

**NOVA**

**IMS**

Information  
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# MDSAA

Mestrado em

**Data Science and Advanced Analytics**

**FULL TITLE OF THE THESIS**

An optional subtitle can be added

Student's Full Name

Master Thesis

apresentada(o) como requisito parcial para obtenção do grau de Mestre em Data Science and Advanced Analytics

**NOVA Information Management School**

**Instituto Superior de Estatística e Gestão de Informação**

Universidade Nova de Lisboa

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**FULL TITLE OF THE THESIS**

An optional subtitle can be added

by

Student's Full Name

Master Thesis apresentada(o) como requisito parcial para obtenção do grau de Mestre em Data Science and Advanced Analytics com especialização em Business Analytics

**Orientada por**

Supervisor's name, academic title (PhD; etc), Academic institution or School affiliation of the supervisor

March, 2025

## **STATEMENT OF INTEGRITY**

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism, any form of undue use of information or falsification of results along the process leading to its elaboration. I further declare that I have fully acknowledged the Rules of Conduct and Code of Honor from the NOVA Information Management School.

[place, date]

Just type your name, not your signature

## **DEDICATION**

Just if you want to dedicate your work to someone dear to you or to someone that inspired you in your life. Here is not the place for acknowledge, it is a distinct honour to someone, although it is optional.

## **ACKNOWLEDGEMENTS**

This is an optional page, however it is always very important to acknowledge those who made this possible, like family, friends, colleagues, professors, staff, University, and those who anonymously participated in the data collection phase, for example.

## ABSTRACT

[illegible]

## PALAVRAS-CHAVE

Information Management; Research Methods; Data Analysis; Methodology

### Objetivos do Desenvolvimento Sustentável (ODS):



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## LISTA DE TABELAS

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## **LISTA DE SIGLAS E ABREVIATURAS**

<b>IR</b>	Information Retrieval
<b>LLM</b>	Large Language Model
<b>RS</b>	Recommender System

# 1. INTRODUCTION

## Introduction

Example of a citation in parentheses (Hastie et al., 2009).

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Example of an inline citation Einstein, 1905. This is in a second bib file.

You can also add equations such as Equation 1.1, some algorithms (1).

$$E = mc^2 \tag{1.1}$$

---

### Algorithm 1 Bubble Sort Algorithm

---

```

1: Input: An array  $A$  of length  $n$ 
2: Output: Sorted array  $A$ 
3: for  $i = 1$  to  $n - 1$  do
4:   for  $j = 1$  to  $n - i$  do
5:     if  $A[j] > A[j + 1]$  then
6:       Swap  $A[j]$  and  $A[j + 1]$ 
7:     end if
8:   end for
9: end for
10: return  $A$ 

```

---

You can also have some code listings: (See [https://www.overleaf.com/learn/latex/Code\\_listing\\_for\\_documentation](https://www.overleaf.com/learn/latex/Code_listing_for_documentation)).

Listing 1.1: Example Listing

```

1 # This is a simple Python function
2 def greet(name):
3     print("Hello, " + name + "!")
4
5 # Call the function
6 greet("Alice")

```

## 1.1. Section 1

Here is an image of Figure 1.1. There is also a basic table here, Table 1.1

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Figura 1.1.: This is the logo of the university.

Tabela 1.1.: Example of a basic LaTeX table. Note the caption is on top.

Column 1	Column 2	Column 3	Column 4	Column 5
A1	B1	C1	D1	E1
A2	B2	C2	D2	E2
A3	B3	C3	D3	E3
A4	B4	C4	D4	E4
A5	B5	C5	D5	E5
A6	B6	C6	D6	E6
A7	B7	C7	D7	E7
A8	B8	C8	D8	E8

## 1.2. Section 2

And now some lists!

An unnumbered list:

- Apples
- Bananas
- Cherries

And a numbered list:

1. First item
2. Second item
3. Third item

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### **1.2.1. Sub-Section 2-1: Examples of abbreviations**

Information Retrieval (IR) plays a crucial role in many modern applications, including search engines and digital libraries. With the rise of Large Language Models (LLMs), the efficiency and accuracy of IR systems have significantly improved. Similarly, Recommender Systems (RSs) have benefited from advancements in deep learning, providing personalized recommendations based on user preferences.

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## 2. LITERATURE REVIEW

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### 3. METHODOLOGY

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- Hastie, T., R. Tibshirani e J.H. Friedman (2009). *The Elements of Statistical Learning: Data Mining, Inference, and Prediction*. Springer series in statistics. Springer. ISBN: 9780387848846.



## APPENDIX A

Here's Table A1 in the Appendix. Note that the numbering is different from Table 1.1.

Tabela A1.: Example of a table in the Appendix.

Column 1	Column 2	Column 3	Column 4	Column 5
A1	B1	C1	D1	E1
A2	B2	C2	D2	E2
A3	B3	C3	D3	E3
A4	B4	C4	D4	E4
A5	B5	C5	D5	E5
A6	B6	C6	D6	E6
A7	B7	C7	D7	E7
A8	B8	C8	D8	E8

---

### Algorithm A1 Algorithm in the Appendix

---

```

1: Input: An array  $A$  of length  $n$ 
2: Output: Sorted array  $A$ 
3: for  $i = 1$  to  $n - 1$  do
4:   for  $j = 1$  to  $n - i$  do
5:     if  $A[j] > A[j + 1]$  then
6:       Swap  $A[j]$  and  $A[j + 1]$ 
7:     end if
8:   end for
9: end for
10: return  $A$ 

```

---

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