



# THESIS PREPARATION AND SUBMISSION GUIDELINES

DEPARTMENT OF COMPUTING & INFORMATION SYSTEMS

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Sabaragamuwa University of Sri Lanka.  
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# Thesis Preparation

Research Project in Information Systems is an essential course in BSc. (Honours) Degree in Information Systems. A thesis produces the culmination of the research work as a formal product as documentation. As well, this documentation provides opportunities for students to plan, complete, interpret, and report research in a formal structure that lends a relatively uniform appearance to work completed at the Department of Computing and Information Systems. The work should demonstrate the ability to complete written description of the study in the form of a well-written, properly organized Thesis. The research study must not have been published previously and must be conducted and written under the supervision of the supervisor.

**Note:** *The final copies of the Thesis will not be accepted if the students have not prepared the Thesis according to the given guidelines.*

## Structure of the Thesis

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Thesis should contain the following parts in the given order.

### FRONT MATTER

#### ***Preliminary Pages***

- Cover page
- Title page
- Declaration page
- Certification of Approval page
- Dedication (If any)
- Acknowledgments
- Abstract
- Table of Contents
- List of Tables
- List of Figures
- List of Abbreviations (if any)

### THESIS CHAPTERS

#### ***Chapter One- Introduction***

Chapter one should describe the motivation and/or the background of the study followed by;

#### [Purpose of the study](#)

The introduction chapter shall be initiated by clearly stating the purpose of the study. There should be a concise statement of purpose provided in this section, followed by specific objectives.

#### [Statement of the Hypothesis or Research Question](#)

A clear statement(s) that identifies the precise research question should be included. Each specific measurement to be conducted should be identified.

### Significance of the Study

As a part of the purpose of the study, there should be a justification(s) for conducting the research. This section should exhibit a clear understanding of what makes your study significant and why it should be conducted.

### Definitions

A simple list of definitions of terms that directly pertain to this study should be provided. The list should include definitions of terms that might be unclear to the reader.

### Delimitations, Limitations, and Assumptions

A brief statement identifying the delimitations, limitations, and assumptions associated with your study should be provided.

*Delimitations* – factors that were controlled by the researcher

*Limitations* – factors that were not under the control of the researcher

*Assumptions* – factors that the researcher assumes were taken into consideration.

### Contribution to the Study

A summary of your contribution to the research and the contribution of your study to the research field(s).

### Composition of the Thesis

A brief description of each chapter to follow in the Thesis should be included.

## **Chapter Two- Literature Review**

The main purpose of the literature review is to survey previous studies on the proposed research theme. The author should provide a breakdown of sub-topics influencing the research theme. Each sub-topic should contain a thorough examination of the literature that influences or is representative of current research on that subtopic. The literature review should collectively support the purpose of the proposed study. A theoretical framework as applicable to the field of study may be included here.

## **Chapter Three- Methodology**

The Chapter Three should present each aspect of the progression by which the study will be completed.

### Research Design

How you've set up your study, and what each piece of it aims to accomplish.

### Data Collection

What you used to collect the data (surveys, questionnaires, interviews, trials, experiments, etc.). including sampling methods.

### Implementation

How did you implement the proposed study as a pilot project? How the evaluation measures are to be calculated?

### Data Analysis

In the data analysis, it is necessary to explain what does your data mean in the context of your research? Were your results conclusive or not? Remember to include what type of data you were working with (qualitative or quantitative? Primary or secondary sources?) and how any variables, factor into your results.

### **Chapter Four- Results and Findings**

The results should be elaborated in an order that is similar to the order presented research hypothesis or research questions. Chapter should provide all the descriptive data such as demographic results, results of the statistical processes conducted, and a brief summary of the results with foundational interpretations of what the statistics provide.

### **Chapter Five- Discussion and Conclusion**

#### Summary of Findings

Provide inferences and implications that the results of the study provided the author and the reader or others who may have an interest in the results. This is a time to expound on your results and offer insight into what your study does or does not contribute to the body of information on your topic.

#### Conclusions Drawn by Results

Identify specific conclusions resulting from the study. Offer specific insight to what the findings reveal. This section should synthesize your findings with the current knowledge in your area of study.

#### Recommendations for Further Research

Provide recommendations to further research on this topic or how parts of study could be improved upon. If you found as a result of study that another topic should be looked at in order to offer more insight into this topic, then suggest that at this time. It is important that this part of the conclusion incorporate the implications of your findings in terms of other research in the area of study.

## **BACK MATTER**

### ***Publications***

Provide a list of publications obtained by the study in the Thesis. (e.g.: Abstracts, posters, conference proceedings, journal articles, book chapters etc.)

### ***Appendices***

Appendices are useful to present supplementary or raw data, details of the methodology, Questionnaires, consent forms, or other information that would detract from the presentation of the research in the main body of the Thesis but would assist readers in their review.

### ***References***

Provide a list of references used for Thesis. A reference list<sup>1</sup> is the list of all books, articles, and other source of materials, which were referred and should be listed according to the international referencing method adopted.

### ***Bibliography (if any)***

A bibliography is a list that combines a detailed list of references cited in your work and the background readings or other material that you may have read, but not cited.

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<sup>1</sup> Essentially the list items referred to inside the body text of the thesis

# Formatting and Styles

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## Margins

A left margin of 1.5 inches, a right-hand margin, top and bottom margins of 1.0 inches each are required unless special permission is obtained. Illustrations and appendices should also conform to this requirement.

## Table of Contents

The Thesis should include a table of contents following the Abstract, and any other preliminary pages. The Table of Contents should list all the principal topics, subdivisions, and enumerate the illustrations, tables, and figures in the order in which they are to be bound. (see Appendix II.)

## Illustrations

Photography, maps, diagrams, and drawings may be included on graph paper in such a way as not to be obscured when the Thesis is bound. Preferably, small illustrations are placed in the text.

## Styles

Fonts	Type- Times New Roman
Chapter heading	All Capital -14 Font size, Bold
Section heading	Title case -12 Font size, Bold
Sub-section heading	Sentence case -12 Font size, Bold
Body text	Sentence case - 12 Font size
Tables and Figures	Sentence case - 11 Font size
Captions of Tables and Figures	Sentence case - 10 Font size
Number of pages	50 pages minimum
Alignment	Justified

## Table and Figures

Tables and figures should be numbered and labeled in accordance with the guidelines in style section. The chapter number should be included in defining the number of tables or figures. Tables or figures larger than the page size should be folded, leaving binding space on the left margin of at least 2 inches, and any folded edge should fall 0.5 inches within the corresponding edge in the hard-bound copy. All tables and figures must be referred in the text by a number (not by a phrase such as "the following table"). Tables and figures should be centered (See Table 1 and Figure 1).

Table 1: Impact of Social Graph and Context on recommendation quality.

	Average Position	t-TEST (P Value)
Round 1: Non-contextual information	25.29	1
Round 2: Time	22.02	0.11
Round 3: Weekday	24.98	0.89

Source: (if any)

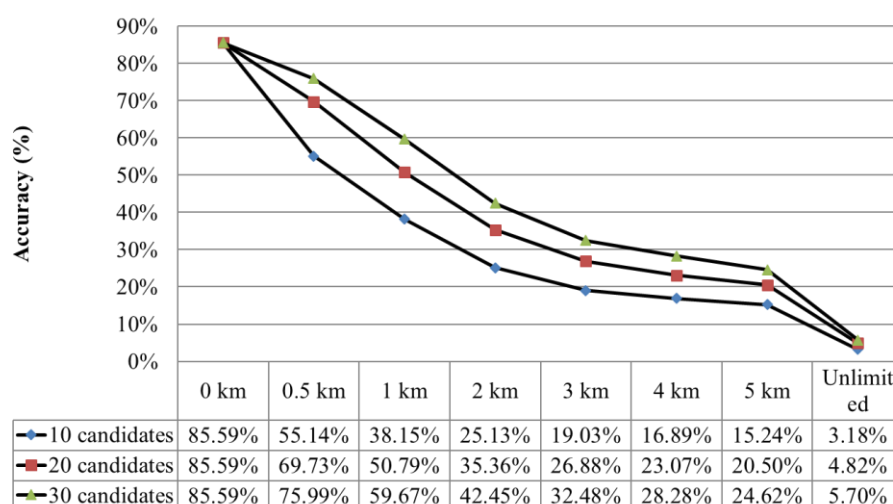


Figure 1: Impact of Distance Parameter on recommendation quality.

Source: (if any)

### List of Abbreviations

Abbreviations must follow International standards. When an abbreviation is used in the first time, it must be explained in the text. A separate list should be prepared for all abbreviations used in Thesis with their full meaning. The abbreviations in the list should be arranged according to the alphabetical order.

### Pagination

The pages of the text should be numbered with Arabic numerals according to the style manual being used. Begin **page 1**, following any preliminary pages. Preliminary pages should be numbered in Lower case, Roman numerals, and Centered at the bottom of the page.

### Title Page

The title page should closely follow the form illustrated in this guide (See Appendix III.) with respect to order, spacing, and capitalization. No abbreviations or punctuation should be used.

### Abstract

An abstract must be included following the Acknowledgments. It should follow the same guidelines for margins and spacing and be consistent with the style manual being used. The Abstract should not exceed 300 words. It should also accompany a list of keywords (3-5), which could improve the accessibility of the Thesis in an online environment. The following styles may apply to the content of Abstract.

Abstract Title	Title case/Times New Roman 12-point Bold, center
Author Names	Times New Roman 10-point Light, center
Affiliation	Times New Roman 10-point Italic, center
Text	Times New Roman 11-point Light, justified
Spacing	Single line

### Thesis Chapters

All the chapters of the Thesis should have a title and a chapter number. Any new chapter should be started on a new page.

### Publications

Each publication entry should be single-spaced with double spacing between entries. The Publication list does not contain a chapter number. IEEE Style is recommended.



## References

Each reference entry should be single-spaced with double spacing between entries. The Reference list does not contain a chapter number. IEEE Style is recommended.

# Thesis Submission

A draft of Thesis (spiral binding) must be submitted by every student at the end of Research. The draft should be prepared under the supervision of the Supervisor(s) by which it is examined by two Examiners where these Examiners are appointed by the Department according to the given guidelines by the Department. The Final Thesis that is approved by the Supervisor(s) and Examiners should be submitted on or before the deadline to the Department together with the extended abstract in the format of compact disk (CD). The date of submission will not be extended without a reason acceptable to the Head of Department.

The final corrected copy of the Thesis must be free from typographical, grammatical and other errors when submitted. After making the alterations mentioned by the examiners, students may prepare a hard bind copy of final Thesis and original signatures of the supervisor(s) and Head of the Department should appear on the Signatory Page(s) (**Hard binding**)

## Checklist for Submission of Thesis

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- All pages of the Thesis have margins of 1.5 inches on the binding side and 1.0 inch on the other three sides.
- The correct degree title and year of award appear on the title page.
- The original signatures of the supervisor(s) and Head of the Department appear on the Signatory Page(s) submitted.
- The Signatory Page(s) includes the student's original signature.
- Each copy of the Thesis is set up with a proper set of preliminary pages arrangement and pagination.
- Pagination has been checked throughout. Page numbers in the body of the Thesis must be consecutive, including references, bibliography, appendices, etc. Theses that are missing page numbers or have duplicate page numbers will not be accepted. Only whole numbers are acceptable for page numbers.
- Every page is clear and readable.

## Paper and printing

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### Paper and Printing

To print, page size must be A4. Except for the original, duplicate copies may be photocopied. For the hard-bound copy lettering on the cover should be in GOLD. (**See Appendix I.**)

The name of the student with initials should be mentioned at 20mm from the top of the spine (See Appendix XI.)

### **Word Processing /Type Texting**

The Thesis must be printed on one side of the paper (A4 sized) with a laser or laser-quality printer.

## Plagiarism

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Plagiarism is a form of falsely presenting someone else's words or ideas as one's own, in whole or in part, either explicitly or implicitly, either word-for-word or by paraphrasing. When students wish to include in their work a passage from any source (print, electronic, or other), they may ethically do so by 1) quoting verbatim, or 2) paraphrasing the source, then acknowledging the source with footnotes, endnotes.

All the Thesis will undergo a complete inspection of plagiarism by the Department. The Thesis that is having a similarity percentage of less than 30% will only be accepted.

## Appendices

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The listed Appendices are examples for some of the preliminary pages.

1. Appendix I – Cover Page
2. Appendix II – Title Page
3. Appendix III – Declaration Page
4. Appendix IV – Certification of approval
5. Appendix V – Table of Contents
6. Appendix VI – List of Tables
7. Appendix VII – List of Figures
8. Appendix VIII – Abstract
9. Appendix IX - List of Abbreviations
10. Appendix X - List of Appendices
11. Appendix XI - Sample Spine

[Appendix – I: Cover Page]

# A CONTEXT-AWARE AND SOCIAL GRAPH BASED RESTAURANT RECOMMENDER SYSTEM

(All Capital – Bold - 16 Font Size – 1.5 Space - Centered)

(6 Lines: Times New Roman - 16 Font Size – 1.5 Spaces)

Anushka de Silva (Title Case – 14 Font Size - Centered)

(1 Line: Times New Roman - 16 Font Size – 1.5 Spaces)

EP - XXXX (Title Case – 14 Font Size - Centered)

(3 Lines: Times New Roman - 16 Font Size – 1.5 Spaces)

Bachelor of Science Honours Degree in Information Systems (Title Case – 14 Font Size - Centered)

(3 Lines: Times New Roman - 16 Font Size – 1.5 Spaces)

Department of Computing and Information Systems (Title Case – 14 Font Size - Centered)

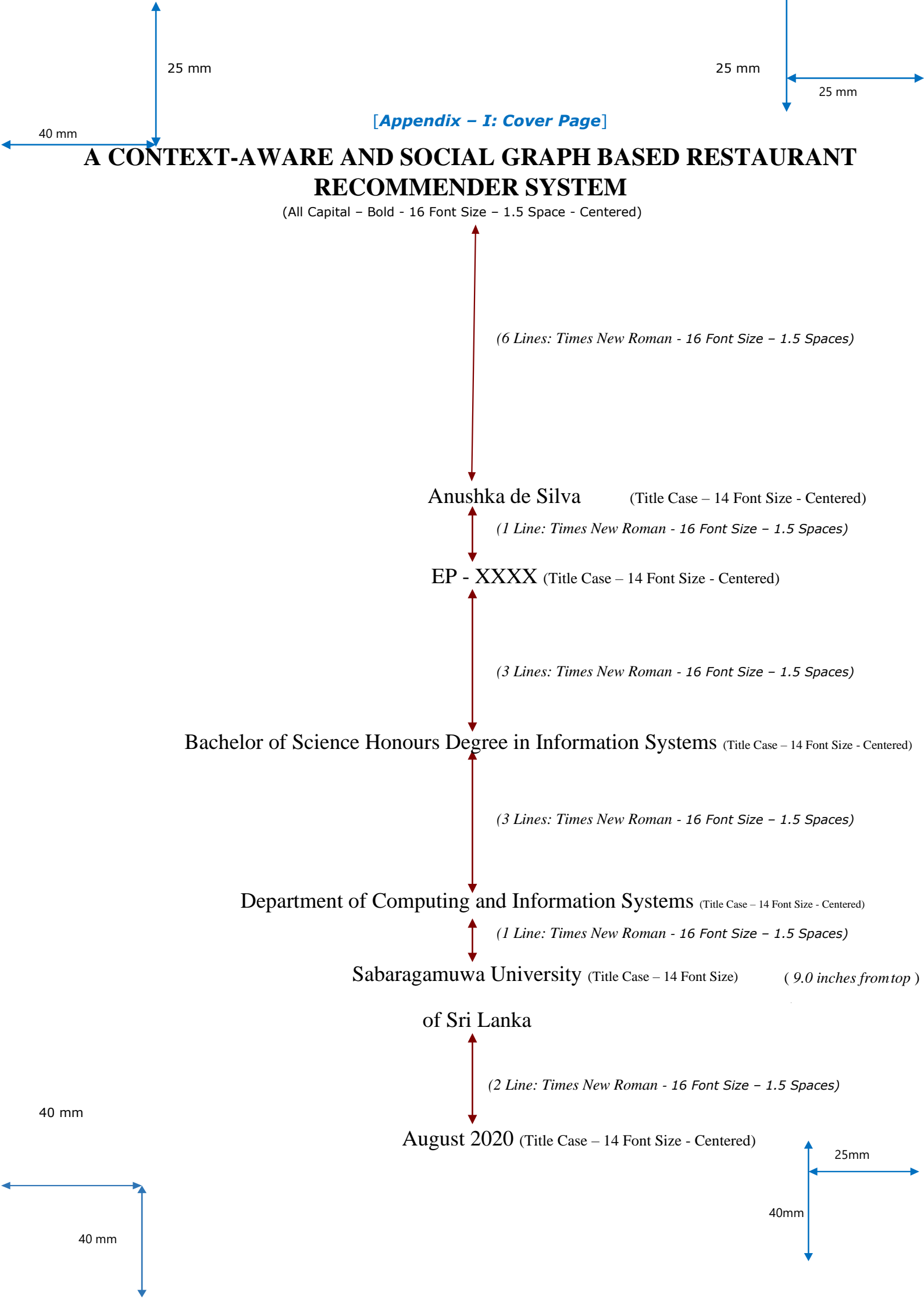
(1 Line: Times New Roman - 16 Font Size – 1.5 Spaces)

Sabaragamuwa University (Title Case – 14 Font Size) (9.0 inches from top)

of Sri Lanka

(2 Line: Times New Roman - 16 Font Size – 1.5 Spaces)

August 2020 (Title Case – 14 Font Size - Centered)



*[Appendix – II: Title Page]*

# **A CONTEXT-AWARE AND SOCIAL GRAPH BASED RESTAURANT RECOMMENDER SYSTEM**

(All Capital – Bold - 16 Font Size – 1.5 Space - Centered)

*(6 Lines: Times New Roman - 16 Font Size – 1.5 Spaces)*

**Anushka de Silva**

(Title Case – 14 Font Size - Centered)

*(1 Line: Times New Roman - 16 Font Size – 1.5 Spaces)*

**EP - XXXX**

(Title Case – 14 Font Size - Centered)

*(3 Lines: Times New Roman - 16 Font Size – 1.5 Spaces)*

Thesis submitted in partial fulfillment of the requirements for the degree BSc. (Special)

**in Information Systems** (Title Case – 12 Font Size – 1.5 Space - Centered)

*(3 Lines: Times New Roman - 16 Font Size – 1.5 Spaces)*

**Department of Computing and Information Systems** (Title Case – 14 Font Size - Centered)

*(1 Line: Times New Roman - 16 Font Size – 1.5 Spaces)*

**Sabaragamuwa University of Sri Lanka**(Title Case – 14 Font Size - Centered)

**August 2020** (Title Case: 1 Line: Times New Roman – 16 Font Size – 1.5 Spaces)

*[Appendix – III: Declaration]*

**DECLARATION**

I declare that this thesis does not incorporate, without acknowledgment, any material previously submitted for a Degree or a Diploma in any University and to the best of my knowledge and belief, it does not contain any material previously published or written by another person or myself except where due reference is made in the text.

Also, I hereby grant to Sabaragamuwa University of Sri Lanka the non- exclusive right to reproduce and distribute my thesis, in whole or in part in print, electronic or other medium. I retain the right to use this content in whole or part in future works (such as articles or books).

.....

Date

.....

Signature

Anushka de Silva (13/AS/CI/030)

*[Appendix – IV: Certification of Approval]*

**CERTIFICATION OF APPROVAL**

We hereby declare that this thesis is from the student's own work and effort, and all other sources of information used have been acknowledged. This thesis has been submitted with our approval.

Date

.....

.....

<Supervisor Name>

<Designation>

Department of Computing and Information Systems,  
Faculty of Applied Sciences,  
Sabaragamuwa University of Sri Lanka.

Date

.....

.....

<Name of the Head of the Department>

Head of the Department,  
Department of Computing and Information Systems,  
Faculty of Applied Sciences,  
Sabaragamuwa University of Sri Lanka.

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*[Appendix – VIII: Abstract]*

**Abstract**

**A Context-aware and Social Graph based Restaurant Recommender System**

<Student author name> and <Supervisor name>  
*Department of Computing and Information Systems*

Recommender systems help users explore a large data set by proposing items in that data set that the system expects to be of interest to that user. The use of context, information that describes in which situation a user interacts with the recommender system has shown to increase the effectiveness of recommender systems in several domains. In this research, we evaluate the effectiveness of recommender systems that use such contextual information, so-called context-aware recommender systems, in a domain that has not been addressed in literature: the e-commerce domain. In this domain, the goal of the recommender system is to activate users, users to buy products in the data set. We explore six very different e-commerce data sets that contain contextual information and we show that the recommender's effectiveness improves when contextual information is used in the recommendation process. We also find that it is difficult to predict which type of context will increase the effectiveness on which data set, and that not all users always benefit from using a context-aware recommender system. Finally, we also investigate the impact on revenue: when contextual information leads to an increase in effectiveness, the revenue generated by the recommender system is also increased.

Keywords: Context awareness, Recommendation System, Social Graphs

*[Appendix – IX: List of Abbreviations]*

**LIST OF ABBREVIATIONS**

Abbreviation	Description
CARS	Context Aware Recommendation Systems
MAE	Mean Absolute Error
RMSE	Root Mean Squared Error



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2020