



MASTER THESIS

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# Long Title description

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May 2, 2020

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# Statement of authorship

I hereby declare – according to §XY par. Z HGU PO 20AB – that the thesis submitted is my own independent work. No other than the specified sources and aids were used and all – direct and indirect – citations are marked and acknowledged in the references.

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Place, Date

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Signature



# Acknowledgement

This was my acknowledgement text.



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# 1 Introduction

## 1.1 Motivation

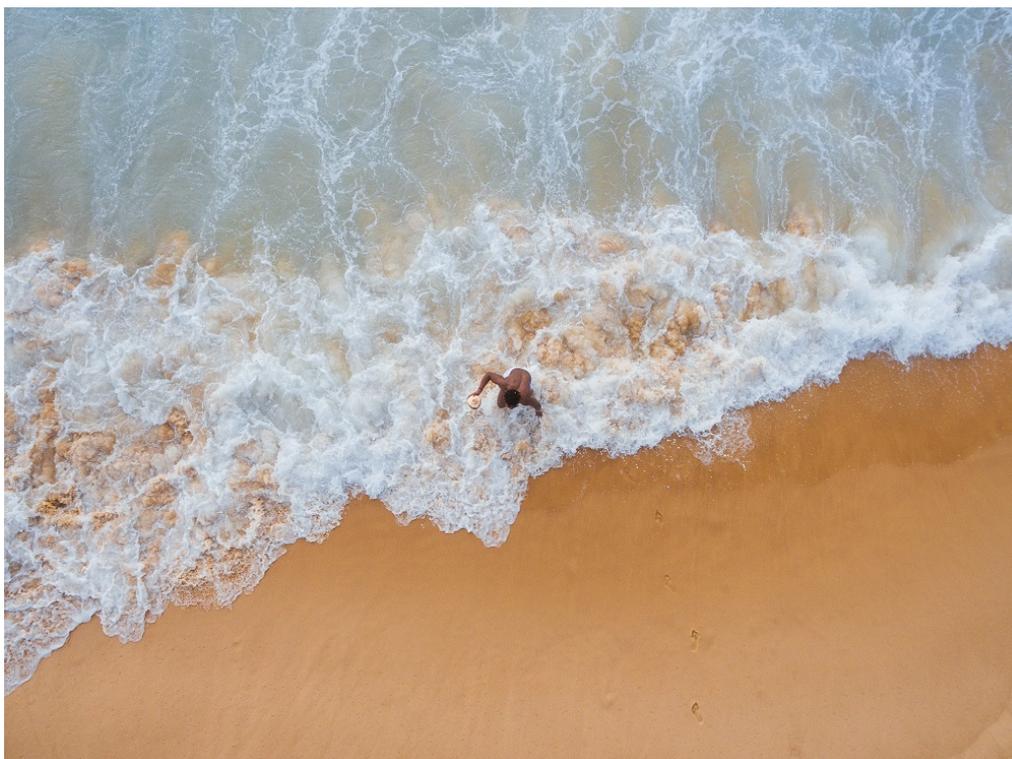


Figure 1.1: Stock image, as an example `[simg]`

You can just refer image, so please see fig. 1.1.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

## 1.2 Scope

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## 1.3 Related Work

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## 1.4 Limitations

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## 1.5 Outline

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# 2 Literature Review

## 2.1 Section

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

### 2.1.1 Subsection

This is a sample text using acronyms like Central Processing Unit (CPU) or Extensible Markup Language (XML). They are printed once, and the nexttime, they are used as acronyms like CPU or XML.

### 2.1.2 Design

#### Example Definition

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

#### Definition 1 (ExamDef)

*Anything can be formally defined as a 4-tuple  $V = (I, C, F, M)$ :*

- *I is an I*
- *C is a finite set C*
- *F is a finite set F*
- *M is just showing that you can reference acronyms here as well XML*

Table 2.1: Top table caption

Count	ABC	DEF	GHU
	$\bar{x} \pm \sigma$	$\bar{x} \pm \sigma$	$\bar{x} \pm \sigma$
1	$53 \pm 27.2 \mu\text{s}$	$6 \pm 0.9 \mu\text{s}$	$35 \pm 29.5 \mu\text{s}$
2	$62 \pm 31.7 \mu\text{s}$	$7 \pm 0.9 \mu\text{s}$	$14 \pm 3.3 \mu\text{s}$
3	N/A	$6 \pm 0.7 \mu\text{s}$	$20 \pm 4.2 \mu\text{s}$

$\bar{x} \leftarrow$  mean  
 $\sigma \leftarrow$  standard deviation

As you can see, you can reference labels always in text by just writing definition 1. This generates a clickable link in pdfs too! The definition example also shows on how to do a list.

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

### Matrix example

$$\begin{pmatrix} A_0 & \cdots & A_{15} \\ m_{0,1} & \cdots & m_{15,1} \\ \vdots & & \vdots \\ m_{0,255} & \cdots & m_{15,255} \end{pmatrix} \begin{matrix} S_1 \\ \vdots \\ S_{255} \end{matrix} \quad (2.1)$$

Each entry in the matrix itself is a value  $m_{i,j} \in [0, 255], i \in [0, 15], j \in [1, 255]$ , representing no access (0), direct access ( $m = j$ ) or redirect ( $m > 0 \wedge m \neq j$ ).

### Table example

#### Quartile calculation

Quartiles are special percentiles, i. e. the 25<sup>th</sup> ( $Q_1$ ), 50<sup>th</sup> ( $Q_2$ , or median) and the 75<sup>th</sup> ( $Q_3$ ) percentiles. For the calculation of quartiles, usually a list of data points is first sorted and then the respective values are extracted from the list by using the index of the respective quartile based on the number of elements. “The median divides the data into two equal sets. (...) The lower quartile is the value of the middle of the first set [and the] upper quartile is the value of the middle of the second set” [`quart_can`]. The

general formula for calculating the percentile  $x_p, p \in (0, 1)$  of a dataset  $X$  is given in eq. 2.2 (for one based indexes) where  $n$  is the size of the set. However, other definitions for the calculation are available.

$$x_p = \begin{cases} \frac{1}{2}(x_{n \cdot p} + x_{(n \cdot p)+1}), & \text{if } np \in \mathbb{N} \\ x_{\lfloor n \cdot p \rfloor + 1}, & \text{if } np \notin \mathbb{N} \end{cases} \quad (2.2)$$

## Algorithm

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### Algorithm 1 Quartile Calculation

---

**Require:**  $p \in (0, 1) \wedge n > 0$

```

1: function GETPERCENTILE( $p, n$ )
2:    $np \leftarrow n \cdot p$ 
3:    $ind \leftarrow \text{FLOOR}(np)$ 
4:    $acc, last \leftarrow 0$ 
5:   for  $i \leftarrow 0, 200$  do
6:      $tmp \leftarrow a + \text{DURATION}[i]$ 
7:     if  $tmp > ind$  then
8:       return if  $acc + 1 = ind \wedge np = ind$  then  $(i + last)/2$  else  $i$  end
9:     end if
10:     $last \leftarrow tmp \neq acc ? i : last$ 
11:     $acc \leftarrow tmp$ 
12:  end for
13:  return 0
14: end function

```

---

The algorithm shown is just the pseudo code. **I have changed stuff above for example purposes, do not interpret this as real!**



# 3 Data Collection

## 3.1 Data Collection section

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### 3.1.1 Ref other chapter

Well, this is dummy text. But here please see section 2.1.2 for a matrix example.



# 4 Analysis

## 4.1 part 1

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### 4.1.1 A

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### 4.1.2 B

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# 5 Conclusion & Outlook

## Conclusion

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## Outlook

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# A Appendix

Table A.0: Hardware used for evaluation

System	Ubuntu	CPU@Clock	TDP	NIC
ABC	18.04	Core i7-4790@4.0 GHz	84 W	Intel I217-LM (rev 04)
DEF	18.04	Core i7-2620M@3.4 GHz	35 W	Intel 82567LM-3 (rev 02)
GHU	16.04	AMD GX-412TC@1.0 GHz	6 W	Intel 82579LM (rev 04)



(a) Caption for left



(b) Caption for right

Figure A.1: An image in the appendix, can be referenced both as a whole and single images



# B Abbreviations

**CPU** Central Processing Unit

**XML** Extensible Markup Language