GUIDELINES FOR FINAL YEAR PROJECT REPORT 2021

AINE IZZATI BINTI TARMIZI

Choose an item.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2021

GUIDELINES FOR FINAL YEAR PROJECT REPORT 2021

AINE IZZATI BINTI TARMIZI

A report submitted   
in partial fulfilment of the requirements for the degree of  
Choose an item.

Faculty of Electrical Engineering

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2021

DECLARATION

I declare that this thesis entitled "GUIDELINES FOR FINAL YEAR PROJECT REPORT 2021 is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in the candidature of any other degree.

|  |  |  |
| --- | --- | --- |
| Signature | : |  |
| Name | : |  |
| Date | : |  |

APPROVAL

I hereby declare that I have checked this report entitled "title of the project", and in my opinion, this thesis fulfils the partial requirement to be awarded the degree of Bachelor of Mechatronics Engineering with Honours

|  |  |  |
| --- | --- | --- |
| Signature | : |  |
| Supervisor Name | : |  |
| Date | : |  |

DEDICATIONS

To my beloved mother and father

ACKNOWLEDGEMENTS

In preparing this report, I was in contact with many people, researchers, academicians and practitioners. They have contributed towards my understanding and thought. In particular, I wish to express my sincere appreciation to my main project supervisor, Professor Dr. Mohd Sharif Nabi Baksh, for encouragement, guidance critics and friendship. I am also very thankful to my co-supervisors Professor Dr. Awaluddin Mohd Shaharoun and Associate Professor Dr. Hishamuddin Jamaluddin for their guidance, advices and motivation. Without their continued support and interest, this project would not have been same as presented here.

Ph.D study, Librarians at Cardiff University of Wales and the National. I am also indebted to University Teknologi Malaysia (UTM) for funding, my University of Singapore also deserve special thanks for their assistance in supplying the relevant literatures.

My fellow postgraduate students should also be recognised for their support. My sincere appreciation also extends to all my colleagues and others who have provided assistance at various occasions. Their views and tips are useful indeed. Unfortunately, it is not possible to list all of them in this limited space. I am grateful to all my family members

*Note:*

*Include all supervisors names*

*Limit to one (1) page only*

ABSTRACT

*NOTE: NOT MORE THAN 1 PAGE AND NO MULTIPLE PARAGRAPHS*

Process variation is unavoidable and affects quality in manufacturing, and addressing it has become more challenging due to more stringent demands on manufacturing processes. It is becoming necessary to very rapidly identify sources of unnatural variation for diagnostic and intervention purposes. As such, it is crucial that process variability patterns be recognised in a timely manner, as waiting for process deterioration to develop fully could be too late for preventive purposes or my even catastrophic. The purpose of this study was develop a scheme for enabling on-line recognition of such patterns on Shewhart charts even as they are developing. Extensive simulations were performed and a scheme that can address the requirements is proposed. Evaluation was based on recognition accuracy, average run length, type I error, type II error, and a new measure, average recognition attempts. It was found that a scheme developed using a minimal set of statistical features for input representation, compact structure of artificial neural network pattern recognisers, synergy of specialised and generalised recognisers, and joint monitoring by runs rules and CUSUM resulted in the best scheme among the alternative designs developed. This scheme showed significant improvement in overall performance and, among others, timely and accurate on-line recognition, ignoring unnecessary recognition of stable processes and capability to recover from false alarms. The findings suggest that the recognition of developing control chart patterns should be addressed from an interlinking monitoring and recognition perspective and by implementing a "recognise only when necessary" philosophy. The framework used to develop the scheme is general enough for further investigation by either evaluating other designs of its components or by extending its application to other problems.

ABSTRAK

*NOTE: NOT MORE THAN 1 PAGE AND NO MULTIPLE PARAGRAPHS*

Variasi proses sentiasa wujud dalam operasi pembuatan, dan menanganinya menjadi semakin mencabar akibat keperluan proses pembuatan yang semakin rumit. Adalah penting untuk mengenalpasti secepat mungkin sumber variasi yang tidak tabii untuk tujuan diagnosis dan pembaikan. Oleh itu, corak variasi proses perlu di kenalpasti tepat pada masanya. Menunggu kematangan corak variasi akan melewatkan tindakan pencegahan dan ianya berpotensi mengakibatkan bencana. Tujuan penyelidikan ini adalah untuk membangunkan skema yang berupaya menangani keperluan telah dicadangkan. Keberkesanan skema telah dinilai berdasarkan kepada ketepatan mengecam, berdasarkan masa-nyata, corak variasi proses di atas carta kawalan Shewhart walaupun corak tersebut sedang membentuk. Kajian simulasi yang meluas telah dilakukan dan satu skema yang berupaya menangani keperluan telah dicadangkan. Keberkesanan skema telah dinilai berdasarkan kepada ketepatan pengecaman, purata panjang larian, ralat jenis I, ralat jenis II, dan purata percubaan mengecam. Skema yang dibangunkan dengan menggunakan set sifat statistical minimum bagi perwakilan masukan, struktur pengecam corak rangkaian neural tiruan yang padat, sinergi di antara pengecam khusus dan umum, dan pemantauan bersama oleh runs rules dan CUSUM telah menghasilkan skema yang terbaik di antara reka bentuk alternatif yang dikaji. Penemuan kajian ini menunjukkan bahawa masalah pengecaman corak variasi yang sedang berkembang sepatutnya ditangani dari perspektif pemantauan dan pengecaman yang bersepadu, dan melaksanakan falsafah “mengecam hanya bila perlu”. Rangka skema di atas adalah bersifat umum dan boleh digunakan untuk kajian lanjut samada bagi menguji berbagai jenis rekabentuk komponennya atau meluaskan penggunaannya kepada masalah lain......

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LIST OF SYMBOLS AND ABBREVIATIONS

|  |  |  |
| --- | --- | --- |
| D,d | - | Diameter |
|  | - |  |
|  | - |  |
|  | - |  |
|  | - |  |
|  | - |  |
|  | - |  |
|  | - |  |

Note:

*This part you need to key in manually.*

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# INTRODUCTION

## Background

*2.5 cm*

It is a graduation prerequisite for final year students in the Faculty of Electrical Engineering (FKE), Universiti Teknikal Malaysia Melaka (UTeM), to submit their final year project report. This document is compiled to help final year students in the preparation of their Final Year Project report. It deals only with the submission and physical format of the report. It is the responsibility of each student to ensure that his/her report conforms to this guideline. The supervisors can advise students in the preparation of the report. The following order of report sections is intended to serve as a guide to ensure the quality of the report is satisfactory.

## Draft Copy

Students should submit a draft copy to the supervisor before they submit their final draft report for Final Year Project 1 and Final Year Project 2. This ensures that the proper content has been fulfilled, and the format has been followed before the copies are sent for evaluation.

## Final Draft Copy

Final draft reports must be submitted to the supervisor (1 copy) and panel (1 copy) for evaluation. Students must also submit a softcopy (pdf format) in the university e-learning platform (ULearn).

## Final Report

For Final Year Project 2, after the following examination and having done all the corrections/amendments as recommended by the examiners, the student must submit two (2) copies of the approved work to the faculty according to the format in Appendix in hardcover binding. The student is also required to submit a softcopy in CD form (attached inside the report after the last page) and in the university e-learning platform (ULearn) of their work in PDF format.

## Expenditure

All expenses associated with the final report such as typing, printing, photocopying and binding will be fully borne by the student.

## Plagiarism

Plagiarism is passing off the work of others as your own. This constitutes academic theft and is a serious matter which is penalised in overall marking. Plagiarism simply means submission of an item of assessment containing elements of work produced by another person(s) in such a way that it could be assumed to be the student's own work. Examples of plagiarism are:

a) The verbatim copying of another person's work without acknowledgement the loose paraphrasing of another person's work by simply changing a few words or altering the order of presentation without acknowledgement.

b) The unacknowledged quotation of phrases from another person's work and/or the presentation of another person's idea(s) as one's own.

c) Copying or closing paraphrasing with occasional acknowledgement of the source may also be deemed to be plagiarism if the absence of quotation marks implies that the phraseology is the student's own.

d) Works that may belong to another student or be from a published source such as a book, report, journal or material available on the internet. Contributions of this thesis are made in the following related areas:

# LITERATURE REVIEW

## Organisation of the Report

The Final Year Project report should consist of contents as shown in Table 2.1:

Table 2.1: Arrangement of parts in a report

|  |  |  |  |
| --- | --- | --- | --- |
| **Section** | **SUBJECT** | **STATUS** | **NOTES** |
| 2.1 | Declaration | Compulsory | Page number using Roman numeric (i) |
| 2.2 | Supervisor's Approval | Compulsory | Without page number but counted as (ii) |
| 2.3 | Title Page | Compulsory | Without page number but counted as (iii) |
| 2.4 | Dedication page | Optional | Page number using Roman numeric (if any) |
| 2.6 | Acknowledgement | Optional | Page number using Roman numeric (if any) |
| 2.7 | Abstract (English) | Compulsory | Page number using Roman numeric |
| *Abstrak (Bahasa Melayu)* |
| 2.8 | Table of Contents | Compulsory | Page number using Roman numeric |
| 2.9 | List of Tables | Compulsory | Page number using Roman numeric |
| 2.10 | List of Figures | Compulsory | Page number using Roman numeric |
| **Section** | **SUBJECT** | **STATUS** | **NOTES** |
| 2.11 | List of Publications | Compulsory (if any) |  |
| 2.12 | List of Symbols/Abbreviations/  Notation/ Terminology | Compulsory (if any) | Page number using Roman numeric |
| 2.13 | List of Appendices | Compulsory (if any) | Page number using Roman numeric |
| 2.14 | Text | Compulsory | Page number using Arabic numeric starting with page 1 |
| 2.15 | References | Compulsory | Page number using Arabic numeric, continue from the text |
| 2.16 | Appendices | Optional | Page number using Arabic numeric, continue from the References. |

## Declaration

This page should contain a declaration by the student, which is signed to declare the report's originality. An example is provided in the Declaration page earlier.

## Supervisor's Approval

The final year project report that is submitted for examination must be endorsed and signed by the respective project supervisor. The format of the supervisor endorsement page is shown in the Approval page.

## Title Page

The title of the report should be as concise as possible, giving an accurate description of the work. The title page must contain the information listed in the following order:

* Title of the thesis (must be written properly without short form)
* Student's full name as in identity card
* Statement of award for the project
* Name of Faculty
* Name of the University
* Month and Year of submission

The statement of award for the project should state the purpose and the award for which the project is submitted. It can be stated as followed:

*This Report is Submitted in Partial Fulfillment of Requirements for the Degree of Bachelor in Electrical Engineering (Industrial Power)*

The format of the title page is shown in the Front Page of this document.

## Dedication Page

The dedication must be brief, not more than one paragraph, and not contain any number, chart, or photograph.

## Acknowledgement

Most reports will include a brief statement of thanks and appreciation in recognition of special assistance (including financial) and guidance given by individuals, institutions or government bodies in successfully producing the project. This should be written one page long.

## Abstract

Abstracts in both English and Bahasa Melayu are mandatory. An abstract is different from a synopsis or summary of a report. It should briefly outline the research problem addressed by the project, methodology, findings and significance of the work in the context of the field of study. The abstract should not exceed one (1) page and one paragraph only. It must be written in English and followed by the translation in *Bahasa Melayu*. Examples can be seen in page 2 (English) and page 3 (*Bahasa Melayu*).

## Table of Contents

The titles of sections, chapters and their principal subdivisions and the page numbers on which they appear should be listed in the Table of Contents. The titles should be worded exactly as they appear in the text of the report. Report with many subsections should use a hierarchical numbering system for headings and subheadings (i.e., 2.1, 2.2, 2.3, etc). All chapters and their sub-sections must be labelled and numbered. The chapters are numbered using Arabic numerals, i.e. Chapter 1, Chapter 2, Chapter 3, etc. The number of chapters is not rigid, but it must consist of the following items:

* Introduction
* Literature Review
* Methodology
* Result and Discussion
* Conclusion

## List of Table and Figure

The list for Table and Figure can be updated by click 'Update Field" on the list itself.

### List of Table

This list inserts using "caption", and it consists of the exact titles (including numbering) of all tables that appear in the report. All tables should be numbered consecutively throughout the text.

### List of Figures

All figures insert using the "caption" function and must be numbered consecutively throughout the text.

### List of Symbols/Abbreviations/Notation/ Terminology

This list is optional, depending on the subject matter or technicality of the report. However, all scientific symbols and nomenclature should follow the standard SI¬- system.

## Main Text

The main body of the report is usually arranged into consecutively numbered chapters or sections. The report's internal organisation is the student's responsibility in consultation with his/her project supervisor(s) in accordance with the format given in section Table of Content. The organisation will partly depend on the field of study. Each chapter must be started on a new page. Text is written by paragraph. Avoid writing a too-long paragraph. As a whole, the font of the main text should be the Times New Roman, font size12 with 1.5 spacing. The report will often include the following chapters:

**Chapter 1 Introduction**

The first chapter would be introducing the project, which should include the motivation, problem statement/hypothesis, project objectives and scope/limitation of the project.

**Chapter 2 Literature Survey and Theory**

This chapter should highlight past studies related to the subject of the project/literature survey. Background theory should also be included in this chapter. All information needs to be analyses and synthesised.

**Chapter 3 Methodology**

All relevant experimental and descriptive techniques used in the project should be outlined such that another researcher could repeat the study. It is recommended to use a flow chart with a clear explanation to present the project methodology. The sentences should be in the past tense and passive voice. Reference of methods to other researchers should be made where appropriate.

**Chapter 4 Results and Discussion**

Visually and textually represent project findings where a visual representation of the results in terms of graphs, tables, diagrams and charts. This may be presented as a single chapter, divided separately into an appropriate section or in two or more chapters to include the analysis and presentation of data. The results should be interpreted.

This provides analysis and discussion on the project results, stressing the significance and implications of the project's findings. Contributions of project findings to the field of study should be highlighted.

**Chapter 5 Conclusion and Recommendation**

This chapter contains a summary of the entire work, including methods, results and significant conclusions /recommendations arising from research work. This chapter can be written in a single section or in separately numbered sections. The weaknesses, shortcomings and strengths of the project are presented. Recommendations for future work may also be included together with contributions of project. Any potential of commercialisation or practical application must also be included.

It is acceptable for individual chapter to be self-contained, including their own introduction, methods, results and discussions, as is often the case where individual chapter being submitted for publication. However, in such a report a broader introduction to the whole project should be included to tie the chapters or sections together and to provide the framework for the whole project.

## Mathematical Equation

The mathematical equations or any equations must be written in a single line and right-justified. It also needs to be numbered consecutively as shown in (2.1) and (2.2);

|  |  |
| --- | --- |
| ( | (2‑1) |
|  | (2‑2) |

Therefore,

|  |  |
| --- | --- |
|  | (2‑3) |

## Cross referencing Tables, Figures and Formulas

In paragraph, we demonstrate examples to cross-reference tables, figures and formulas :

Referring to equation (2‑1) and (2‑2)

## Quotation

To insert a quote like this, use *Quotation UTeM* style. Please ensure all quotation are properly cited.

This is an example of a quotation format. It indicates its importance and validity. Introduction is the first part of a thesis and allows the readers to get the general idea of what your thesis is about. It also acquaints the readers with the thesis topic, explaining the basic points of the research and pointing the direction of your research. ..

## Sample of Figure and Table in landscape orientation



Figure 2.1 Figure XYZ

## Sample of Figure and Table in landscape orientation

Table 2.1 Validation of TL estimation with time series load flow simulations based  
 on results obtained from local power utilities

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Parameter A | Parameter B | Parameter C | Parameter D | Parameter E |
| 1 |  |  |  |  |  |
| 2 |  |  |  |  |  |
| 3 |  |  |  |  |  |
| 4 |  |  |  |  |  |
| 5 |  |  |  |  |  |
| 6 |  |  |  |  |  |
| 7 |  |  |  |  |  |

.

## Sample of table when it takes more than 1 pages

Table 2.2 Example of a very long table which takes up more than one page. Please make sure the title of table is repeated at each page

| Name | Year | Income | Location | Gender |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

# METHODOLOGY

## Introduction

All relevant experimental and descriptive techniques used in the project should be outlined such that another researcher could repeat the study. It is recommended to use a flow chart with a clear explanation to present the project methodology. The sentences should be in the past tense and passive voice. Reference of methods to other researchers should be made where appropriate.

## Research Design

This thesis presents a new and integrated analytical approach to estimate the Proposed methodology

Insert your content here...

### Experimental setup

Insert your content here...

#### Parameters

Insert your content here...

#### Equipment

Insert your content here...

## Limitation of proposed methodology

Insert your content here...

## Summary

This chapter presents the proposed methodology in order to develop a new, effective project

# RESULTS AND DISCUSSIONS

## Format of Report

The language of the report should be as direct and simple, as the subject matter will allow. Several standard guides to acceptable grammars are as listed below:

* Campbell, W.G. (1986). Form and Style: Thesis, Reports, Term Papers. Boston: Houghton Mifflin.
* Reynolds, M.M. (1985). Guide to Thesis and Dissertations: An International Bibliography of Bibliographies. Phoenix, Ariz.: Onyx Press.
* Turabian, K.L. (1982). A Manual for Writers of Term Papers, Thesis, and Dissertations. London: Longman.
* Zainal Abidin Bakar (1983). Teknik Menulis Tesis. Kuala Lumpur: Eastview Production.
* Slade, C. (2003). Form and Style: Research Papers, Reports, Theses. 12th ed., Boston: Houghton Mifflin.

## Paper and Size

White, good quality (not lighter than 80 grams) paper of A4 size (210 x 297 mm) should be used for all submitted copies of the report.

## Margin

The top and bottom margins of all pages should be at least 2.5 cm wide. The right page margin should be 2.5 cm wide, and left page margin should be 4 cm wide for binding purposes as set in this document.

# CONCLUSION AND RECOMMENDATIONS

## Conclusion

This chapter contains a summary of the entire work, including methods, results and major conclusions /recommendations arising from research work. This chapter can be written in a single section or in separately numbered sections. The weaknesses, shortcomings and strengths of the project are presented here. The recommendations for future work may also be included together with contributions of project. Any potential of commercialisation or practical application must also be included.

## Future Works

For future improvements, the accuracy of the TL estimation results could be enhanced as follows:

## IEEE System of Referencing

UTeM follows the IEEE System for literature citation and referencing. References in the text must match the reference list both in number and style. All sources must be mentioned in the text. References must be numbered in the order in which they appear in the text. Once the source is labelled, the same number is used in all subsequent references. Each reference number should be enclosed by square brackets on the text line, with space before the bracket and before the punctuation [6]. For example,

It has been argued that 'the relative seriousness of the two kinds of errors differs from situation to situation' [1].

It is not necessary to mention the author(s) of the reference unless it is relevant to the text. The date of the reference should not be mentioned too in the text. It is not necessary to say "in reference [27]. . . ." "In [27] . . ." is sufficient. However, the reference can be cited as follows:

As Smithsky [3] points out,..

To cite more than one source at a time: [1,5,7] or [1-5]

Unless referring to a complete book or article, it is also needed to identify the source of information's page number(s). Indicate exact page numbers of a source within the brackets after a comma [4, pp. 3-6], or by a simple rhetorical device in the text such as,

However, on page 79 of [5] the author seems to contradict himself when he states…

To cite a reference with more than three authors;

Boyd et al. [4] have indicated…

## 4.3 Different Language of Report and Quotation

Quotation in text must be written in a single paragraph. If the language used by the quotation is different from the language used in the report, the word must be italic.

## Reference List

References must be listed in the order they were cited. The references must not be in alphabetical order. The bracketed number should be underlined. Only one reference per bracketed number should be listed.

REFERENCES

[1] *A Guide To The Preparation, Submission and Examination of Theses*,

Universiti Sains Malaysia, 2004.

[2] *Gaya Penulisan Tesis*, Universiti Teknologi Malaysia, 2005.

[3] *Guide To Thesis Preparation*, Universiti Putra Malaysia, 2007.

[4] *Panduan Menulis Tesis dan Salinan E-Thesis,* Universiti Teknologi Malaysia

Sekolah Pengajian Siswazah, 2007.

[5] Pusat Pengajian Kejuruteraan Elektrik & Elektronik, *Panduan Penyediaan Laporan*

*Projek Tahun Akhir,* Universiti Sains Malaysia, 1998.

[6] *Sample References*, IEEE Format, EE155 Course Notes Fall (Electrical Engineering Seminar) and EE333T Course Notes (Technical Communication), 1998

*Note: please follow the referencing format as shown in theUTeM's thesis guideline*

APPENDICES

APPENDIX A LIST OF DISTRIBUTION NETWORK PARAMETERS

|  |  |  |  |
| --- | --- | --- | --- |
| No. | Parameters | No. | Parameters |
|  | Mnemonic (location) |  | 22/6.6kV UG feeder nos |
|  | Voltage transformation level |  | 22/6.6kV UG feeder length |
|  | Energy infeed |  | 22/6.6kV OH feeder nos |
|  | Peak power demand |  | 22/6.6kV OH feeder length |
|  | 33kV UG feeder nos |  | 22/11kV UG feeder nos |
|  | 33kV UG feeder length |  | 22/11kV UG feeder length |
|  | 33kV OH feeder nos |  | 22/11kV OH feeder nos |
|  | 33kV OH feeder length |  | 22/11kV OH feeder length |
|  | 11kV UG feeder no |  | No. of 22/0.4kV (6.6) distribution transformer |
|  | 11kV UG feeder length |  | 22/0.4kV (6.6) distribution transformer capacity |
|  | 11kV OH feeder nos |  | No. of 22/6.6/0.4kV distribution transformer |
|  | 11kV OH feeder length |  | Distribution transformer capacity 22/6.6/0.4kV |
|  | No. of power transformer 33kV |  | No. of 22/11/0.4kV distribution transformer |
|  | 33kV Power transformer capacity |  | 22/11/0.4kV distribution transformer capacity |
|  | No. of 11kV distribution transformer |  | No. of 22/0.4kV (11) distribution transformer |
|  | Distribution transformer capacity (11/.4kV) |  | 22/0.4kV (11) distribution transformer capacity |
|  | LV UG feeder nos |  | 22/11 LV UG feeder nos |
|  | LV OH feeder nos |  | 22/11 LV OH feeder nos |
|  | 22kV UG feeder nos |  | 22/6.6 LV UG feeder nos |
|  | 22kV UG feeder length |  | 22/6.6 LV OH feeder nos |
|  | 22kV OH feeder nos |  | No. of 33/0.4kV distribution transformer |
|  | 22kV OH feeder length |  | 33/0.4kV distribution transformer capacity |
|  | No. of 22kV power transformer |  |  |
|  | 22kV power transformer capacity |  |  |

APPENDIX B TYPICAL DAILY LOAD PROFILE DATA

| Time | Residential | Industrial | Commercial |
| --- | --- | --- | --- |
| 0:00:00 | 0.915 | 0.631 | 0.347 |
| 0:15:00 | 0.982 | 0.608 | 0.334 |
| 0:30:00 | 1.000 | 0.602 | 0.313 |
| 0:45:00 | 0.945 | 0.577 | 0.317 |
| 1:00:00 | 0.966 | 0.569 | 0.303 |
| 1:15:00 | 0.875 | 0.562 | 0.292 |
| 1:30:00 | 0.962 | 0.559 | 0.280 |
| 1:45:00 | 0.930 | 0.557 | 0.274 |
| 2:00:00 | 0.931 | 0.550 | 0.276 |
| 2:15:00 | 0.835 | 0.542 | 0.258 |
| 2:30:00 | 0.838 | 0.539 | 0.248 |
| 2:45:00 | 0.816 | 0.538 | 0.243 |
| 3:00:00 | 0.744 | 0.533 | 0.238 |
| 3:15:00 | 0.645 | 0.529 | 0.232 |
| 3:30:00 | 0.739 | 0.525 | 0.233 |
| 3:45:00 | 0.666 | 0.524 | 0.227 |
| 4:00:00 | 0.698 | 0.523 | 0.231 |
| 4:15:00 | 0.710 | 0.521 | 0.236 |
| 10:30:00 | 0.118 | 0.888 | 0.856 |
| 10:45:00 | 0.173 | 0.912 | 0.864 |