**Individual Project Title**

By

Student Name



FACULTY OF COMPUTING AND

INFORMATION TECHNOLOGY

TUNKU ABDUL RAHMAN UNIVERSITY OF MANAGEMENT AND TECHNOLOGY

KUALA LUMPUR

ACADEMIC YEAR

2025/26

Title

By

Student Name

Supervisor: Supervisor Name

A project report submitted to the

Faculty of Computing and Information Technology

in partial fulfillment of the requirement for the

Choose an item.

Faculty of Computing and Information Technology

Tunku Abdul Rahman University of Management and Technology

Kuala Lumpur

**Copyright by Tunku Abdul Rahman University of Management and Technology.**

All rights reserved. No part of this project documentation may be reproduced, stored in retrieval system, or transmitted in any form or by any means without prior permission of Tunku Abdul Rahman University of Management and Technology.

**Declaration**

The project submitted herewith is a result of my own efforts in totality and in every aspect of the project works. All information that has been obtained from other sources had been fully acknowledged. I understand that any plagiarism, cheating or collusion or any sorts constitutes a breach of TAR University rules and regulations and would be subjected to disciplinary actions.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student Name

Choose an item.

ID:

**Abstract**

This is a **one-page** summary of the project (without any subheading) of usually not more than **300 word**s. It is often used to help the reader to quickly ascertain the documentation’s purpose. Like all summaries, abstract covers the main points of a piece of writing that includes the field of study, problem statement, methodology adopted, research process, conclusion and planning of the project work, etc. It helps readers understand the project by acting as a pre-reading outline of key points.

The contents that you may include in an abstract are as follows:

***Purpose****:* Describes the main purpose of carrying the project, i.e. to justify the existence of the project by stating the existing problem to be solved. Explain why it is necessary to solve it and how the project contributes to the solution.

***Scope****:* This covers areas or size of the project in terms of function and features of the system, modules or sub-modules involved, and functional areas covered in an organization.

***Methodology****:* To describe the methodology, tools, techniques and models that are used throughout the project.

***Testing criteria used****:* To describe the various assessment areas this project has undergone.

***Results and Conclusion****:* To brief the outcome, strengths and weakness of the system or the entire project.

Note: Your abstract SHOULD NOT have bullet points or headings according to the contents listed above. Refer to abstracts of research papers for examples of abstracts.

**Acknowledgement**

This contains acknowledgement to those who have contributed directly or indirectly to the completion of the project. Usually the people to be acknowledged include the project supervisor(s), moderators, family, and those who have given assistance and supports to ensure the success of the project.

**Table of Contents**

[**Declaration ii**](#_heading=h.38rr9g4dr68j)

[**Abstract ii**](#_heading=h.2ssn9r90mpod)

[**Acknowledgement ii**](#_heading=h.od1cufopshkk)

[**Table of Contents ii**](#_heading=h.622gdfd1g0fi)

[**1**](#_heading=h.yyi1sc4ixy2p) **Introduction 2**

[1.1](#_heading=h.ruzfcs4o7poi) Sub-section 1 Heading 2

[1.1.1](#_heading=h.kcfx9cabl1ji) Sub-subsection Heading 2

[1.2](#_heading=h.r8dpp4sr4hil) Sub-section 2 Heading 2

[1.2.1](#_heading=h.wpnsslvnexzi) Sub-subsection Heading 2

[1.3](#_heading=h.1o2723m5no6t) Sub-section 3 Heading 2

[1.3.1](#_heading=h.rtrb8e20ljc) Sub-subsection Heading 2

[1.4](#_heading=h.aucabjipzxtv) Chapter Summary and Evaluation 2

[**2**](#_heading=h.8ugmzpvzymti) **Literature Review 2**

[2.1](#_heading=h.g9r2dzf8o01r) Sub-section Heading 2

[2.1.1](#_heading=h.ipchj3tbnck4) Sub-subsection Heading 2

[2.2](#_heading=h.o1u5fkaz0pts) Sub-section Heading 2

[2.2.1](#_heading=h.dhemze7fgprf) Sub-subsection Heading 2

[2.3](#_heading=h.gwyfnzb5tu13) Sub-section Heading 2

[2.3.1](#_heading=h.380d5l694uui) Sub-subsection Heading 2

[2.4](#_heading=h.4cyv3w190qfy) Chapter Summary and Evaluation 2

[**3**](#_heading=h.87buefnc1vr8) **Methodology and Requirements Analysis 2**

[3.1](#_heading=h.99p94fzefrsx) Sub-section 1 Heading 2

[3.1.1](#_heading=h.ahsaemq0eoqo) Sub-subsection Heading 2

[3.2](#_heading=h.62cft0f6zc8z) Sub-section 2 Heading 2

[3.3](#_heading=h.1ba96rof19e3) Chapter Summary and Evaluation 2

[**4**](#_heading=h.ipb6fajzywbl) **System Design 2**

[4.1](#_heading=h.cuvw30c2vnpf) Sub-section 1 Heading 2

[4.1.1](#_heading=h.uyxokp9c1hnx) Sub-subsection Heading 2

[4.2](#_heading=h.bqanvxju32w6) Sub-section 2 Heading 2

[4.3](#_heading=h.9vbw7bqmuoxe) Chapter Summary and Evaluation 2

[**5**](#_heading=h.vah80ggrkctk) **Implementation and Testing 2**

[5.1](#_heading=h.syn0huwgq1aw) Sub-section 1 Heading 2

[5.1.1](#_heading=h.e7quvori72nz) Sub-subsection Heading 2

[5.2](#_heading=h.j7xw5p8i0ek2) Sub-section 2 Heading 2

[5.3](#_heading=h.4uhed03ykutl) Sub-section 1 Heading 2

[5.3.1](#_heading=h.nmfdjv6hpjju) Sub-subsection Heading 2Choose an item.

[5.4](#_heading=h.rkuns346hhaa) Sub-section 1 Heading 2

[5.4.1](#_heading=h.g4jgc1p5chst) Sub-subsection Heading 2

[5.5](#_heading=h.72njr0nt2pyr) Chapter Summary and Evaluation 2

[**6**](#_heading=h.7bhjtpt7je8h) **System Deployment 2**

[6.1](#_heading=h.j5hwroa7awl) System Backup and Risk Management 2

[6.2](#_heading=h.bmec8evozqug) On-site Setup 2

[6.3](#_heading=h.7ojani1aa248) Training Procedure 2

[6.4](#_heading=h.4w5sylyh8429) Follow-up 2

[6.5](#_heading=h.hzh1mikagh3d) Chapter Summary and Evaluation 2

[**7**](#_heading=h.j8h044lwkc10) **Discussions and Conclusion 2**

[7.1](#_heading=h.kb4aozg4ftyp) Summary 2

[7.2](#_heading=h.3ny8ll8kmrrw) Achievements 2

[7.3](#_heading=h.la0c3xrc5cq3) Contributions 2

[7.4](#_heading=h.dzfj02vlis6g) Limitations and Future Improvements 2

[7.5](#_heading=h.tzu7nhur5png) Issues and Solutions 2

[**References 2**](#_heading=h.x8tdys50e3pm)

[**Appendices 2**](#_heading=h.901ikb9sso8h)

Chapter 1

**Introduction**

# Introduction

A short introduction that describes what will be included in this chapter.

IMPORTANT NOTE TO STUDENTS: In this chapter, you must define the scope of the project clearly - state what functions are included, and what are not included.

## Sub-section 1 Heading

Sub-sections should be used to divide the chapter into logical parts.

### Sub-subsection Heading

Sub-section numbering should be limited to a maximum of 3 levels (e.g. 1.3.1) in order to avoid confusion.

## Sub-section 2 Heading

### Sub-subsection Heading

Sub-section numbering should be limited to a maximum of 3 levels (e.g. 1.3.1) in order to avoid confusion.

## Sub-section 3 Heading

### Sub-subsection Heading

Sub-section numbering should be limited to a maximum of 3 levels (e.g. 1.3.1) in order to avoid confusion.

## Chapter Summary and Evaluation

*At the end of each chapter, evaluate the contents stated or discussed in the relevant sub-sections.*

**REMINDER TO STUDENTS ABOUT FIGURES AND TABLES**

Important figures and tables are to be integrated into and/or explicitly referred to in the various appropriate sections in the Final Project Report. The figures and tables should also be labeled with a figure/table number using the legal numbering style and appropriately titled. For example, Figure 1.3 will be used to refer to the third figure appearing in Chapter 1. Similarly, appendices must also be explicitly referenced in the appropriate part of the Final Report. For example:

* “Refer to Table 1.1 for the survey questionnaire results.”
* “The experiment result is given in Figure 1.1.”

All tables must be labeled with proper captions, placed on top of the table and centralized as shown in Table 1.1 below.

Table 1.1: Example of Table

|  |  |  |  |
| --- | --- | --- | --- |
|  | Series 1 | Series 2 | Series 3 |
| Category 1 | 4.3 | 2.4 | 2 |
| Category 2 | 2.5 | 4.4 | 2 |
| Category 3 | 3.5 | 1.8 | 3 |
| Category 4 | 4.5 | 2.8 | 5 |

Similar to table, all figures must be labeled with proper captions, placed below of the figure and centralized, as shown in Figure 1.1.

Figure 1.1: Example of Figure

For Chapter 2, the numbering for the figures that appear should be as follows: Figure 2.1, Figure 2.2, Figure 2.3, etc.

**IMPORTANT: Remember to apply this throughout your FYP documentation.**

Chapter 2

**Literature Review**

# Literature Review

A short introduction that describes what will be included in this chapter.

IMPORTANT NOTE TO STUDENTS: In this chapter, you need to include the necessary references that you have used; please place proper citations. Citation needs to follow APA Referencing.

## Sub-section Heading

Sub-sections should be used to divide the chapter into logical parts.

### Sub-subsection Heading

Sub-section numbering should be limited to a maximum of 3 levels (e.g. 2.3.1) in order to avoid confusion.

## Sub-section Heading

Sub-sections should be used to divide the chapter into logical parts.

### Sub-subsection Heading

Sub-section numbering should be limited to a maximum of 3 levels (e.g. 2.3.1) in order to avoid confusion.

## Sub-section Heading

Sub-sections should be used to divide the chapter into logical parts.

### Sub-subsection Heading

Sub-section numbering should be limited to a maximum of 3 levels (e.g. 2.3.1) in order to avoid confusion.

## Chapter Summary and Evaluation

*At the end of each chapter, evaluate the contents stated or discussed in the relevant sub-sections.*

Chapter 3

**Methodology and Requirements Analysis**

# Methodology and Requirements Analysis

A short introduction that describes what will be included in this chapter.

IMPORTANT NOTE TO STUDENTS: In this chapter, all requirements must be clearly spelt out, either in text or illustrations (diagrams / models).

## Sub-section 1 Heading

Sub-sections should be used to divide the chapter into logical parts.

### Sub-subsection Heading

Sub-section numbering should be limited to a maximum of 3 levels (e.g. 3.3.1) in order to avoid confusion.

## Sub-section 2 Heading

## Chapter Summary and Evaluation

*At the end of each chapter, evaluate the contents stated or discussed in the relevant sub-sections.*

Chapter 4

**System Design**

# System Design

A short introduction that describes what will be included in this chapter.

IMPORTANT NOTES TO STUDENTS:

* In this chapter, the design\* of the system must be illustrated/**updated according to what have been actually implemented.** (\*examples: use cases, flowcharts, class diagrams, state chart)
* For communication protocol and architecture: list the protocol used; illustrate the architecture among servers and clients
* MQTT Command List and Description (if applicable): List all the values used in the project, with descriptions. e.g. F016000001F017000001F018000003
* Algorithms: Explain the algorithms used in the program

## Sub-section 1 Heading

Sub-sections should be used to divide the chapter into logical parts.

### Sub-subsection Heading

Sub-section numbering should be limited to a maximum of 3 levels (e.g. 4.3.1) in order to avoid confusion.

## Sub-section 2 Heading

…

## Chapter Summary and Evaluation

*At the end of each chapter, evaluate the contents stated or discussed in the relevant sub-sections.*

Chapter 5

**Implementation and Testing**

# Implementation and Testing

A short introduction that describes what will be included in this chapter.

IMPORTANT NOTE TO STUDENTS: Include details about:

* **Implementation**

A detailed description of how you actually carried out the implementation (e.g., coding, etc.) of your system/prototype.

* Include code snippets and descriptions to show how the requirements of the application/prototype have been met –
  + For Smart Campus projects, code snippets of the MQTT protocol for both client side and server side has to be included with explanation.
* Include descriptions of important settings - Setting for server, network protocol, IP, database, security
* Note: this should **not** be a chronological account of the work you carried out.
* **Testing**

All test cases that have been carried out must be provided - To tabulate the test cases in tables

Note: Students may also opt to split Implementation and Testing into 2 separate chapters.

## Sub-section 1 Heading

Sub-sections should be used to divide the chapter into logical parts.

### Sub-subsection Heading

Sub-section numbering should be limited to a maximum of 3 levels (e.g. 5.3.1) in order to avoid confusion.

## Sub-section 2 Heading

## Sub-section 1 Heading

Sub-sections should be used to divide the chapter into logical parts.

### Sub-subsection Heading

Sub-section numbering should be limited to a maximum of 3 levels (e.g. 5.3.1) in order to avoid confusion.

## Sub-section 1 Heading

Sub-sections should be used to divide the chapter into logical parts.

### Sub-subsection Heading

Sub-section numbering should be limited to a maximum of 3 levels (e.g. 5.3.1) in order to avoid confusion.

## Chapter Summary and Evaluation

*At the end of each chapter, evaluate the contents stated or discussed in the relevant sub-sections.*

Chapter 6 *(if applicable)*

**System Deployment**

# System Deployment

This chapter would be applicable for students who have embarked on a real-life industrial project. Students in this case would need to describe how the deployment has been carried out. Some of implementation tasks which need to be described include: training, file conversion or creation, and changeovers.

## System Backup and Risk Management

Describe the procedures to backup the existing system for changeover purpose. Discuss the potential risk(s) for the changeovers and the solution.

## On-site Setup

Describe the preparations to be done prior to the setup of the new system on client’s site. Discuss the procedures to setup the new system, schedule, etc.

## Training Procedure

Describe the procedures on the training procedures, contents, schedule, etc.

## Follow-up

Describe the plan or procedures to follow up with the client (company) to verify the system reliability.

## Chapter Summary and Evaluation

*At the end of each chapter, evaluate the contents stated or discussed in the relevant sub-sections. For example,*

* Problems faced. Describe the various problems faced by students in the course of doing the project.
* Solutions. What have been done to solve the problems?
* What tools and techniques have been used and reasons for using them.

Chapter 7

**Discussions and Conclusion**

# Discussions and Conclusion

Each student is required to make an *evaluation of the project* he/she has embarked on. The project evaluation may include the following sections.

IMPORTANT NOTE TO STUDENTS: In this chapter, for problems related to code, hardware, internet connection, etc (where applicable):

* + List the technical problems faced and state how they were resolved
  + List the unsolved technical problems for future enhancement
  + List the achieved objectives/modules
  + List the incomplete parts for future enhancement - this is regardless the parts listed in the pre-determined scope. Suggestions for future improvement

## Summary

Summarize the project including the problem and proposed solutions, justification of the choice of tools, techniques and methodologies used in this project.

## Achievements

Students are required to evaluate the project’s achievement against project objectives, completion of the project, students’ view of the strengths and weaknesses of the work done.

## Contributions

Discuss the creativity, innovativeness, contribution of the proposed system. Explain why the proposed system is necessary. Describe the marketability of the system.

## Limitations and Future Improvements

Identify the limitations of the research or project. Provide suggestions for improvement or further development of the system or research in the future.

## Issues and Solutions

Students are required to describe the various problems faced by students during the project development and explain what has been done to solve the problems. The valuable experiences gained or lessons learnt through the project as a whole. The issues may include technical issues, project management issues, team dynamics problems, and other difficulties encountered and lessons learnt. How the issues are solved or can be solved to ensure the project can be completed on time or to be improved in the future.

# References

publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list. The list of references should contain all the items that have been explicitly referred to in the report. Students may have referred to some manuals or conducted research on certain knowledge areas, for example Oracle, RFID scanners etc.

If the students choose to write a bibliography, then they should list down all materials that are useful either directly or indirectly to the project concerned and which the students have read. An example of material useful could be an article or an Oracle user manual etc.

References should be cited in the main text using Author-Year system. The full references should be given as below (essentially APA Referencing format), in the alphabetical order in 10 pt. Times New Roman, with a 6pt spacing between each. References should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters "a", "b", "c", etc., placed after the year of publication.

Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full.

*Web references* used as a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source

**Appendices**

In order to enhance better understanding of the project, students should as far as possible include all directly relevant materials, figures or diagrams in the **main body** rather than in the Appendix. The appendix is reserved only for items which may not directly be relevant or essential to enhance a reader’s understanding of the project, or which may interrupt the smooth reading of the project document (for example being too voluminous).

Appendices should only include supportive materials **directly referred** to in the writing and should be kept to a **minimum**, e.g. selected pages of an annual report, not the entire document. Examples of items included in Appendices are:

* Company’s report and documentation, such as sample invoice, purchase order form, etc.
* Project meeting documentation e.g. minutes of meetings, tracking documents, memos etc.
* Questionnaires and results, interview questions and results, pilot test and results, observation sheet and results, experiment test plan and results, etc.
* Analysis/design diagrams (only those not incorporated in the main body of the report).

If there is more than one appendix, they should be identified as A, B, etc (e.g. Appendix A). Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.

IMPORTANT NOTE TO STUDENTS

**APPENDIX *n* User Guide**

* List the username and password of multiple roles (if applicable)
* Provide clear screen shots of each page, explain the functions of each button

As a rough guide, the user guide should include the following sections:

|  |
| --- |
| **System Document**  In this section, students should provide the following pieces of information:   * **System (hardware and software requirements)**. Students should describe the minimum hardware and software requirements to install the software application which has been developed by the students, for example, DBMS, OS, program development tools etc. * **Installation**. Under this section, students should create an ‘installation’ CD and provide a brief step-by-step guide on how a new user can install the software on a computer system. Students should indicate any special setup information, such as the specific location of placing the database files, the SQL statements to add tables, etc. Software source code should also be included in this CD. Students are not required to print out the software code.   **Operation Document**  Under this section, students are required to provide a brief step-by-step guide on how to use the installed software. The guides should teach the user how to run the software and use its major functions and features. For example, steps show guide the users on how to run the system, e.g. to use an executable file or to use the IDE. The login information such as username and password for each of the different users (or roles) must be provided. Some screen interfaces would be useful. |

**APPENDIX *n+1* Developer Guide\***

\*To be included for ***Smart Campus Projects*** and ***Real-Life Projects***. This section should include the following:

* List the necessary software, installer, API, library that must be installed
* List the authentication details, such as username and password for all security

**Other Appendices:**

* + Supporting documents
  + Non-disclosure agreement (if applicable)
  + Other detailed documentation, such as important references, interview results, survey results, etc.

This page is intentionally left blank to indicate the back cover. Ensure that the back cover is black in color.