



# EMF Studie

## Studienarbeit

at the Cooperative State University Baden-Württemberg Stuttgart

by

**NAME**

Monat Jahr

**Time of Project**

12 Wochen

**Student ID, Course**

12345678, STG-TINF14-C

**Company**

Firmenname, ORT

**Supervisor in the Company**

Betreuername

# Author's declaration

Hereby I solemnly declare:

1. that this Studienarbeit, titled  
  
is entirely the product of my own scholarly work, unless otherwise indicated in the text or references, or acknowledged below;
2. I have indicated the thoughts adopted directly or indirectly from other sources at the appropriate places within the document;
3. this Studienarbeit has not been submitted either in whole or part, for a degree at this or any other university or institution;
4. I have not published this Studienarbeit in the past;
5. the printed version is equivalent to the submitted electronic one.

I am aware that a dishonest declaration will entail legal consequences.

ORT, Monat Jahr

---

NAME

## **Abstract**

An abstract is a brief summary of a research article, thesis, review, conference proceeding or any in-depth analysis of a particular subject or discipline, and is often used to help the reader quickly ascertain the paper's purpose. When used, an abstract always appears at the beginning of a manuscript, acting as the point-of-entry for any given scientific paper or patent application. Abstracting and indexing services for various academic disciplines are aimed at compiling a body of literature for that particular subject.

The terms précis or synopsis are used in some publications to refer to the same thing that other publications might call an “abstract”. In “management” reports, an executive summary usually contains more information (and often more sensitive information) than the abstract does.

Quelle: [http://en.wikipedia.org/wiki/Abstract\\_\(summary\)](http://en.wikipedia.org/wiki/Abstract_(summary))

# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Related Work</b>	<b>2</b>
<b>3</b>	<b>Contribution</b>	<b>3</b>
<b>4</b>	<b>Implementation</b>	<b>4</b>
<b>5</b>	<b>Conclusion</b>	<b>8</b>
	<b>Acronyms</b>	<b>ii</b>
	<b>List of Figures</b>	<b>iii</b>
	<b>List of Tables</b>	<b>iv</b>
	<b>Listings</b>	<b>v</b>
	<b>Bibliography</b>	<b>vi</b>
	<b>Appendix</b>	<b>vii</b>

# 1 Introduction

## 2 Related Work

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet.

Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue dui dolore te feugait nulla facilisi. Lorem ipsum dolor sit amet, consetetur adipiscing elit, sed diam nonumy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue dui dolore te feugait nulla facilisi.

### 3 Contribution

Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet.

Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue dui dolore te feugait nulla facilisi. Lorem ipsum dolor sit amet, consetetur adipiscing elit, sed diam nonumy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue dui dolore te feugait nulla facilisi.

$$t_e \leq \frac{t_i}{5} \qquad \{t_e \in \mathbb{Q}^+\}, \{t_i \in \mathbb{N}\} \quad (3.1)$$

## 4 Implementation

Lorem ipsum Operating System (OS) Ubuntu dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet. Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna aliquyam erat, sed diam voluptua. At vero eos et accusam et justo duo dolores et ea rebum. Stet clita kasd gubergren, no sea takimata sanctus est Lorem ipsum dolor sit amet.

Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi.



```
1 # Create usergroup and user
2 sudo addgroup hadoop
3 sudo adduser -ingroup hadoop hduser
4
5 # login as hadoop user and create rsa key
6 su - hduser
7 ssh-keygen -t rsa -P ""
8
9 # add to authorized keys
10 cat $HOME/.ssh/id_rsa.pub >> $HOME/.ssh/authorized_keys
11
12 # Initial login on host via ssh
13 ssh localhost
```

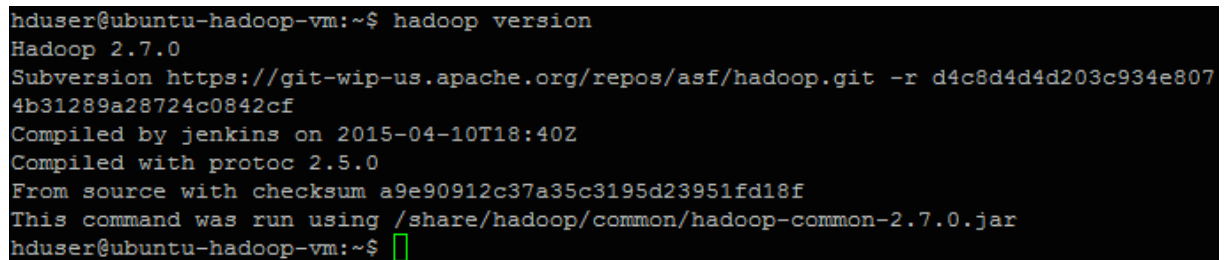
Listing 4.1: Konfiguration des Hadoop Users

```
1 $ cd /usr/local
2 $ sudo wget http://apache.openmirror.de/hadoop/common/current
3     /hadoop-2.7.1.tar.gz
4 $ sudo tar xfz hadoop-2.7.1.tar.gz
5 $ sudo mv hadoop-2.7.1 hadoop
6 $ sudo chown -R hduser:hadoop hadoop
```

Listing 4.2: Herunterladen und entpacke von Hadoop

```
1 # Java
2 export JAVA_HOME=/usr/lib/jvm/java-7-openjdk-amd64
3
4 # Hadoop
5 export HADOOP_INSTALL=/usr/local/hadoop
6 export PATH=$PATH:$HADOOP_INSTALL/bin
7 export PATH=$PATH:$HADOOP_INSTALL/sbin
8 export HADOOP_MAPRED_HOME=HADOOP_INSTALL
9 export HADOOP_COMMON_HOME=HADOOP_INSTALL
10 export HADOOP_HDFS_HOME=HADOOP_INSTALL
11 export HADOOP_YARN_HOME=HADOOP_INSTALL
```

Listing 4.3: Umgebungsvariablen für Hadoop



```
hduser@ubuntu-hadoop-vm:~$ hadoop version
Hadoop 2.7.0
Subversion https://git-wip-us.apache.org/repos/asf/hadoop.git -r d4c8d4d4d203c934e807
4b31289a28724c0842cf
Compiled by jenkins on 2015-04-10T18:40Z
Compiled with protoc 2.5.0
From source with checksum a9e90912c37a35c3195d23951fd18f
This command was run using /share/hadoop/common/hadoop-common-2.7.0.jar
hduser@ubuntu-hadoop-vm:~$
```

Figure 4.1: Ergebnis für die Kommandozeileingabe *hadoop version*

```
1 <configuration>
2   <property>
3     <name>fs.defaultFS</name>
4     <value>hdfs://localhost:9000</value>
5   </property>
6 </configuration>
```

Listing 4.4: Konfiguration in der core-site.xml

## 5 Conclusion

Fazit ziehen über das Projekt und die Arbeit. Welche Erkenntnisse wurden gewonnen?  
Was hat gut/schlecht funktioniert? Wurden die eigenen Erwartungen erfüllt oder nicht?  
War das Projekt erfolgreich?



# Acronyms

<b>API</b>	Application Programming Interface
<b>BDSG</b>	Bundesdatenschutzgesetz
<b>CEP</b>	Complex Event Processing
<b>DEA</b>	Deterministischer endlicher Automat
<b>EDA</b>	Event Driven Architecture
<b>GB</b>	Gigabyte
<b>GFS</b>	Google File System
<b>HDFS</b>	Hadoop Distributed File System
<b>HTTP</b>	Hypertext Transfer Protocol
<b>IDE</b>	Integrated Development Environment
<b>IP</b>	Internetprotokoll
<b>KB</b>	Kilobyte
<b>LTS</b>	Long Term Support
<b>MB</b>	Megabyte
<b>MPI</b>	Message Passing Interface
<b>MRC</b>	Map Reduce Class
<b>NAS</b>	Network Attached Storage
<b>NEA</b>	Nichtdeterministischer endlicher Automat
<b>NFS</b>	Network File System
<b>OS</b>	Operating System
<b>OSDI</b>	Operating Systems Design and Implementations
<b>PAP</b>	Programmablaufplan
<b>PDF</b>	Portable Document Format
<b>POM</b>	Project Object Model
<b>RFC</b>	Request for Comments
<b>RSA</b>	Rivest, Shamir und Adleman
<b>SAN</b>	Storage Attached Network
<b>SPOF</b>	Single Point of Failure
<b>SSH</b>	Secure Shell
<b>TMG</b>	Telemediengesetz
<b>VM</b>	Virtuelle Maschine

# List of Figures

4.1	Ergebnis für die Kommandozeileneingabe <i>hadoop version</i> . . . . .	6
-----	--	---

# List of Tables



# Appendix

A. Screenshot NameNode Web-Interface

B. DVD Inhalt

C. DVD

## A. Screenshot NameNode Web-Interface

Hadoop
Overview
Datanodes
Datanode Volume Failures
Snapshot
Startup Progress
Utilities

### Overview 'localhost:9000' (active)

Started:	Fri Jul 10 00:23:31 CEST 2015
Version:	2.7.0, rd4c8d4d4d203c934e8074b31289a28724c0842cf
Compiled:	2015-04-10T18:40Z by jenkins from (detached from d4c8d4d)
Cluster ID:	CID-322169a1-9f18-4284-9cfa-490bd79c1dd4
Block Pool ID:	BP-1249407956-127.0.1.1-1436480592942

### Summary

Security is off.  
 Safemode is off.  
 1 files and directories, 0 blocks = 1 total filesystem object(s).  
 Heap Memory used 26.65 MB of 50.49 MB Heap Memory. Max Heap Memory is 966.69 MB.  
 Non Heap Memory used 30.99 MB of 32.25 MB Committed Non Heap Memory. Max Non Heap Memory is 214 MB.

Configured Capacity:	18.58 GB
DFS Used:	24 KB (0%)
Non DFS Used:	2.85 GB
DFS Remaining:	15.73 GB (84.67%)
Block Pool Used:	24 KB (0%)
DataNodes usages% (Min/Median/Max/stdDev):	0.00% / 0.00% / 0.00% / 0.00%
Live Nodes	1 (Decommissioned: 0)
Dead Nodes	0 (Decommissioned: 0)
Decommissioning Nodes	0
Total Datanode Volume Failures	0 (0 B)
Number of Under-Replicated Blocks	0
Number of Blocks Pending Deletion	0
Block Deletion Start Time	10.7.2015, 00:23:31

### NameNode Journal Status

Current transaction ID: 1

Journal Manager	State
FileJournalManager(root=/tmp/hadoop-root/dfs/name)	EditLogFileStream(/tmp/hadoop-root/dfs/name/current/edits_inprogress_0000000000000000001)

### NameNode Storage

Storage Directory	Type	State
/tmp/hadoop-root/dfs/name	IMAGE_AND_EDITS	Active

Hadoop, 2014.

## C. DVD Inhalt

└ <b>Anwendung/</b>	
– pom.xml	⇒ <i>Maven POM Datei</i>
└ <b>conf/</b>	⇒ <i>*.properties Dateien für Konfiguration</i>
└ <b>src/</b>	⇒ <i>Quellcode Dateien</i>
└ <b>target/</b>	
– Logfileanalyzer-1.0-SNAPSHOT.jar	⇒ <i>Ausführbare JAR-Datei</i>
└ <b>site/apidocs/</b>	⇒ <i>JavaDoc für Browser</i>
└ <b>Literatur/</b>	⇒ <i>PDF Literatur &amp; E-Books</i>
└ <b>Praesentationen/</b>	
– Abschlusspraesentation.pptx	⇒ <i>Präsentation vom 21. August 2015</i>
– Abschlusspraesentation.pdf	
– Kickoffpraesentation.pptx	⇒ <i>Präsentation vom 03. Juni 2015</i>
– Kickoffpraesentation.pdf	
└ <b>Sonstiges/</b>	
– LineareRegression.xlsx	⇒ <i>Berechnung der linearen Regression</i>
└ <b>Latex-Files/</b>	⇒ <i>Editierbare L<sup>A</sup>T<sub>E</sub>X Dateien der Arbeit</i>
– bibliographie.bib	⇒ <i>Literaturverzeichnis</i>
– dokumentation.pdf	⇒ <i>Bachelorarbeit als PDF</i>
– dokumentation.tex	⇒ <i>Hauptdokument</i>
– einstellungen.tex	⇒ <i>Einstellungen</i>
└ <b>ads/</b>	⇒ <i>Header, Glosar, Abkürzungen, etc.</i>
└ <b>content/</b>	⇒ <i>Kapitel</i>
└ <b>images/</b>	⇒ <i>Bilder</i>
└ <b>lang/</b>	⇒ <i>Sprachdateien für L<sup>A</sup>T<sub>E</sub>X Template</i>