**THE NAME OF THE REPORT (in capital letters)**

(Names of the writers)

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APPENDICES 7

# 1 Introduction

**Introduction** introduces some background of the work. It may include a description of the company, for which the work is done, description of its product and the reason for doing the work.

## 1.1 First subtitle

If you use subtitles, there have to be two titles at least: if you have title 1.1, you have to have also subtitle 1.2.

## 1.2 Second subtitle

Three subtitle levels usually is enough and the numbering of decimal grouping will be marked as following:

2 MAIN HEADING (Heading1)

2.1 Intermediate heading (Heading2)

2.1.1 Subtitle (Heading3)

**2 THE WORK ENVIRONMENT**

The work environment section (chapter) describes technically the work environment and how the work is related to outside world. Additionally in this section (chapter), introduces the tools and functions used in the implementation.

Replace text …..

**3 Definition**

**Definition** describes what the system will do. The system is examined from the user’s point of view. External depencies to software or hardware must be told as well. The system is seen as a "black box". From the client’s point of view every system that implements a specification, is correct. The definition part must not describe the implementation.

Replace text …..

**3.1 First definition subtitle**

Conbinatorics is a function which calculate the combination, permutation of a sampling by the user. There are three part: combination, permutation with replacement and permutation without replacement. Combination is the calculation which show how many subsets can be created from one set. Permutation counts subsets which also consider the order of the element in each subset. User types in the math the they want to calculate and the program will show the result.

**3.2 Second definition subtitle**

Truth table print the table which represents the math logic. It uses functions of logical expressions to decide on their combinations of different functional whether it is true or false.

**4 Implementation**

Describes, how the operations, introduced in the definitions part, have been implemented. This is the part tells, what has been done….

The first part of the project is Number Converter. In the process of doing this program is the first thing is to get the main idea how to convert the number which is typed in by the user into other types of number. In order to help the users to get the result they want easier and quicker, our team has separated the program into 4 sections: each sections required user to type in different sorts of number. The first method is to take out the number which user types in and put it to the script. Then the program will have to define which certain sort of number it and then the number will be converted. And before the number is checked if the input number is in the right way or not; If not the program will give a notice to the user.

Next, we have the combinatorics program, it calculates the combination, permutation with or without replacement. The first thing we do in this program is learning the formula of this calculation and then we use script to calculate the result and show to the screen. The formula is based on the factorial math so in the script we use the loop to calculate the factorial.

The next feature of the project is truth table, we use the java script to create a table in which the Boolean expression is combined and the program will give out the result. The boolean variables in this program are 1 and 0 which stand for true and false.

**5 Testing**

**Testing** represents the test plan, implementation of the testing and the results obtained. Possibilities for further development are presented either here or separately.

First, while we implementing the project we do some functional test to checked if the math task worked. Some functions work but others don’t so we have to fix our code again. Then we can make further improvement, some functions that helps user to get the result in the fastest way and easy to use and also make our code clear. When we have completed all the script, we start to test the user interface, how to make an attractive webpage that could please the user. We have tried different designs and themes and decide which is the best for our page

**6 POSSIBILITIES OF FURTHER DEVELOPMENT**

Possibilities of further development should be described...

Some features in our program are still not entirely completed and still need to be improved. For example, the user interface need to be nicer, and the program should process more quickly

**7 conclusion**

The most significant results of the work are presented in the **conclusion**. The most essential issues of the work are discussed in this part as well as what has been done.

Replace text….

**references**

In the list of references, all references are listed in the order of appearance in the text and they must be numbered. When referring to some texts in books, in addition to the reference number also the page number must be shown, e.g. (/5/, page 10). When referring to articles, page number(s) must not be mentioned within the text. However, they are shown in the list of references.

If a reference is made to a book, the list of references must include author’s surname and the first letter of their first name, name of the book, publisher and place of publication and year of publication in the following manner. For in-text references see appendix 1 and for references appendix 2.

**appendices**

Appendix 1 In-text references

Appendix 2 References

Appendix 3 Tables

Appendix 4 Figures

APPENDIX 1/1

IN-TEXT REFERENCES

In the text sources are indicated as in-text references. The purpose of in-text references is to inform the reader whose text or thoughts are referred to and to provide the reader with an opportunity to verify the authenticity of the references and sources. The Copyright Act states that sources must be acknowledged. All in-text references must be found in the list of references. In-text references help the reader to find in the list of references the book, article or other source to which the author refers.

In-text references are enclosed in parentheses and placed either at the beginning or at the end of the quoted text. The position of the full stop is significant in in-text references. If a reference note only covers the preceding sentence, the full stop is inserted after the right parenthesis (see examples 3 and 7). If the reference note covers more than one sentence, the full stop is inserted before the right parenthesis (see examples 5 and 6).

Indirect and direct quotation

Quoted information can be either indirect or direct, verbatim. An indirect quotation is a rephrasing or a summary of the original text. Use of summarized or rephrased text facilitates maintaining a uniform style throughout the Bachelor’s thesis. A direct quotation follows the original text verbatim. Short direct quotations may be used for example when 1) you want to give the reader a sample of the style used in the source, 2) the source material is so important or controversial that it must be kept intact, 3) you want to ensure that the information doesn’t change, 4) the wording used in the source must be kept absolutely unchanged (Hirsjärvi et al. 2009, 120). Examples 3–6 are indirect quotations. If the name of the author is mentioned in the text, it is not necessary to include it in the reference. In examples 5 and 6 the summarized thought consists of many sentences.

Example 3

A good literature review is more than just a list of sources of existing publications in the field of study (Blaxter, Hughes & Tight 2001, 122).

Example 4

According to Blaxter, Hughes and Tight (2001, 122), a good literature review is more than just a list of sources of existing publications in the field of study.

Example 5

A good literature review is more than just a list of sources. It should offer an analytical study of a given field. It should also locate the research project, to provide it with a background and a context. (Blaxter, Hughes & Tight 2001, 122.)

APPENDIX 1/2

Example 6

Rudestam and Newton use a wheel metaphor to describe the research process. They suggest that research is not linear but a recursive cycle of steps that are repeated over time. (2007, 5.)

Short direct quotations (that is not longer than three lines) are always placed inside quotation marks (see example 7). Direct quotations that are longer than three lines (see example 8) are separated from the surrounding text by inserting a blank line both before and after the quotation. Indent long quotations and use line spacing 1. In such a case it is not necessary to use quotation marks (cf. Hirsjärvi et al. 2009, 358.)

Example 7

”You should use references to justify and support your arguments” (Blaxter, Hughes & Tight 2001, 127).

Example 8

Obviously, quotations should be properly differentiated from the main body of the research report. Indented, single-spaced text is perhaps the easiest way of clearly differentiating the longer passage, though quotation marks are generally adequate for a single sentence. Variations, such as a different typeface (for example, italic), may also be helpful. In either case, the work from which the quotation is drawn should be clearly referenced as discussed below. (Sharp & Howard 1996,189.)

You may abbreviate text even in a direct quotation by leaving out insignificant words orsentences. The original thought must not change, however. Insert two hyphens in the place ofremoved words.

Example 9

”- - a skillful researcher draws on original source material rather than - - review articles and

secondary sources” (Rudestam & Newton 2007, 64).

Examples of in-text references

Basic model

Enclose the author’s last name, year of publication and page number(s) in parentheses.

APPENDIX 1/3

Example 10

…(Murray 2002, 17).

If there are two authors, both their names are always mentioned. If there are more than two authors, they are all mentioned when the first reference is made (see example 11). After this it is sufficient to mention only the first author’s name followed by “et al.” (see example 12).

Example 11

…(Blaxter, Hughes & Tight 2001, 28).

Example 12

…(Blaxter et al. 2001, 28).

If the author is not mentioned, the title (of an article, newspaper story or other) is used instead. If a quotation extends over more than one page, it is marked as in example 13. A non-continuous quotation that consists of pieces of text taken from several pages is marked as in example 14.

Example 13

…(Rudestam & Newton 2007, 62 – 63).

Example 14

…(Rudestam & Newton 2007, 62, 64, 67).

Digital sources

In-text references to Web pages should include the author of the page, its year of publication and the date of retrieval.

Example 16

…(City of Oulu 2006, date of retrieval 23.1.2006).

In-text references to electronic books or journals follow the same practice as references to corresponding print publications.

Example 17

…(Bornmann 2008, 45).

In-text references to e-mail attachments should include the sender’s name, sending date and the text “e-mail message”.

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Example 18

For Web sources the date of retrieval must also be mentioned (Kamula 9.1.2007, e-mail message).

Multiple simultaneous sources

When simultaneously referring to multiple sources on the same content, separate the sources by a semi-colon. The sources are presented in chronological order and sources published in the same year in alphabetical order by author name.

Example 20

If you use someone else’s ideas you should credit them by referencing their work. Using someone else’s writings without due attribution constitutes plagiarism. (Swales & Feak 1994, 125; Sharp & Howard 1996, 189; Murray 2002, 114.)

Multiple publications by same author

In cases where an author has published many texts in the same year, they are distinguished by the letters a, b, c etcetera. Similar marking is used when referring to different pages on the same website.

Example 21

Writing in a second language… (Murray 2002a, 17).

Secondary sources

Referring to secondary sources is not recommended. If it is not possible to use a primary source, the reference relation is marked as in example 22. In this example the list of references should include the publication by Murray, that is the book that the student himself has read.

Example 22

Murray (2002, 101) refers to Leedy...

Appendices

When referring to appendices in body text use appendix numbers. References are denoted in sentences by a lowercase initial letter (appendix 1) and outside sentences by an uppercase initial letter (Appendix 1).

APPENDIX 2/1

REFERENCES

The title of the list of references should be ”References”. References are listed in alphabetical order by author's last name. If the publication has no author, the name is replaced by the title of the work and the reference is placed in the list of references alphabetically under the title.

You can manage in-text references and references with the Web-based RefWorks bibliographic management tool. Use of RefWorks is free of charge to students and it is available on the electronic resources page on the Oulu University of Applied Sciences Library website and also through the National Electronic Library Interface NELLI. The referencing practices found in these instructions are available under Bibliography, Output Style under the title Oulu University of Applied Sciences – Bachelor’s thesis.

The list of references must contain the bibliographical information that is necessary for locating publications. This information includes:

• Author(s), editor(s)

• Year of publication

• Title

• Translator(s)

• Edition used (if there are more than one)

• Place of publication (registered office of the publisher)

• Publisher or conference organizer

• Editor of the whole publication

• Title of the whole publication

• Pages on which the article appears in an edited publication or a periodical

• Series title and number in the series

• Journal title

• Volume number

• Journal issue (often appears after the volume)

• Name, location and time of conference (Hirsjärvi et al. 2009, 367–366).

APPENDIX 2/2

For electronic sources include

• author or person responsible for content of document

• year of publication

• title (for serial publications include article title, serial title, volume and issue.)

• date of retrieval

• URL address (http, https or ftp) (cf. Hirsjärvi et al. 2009, 386).

Books

If a book has one author, include his last name, initial letter of first name, year, title, place ofpublication and publisher.

Example 25

Grönroos, C. 2007. In search of a new logic for marketing: foundations of contemporary theory. Hoboken, NJ: John Wiley & Sons.

Example 26

Webster, F. 1995. Theories of the information society. London: Routledge.

If a book has more than one author, include all their names. Insert “&” before the last author’sname.

Example 27

Kotler, P., Keller, K. L. & Lu, T. 2009. Marketing management in China. Singapore: Prentice Hall.

For books remember to include also the edition and for translated works the translator. The yearof publication of the original publication should be included if it has special significance (forexample classics).

Example 28

Huck, S. W. 2008. Reading statistics and research. 5th edition. Boston: Pearson Education.

Example 29

Hansen, W-R. & Gillert, F. 2008. RFID for the optimization of business processes. Translated by K. Cox. Chichester: John Wiley & Sons.

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Example 30

Drucker, P. F. 2007. Management: tasks, responsibilities, practices. New Brunswick, NJ:Transaction Publishers. Originally published 1974.

An edited work consists of many articles by different authors. In such cases include the last name of the author of the article, initial letter of first name, year, article title, initial letter of the first name and the last name of the editor of the publication, title of the publication, place of publication, publisher and the page number(s) on which the article appears in the publication.

Example 31

Marginson, P. 2009. Performance pay and collective bargaining: a complex relationship.Published in S. Corby, S. Palmer & E. Lindop (ed.) Rethinking reward. New York: PalgraveMacmillan, 102–119.

Journals

For journal articles include the last name of the author of the article, initial letter of first name,year, article title, journal title, volume, issue and page number(s) on which the article appears inthe publication.

Example 32

Marchionini, G. 2008. Human-information interaction research and development.Library & information science research 30 (3), 165–174.

Example 33

Kaplan, R. S. & Norton, D. P. 1996. Using the balanced scorecard as a strategic managementsystem. Harvard Business Review 74 (1), 75-85.

Example 34

Martínez, J. G. 2008. Actualizing the past: political devolution and the symbols of the Europeanregions. The case of Belgian federalization (1970–1998). Rethinking History 12 (2), 229–252.

Serial publications, reports and committee reports

For reports include the last name of the author, initial letter of first name, year, title of the publication and publication channel. A report may also have been written by a communal author. For committee reports include title, year, number and place of publication.

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Example 35

Squicciarini, M. & Loikkanen, T. 2008. Going global: challenges for knowledge-based economies.Publications of the Ministry of Employment and the Economy 2008:20.

Example 36

Finnish public library policy 2015: national strategic areas of focus. 2009. Publications of theMinistry of Education 2009:31.

Example 37

Report by the Somera Committee. Committee report 2002:4. Helsinki: Ministry of Social Affairsand Health.

Laws and statutes

For laws and statutes include name, date and number in the Statute Book of Finland.

Example 38

Aliens Act 30.4.2004/301

Digital sources

For electronic books and journals, web pages and individual documents available on the Internet include the author’s last name, initial letter of first name, year, title of source, date of retrieval and URL address. It is also recommended to either print out an electronic source in paper form or save it as a file on your own computer (Hirsjärvi et al. 2009, 385).

Example 39

Gruen, A. 2008. Thesis writing. Date of retrieval 9.10.2009

http://www.aars-acrs.org/acrs/WhiteElephants/2008/ThesisWriting\_Armin\_Gruen.pdf.

If a web page contains no other mention of its author than an e-mail address or the name of the organization that administers it, they can be listed as the author (Hirsjärvi 2009, 386). If the year of publication is missing from an electronic source, year of retrieval is used instead. A source that requires signing in (for example information on an organization’s intranet) is indicated by the phrase ”Internal source”.

Example 40

City of Oulu. 2009. Schools and education. Date of retrieval 7.10.2009 <http://www.ouka.fi/english/school/index.htm>.

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Example 41

Oulun seudun ammattikorkeakoulu. 2010. Oamkista valmistuneet. Internal source. Date of retrieval 16.8.2010

http://intraweb.students.oamk.fi/tietoa\_opiskelusta/valmistuminen/valmistuneet/.

Bachelor’s theses

For Bachelor’s theses include the author’s last name, initial letter of first name, year, title of the thesis, school, degree programme, option and academic level of the thesis.

Example 46

Christopher, M. 2001. Exporting and management of risk. Oulu University of Applied Sciences. Degree Programme in International Business. Bachelor’s thesis.

Many publications by the same author

If publications by the same author are from the same year, they are distinguished by the letters a, b, c etcetera. Publications by the same author from different years are arranged by year of publication from oldest to newest.

Example 47

Jacso, P. 2008a. The pros and cons of computing the h-index using Web of Science. OnlineInformation Review 32 (5), 673.

Jacso, P. 2008b. The pros and cons of computing the h-index using Scopus. Online Information Review 32 (4), 524.

For more examples see The OUAS Guidelines for writing a Bachelor’s Thesis (<http://www.oamk.fi/docs/english/students/bachelors_thesis.pdf> pages 32-44)

APPENDIX 3

TABLES

Tables must be as explicit and self-explanatory as possible, so that it is possible to understand them after reading a description of the material and methods. The title of a table must indicate its content.

Place the title above the table. The name should be no longer than the width of the table and it can be continued on the next line if necessary. It is recommended that you leave two blank lines before the title and one blank line after the title. If necessary, you may place footnotes under the horizontal line at the foot of the table. Each row and column must have a name or a heading. If a table includes percentages the table must indicate what figure has been used to calculate the percentages. If any variable has a great deal of missing data (for example a large number of respondents have not answered a question), you may provide information on the extent of missing data either in the text, in a footnote to the table or in the table itself. If a statistical test has been carried out, it must be mentioned in a footnote.

Tables that have been previously published elsewhere can also be used in the report. In this event you must mention the source either at the end of the heading or in a footnote at the end of the table.

*TABLE 1. The number of buildings according to usage (Building Stock. 2004)*

**Number of Buildings Percentage of all buildings**

Buildings in Total 1 343 490 100.0

Residential Buildings 1 150 211 85.6

Other buildings 193 279 14.4

APPENDIX 4

FIGURES

Figures are more suitable than tables or text for presenting qualitative aspects of numerical data, such as comparisons and relations between numbers. All illustrations that are not tables are designated as figures. Such are for example bar and sector graphs, as well as photographs, maps and drawings. (Hirsjärvi et al. 2009, 328–329.) The title of the figure is placed below the figure. In some degree programmes the word “image” may be used instead of the word “figure”.



*FIGURE 4. Breakdown of mathematics grades (n = 49)*

FORMULAS

If a formula is numbered and entitled, the title is placed above the formula. If a formula is only numbered, the number is in the right margin. All formulas are italicized.

When velocity is constant, it can be calculated with formula 1(6, p. 18)

*FORMULA 1.*

v = s / t

where

t = time

s = distance