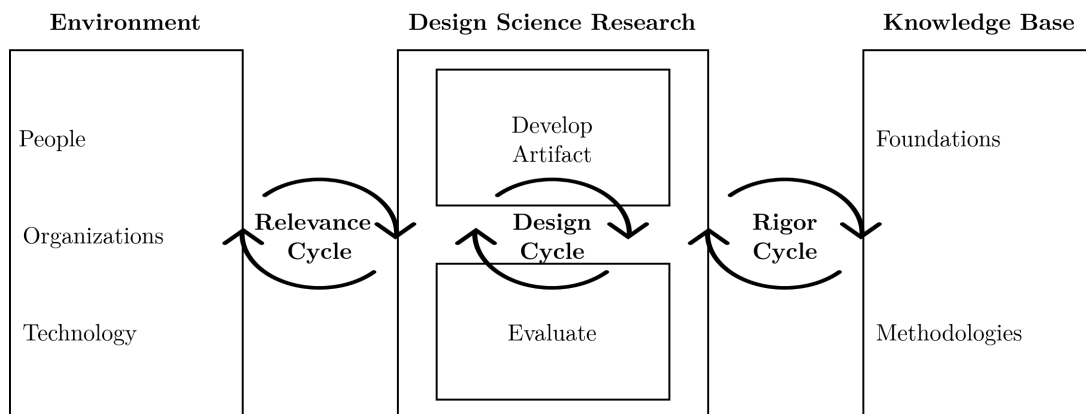


Figure 3.1: DSR approach with relevance, rigor, and design cycle. Adapted from Hevner *et al.* [2].

You can include figures and refer to them like this: Figure 3.1 shows the DSR approach with relevance, rigor, and design cycle.

## 4 Implementation

### 4.1 Formulas

You can include formulas like this: The file processing problem can be modeled as follows. A file  $F$  of size  $S$  bytes split into chunks of size at most  $c$  is:

$$F = \langle B_1, B_2, \dots, B_m \rangle, \quad m = \left\lceil \frac{S}{c} \right\rceil$$

### 4.2 Algorithms

You can describe algorithms using pseudocode like this:

---

**Algorithm 4.1:** Chunk-based file processing with hashing.

---

Input: File  $F$ , chunk size  $c$

Output: Record  $\langle size, chunk\_count, sha256 \rangle$

```
1:  $h \leftarrow \text{INITSHA256}()$  ▷ Initialize digest.
2:  $size \leftarrow \text{LENGTH}(F)$ 
3:  $chunk\_count \leftarrow 0$ 

4: for all  $chunk \in \text{READ}(F, c)$  do
5:    $\text{UPDATE}(h, chunk)$ 
6:    $chunk\_count \leftarrow chunk\_count + 1$ 

7:  $sha256 \leftarrow \text{FINALIZE}(h)$ 
8: return  $\langle size, chunk\_count, sha256 \rangle$ 
```

---

You can refer to algorithms like this: Algorithm 4.1 describes a chunk-based file processing algorithm.

### 4.3 Lists and Enumerations

You can create lists and enumerations like this:

1. Initialize SHA-256 digest and read the file size.

2. Stream the file in chunks of at most  $c$  bytes.
3. For each chunk, update the digest and increment the chunk counter.
4. Finalize the digest to obtain the hash.
5. Return  $\langle size, chunk\_count, sha256 \rangle$ .

### 4.3.1 Code Listings

You can include source code listings, for example Python code, like this:

Listing 4.1: Source code of the file processing algorithm.

---

```
1 import hashlib
2 from pathlib import Path
3
4 def process_file(path: str, chunk_size: int = 1 << 20):
5     p = Path(path)
6     h = hashlib.sha256()
7     with p.open("rb") as f:
8         while True:
9             b = f.read(chunk_size)
10            if not b:
11                break
12            h.update(b)
13     return {
14         "file": p.name,
15         "size_bytes": p.stat().st_size,
16         "sha256": h.hexdigest()
17     }
18
19 if __name__ == "__main__":
20     print(process_file("example.dat"))
```

---

# 5 Results

## 5.1 Graphs

This is a graph which was created using Python (Jupyter Notebook) to match the style of the document.

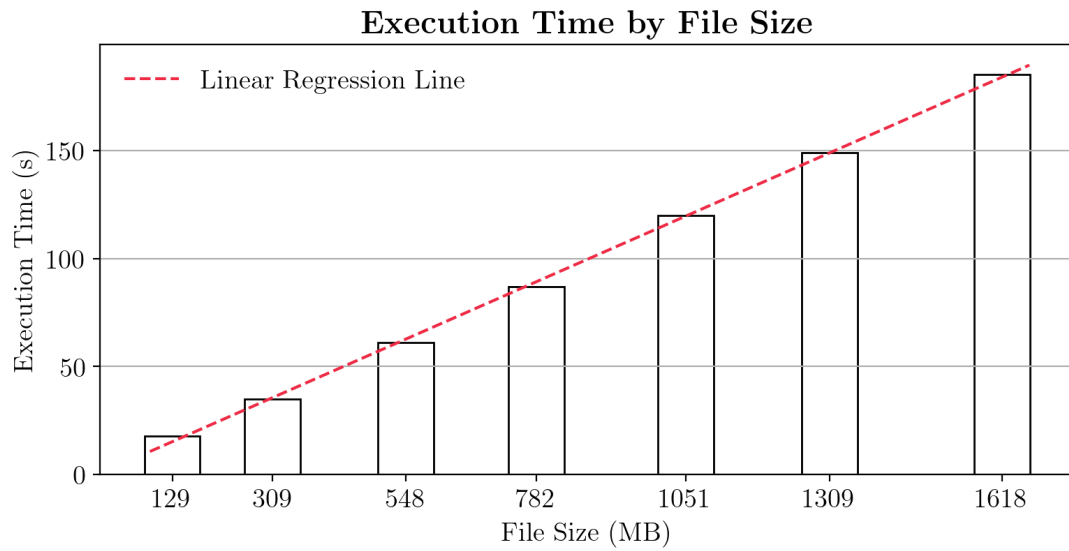


Figure 5.1: Execution time by trace file size of the framework.

# 6 Conclusion

## 6.1 Gantt Chart

This is a Gantt chart which was created using draw.io to match the style of the document.

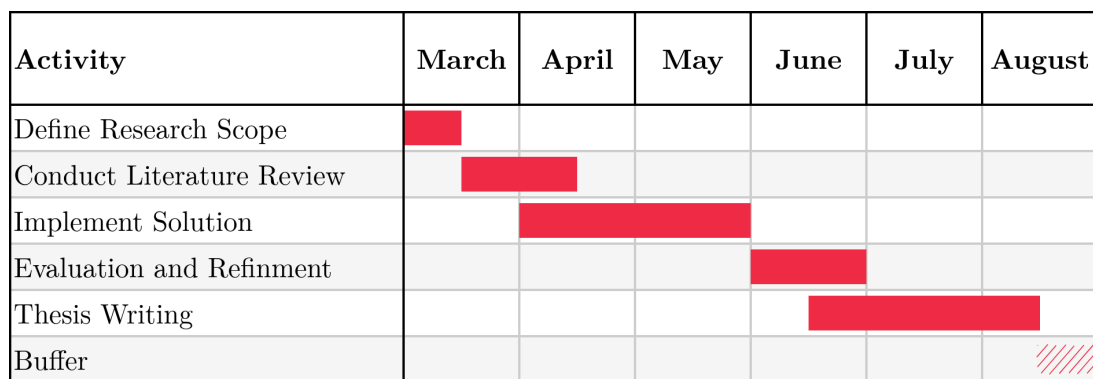


Figure 6.1: Gantt chart of the project timeline.

# Bibliography

- [1] E. Gamma, R. Helm, R. Johnson, and J. M. Vlissides, *Design Patterns: Elements of Reusable Object-Oriented Software*, 1st ed. Addison-Wesley Professional, 1994, ISBN: 0201633612. [Online]. Available: [http://www.amazon.com/Design-Patterns-Elements-Reusable-Object-Oriented/dp/0201633612/ref=ntt\\_at\\_ep\\_dpi\\_1](http://www.amazon.com/Design-Patterns-Elements-Reusable-Object-Oriented/dp/0201633612/ref=ntt_at_ep_dpi_1).
- [2] A. Hevner, A. R, S. March, *et al.*, “Design science in information systems research,” *Management Information Systems Quarterly*, vol. 28, pp. 75–, Mar. 2004.



# Declaration of Authorship

I hereby declare that I have written the present Master's thesis independently, that it has not been submitted elsewhere for examination purposes, that I have not used any sources or aids other than those stated, and that I have marked verbatim and paraphrased quotations as such.

Munich, 01.01.2025

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Place, Date

Max Mustermann

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Signature

# A Some Appendix

## A.1 Additional Material