**DOCUMENTATION REPORT**

Part of the BACHELOR DISSERTATION

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| **Design patterns in .Net** |
| A look into the use of design patterns in .Net |



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| Elective track  Graduation | Software Engineer |
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24/03/2024

Foreword

The foreword contains the usual thanks. All those who helped with the final paper are thanked.

The persons who made the most significant contribution are thanked first. Write the name, position and title of persons correctly.

Indicate your name, place and date at the bottom (optional). A signature is not appropriate here.

Because the word in advance is strongly personal, it is often written in the I form.

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# Introduction

## General

This paper aims to assist software developers, particularly those specializing in .Net development, in gaining a deeper understanding of design patterns and their practical value.

I had the opportunity to write this paper during my internship at Bestmix Software, where I conducted an in-depth analysis on parts of their code, which forms the basis of the latter part of this document.

## The problem

There are many cases where using a design pattern instead of regular straight forward code has huge benefits. But it is not always easy to identify this and in some cases design patterns are overkill and just complicate things. There is also the choice of which patterns to use. These are all difficult things to figure out.

## Research question

**What are the most important design patterns in programming, and how are they applied in C#?**

* What are the commonly agreed upon design patterns in programming?
* What are the advantages and disadvantages of these patterns?
* How do you recognize good use cases for these patterns?
* How do these patterns work in c#?

## Experiment

**Research:** I will read the book “Design Patterns Elements of Reusable Object-Oriented Software” since this is widely considered the most important source regarding design patterns. There are other sources I will explore as well, listed in the sources section. From these sources I will write the first part of my thesis in which I define design patterns, explain how they are implemented in c#. I will also try to find c# specific information about these design patterns, why some work better or worse in .Net applications.

**Analysis of BestMix Software:** The second part of my thesis will consist of an analysis. Most importantly I will try to map out what kind of design patterns they commonly use and if those choices were good ones. Since the software I work on there is huge (Bestmix Recipe management), I will need to look into a smaller part of the application to do my analysis.

# Experiment

In this part of your bachelor's dissertation, you describe your experiment. Or put another way, how did you gain knowledge to give your TEDTalk/final presentation.

This is the body of your report, where you make the difference compared to existing literature. Also make sure it is clear what you have made/added compared to existing material.

Make sure the following issues are covered throughout the different chapters:

* the methodology
* justified choices of technology/software/procedure etc.,
* results,
* critical analysis of the results.

The above items are **not** literal chapters but should be interwoven throughout the body of your documentation report.

Make sufficient use of figures and visualisations (do not forget citations). Make sure you have a nice coherent whole, with clear structure and a smooth readability. Don't be afraid to use AI tools for this. Do not forget to include your AI prompts at the back of this report.

Too many details that would distract from the story of your bachelor's dissertation should be relegated to an appendix. (E.g. installation procedure, pieces of code.)

### 

# Conclusion

Here you formulate the answer to the research question.

This does not include any new results that you have not previously cited. Do not use subsections here.

Conclude your conclusion with a powerful closing sentence that briefly summarises your conclusion in one sentence.

# AI Engineering Prompts

All the AI engineering prompt you used to write this report collect here. Obviously, the quality of the prompt largely determines the quality of this report. You don't need to record the full conversations, but definitely the beginning/principal prompt.

# Bibliography

# Appendices

All attachments are collected here. Appendices are intended for readers interested in more detailed information about your topic.