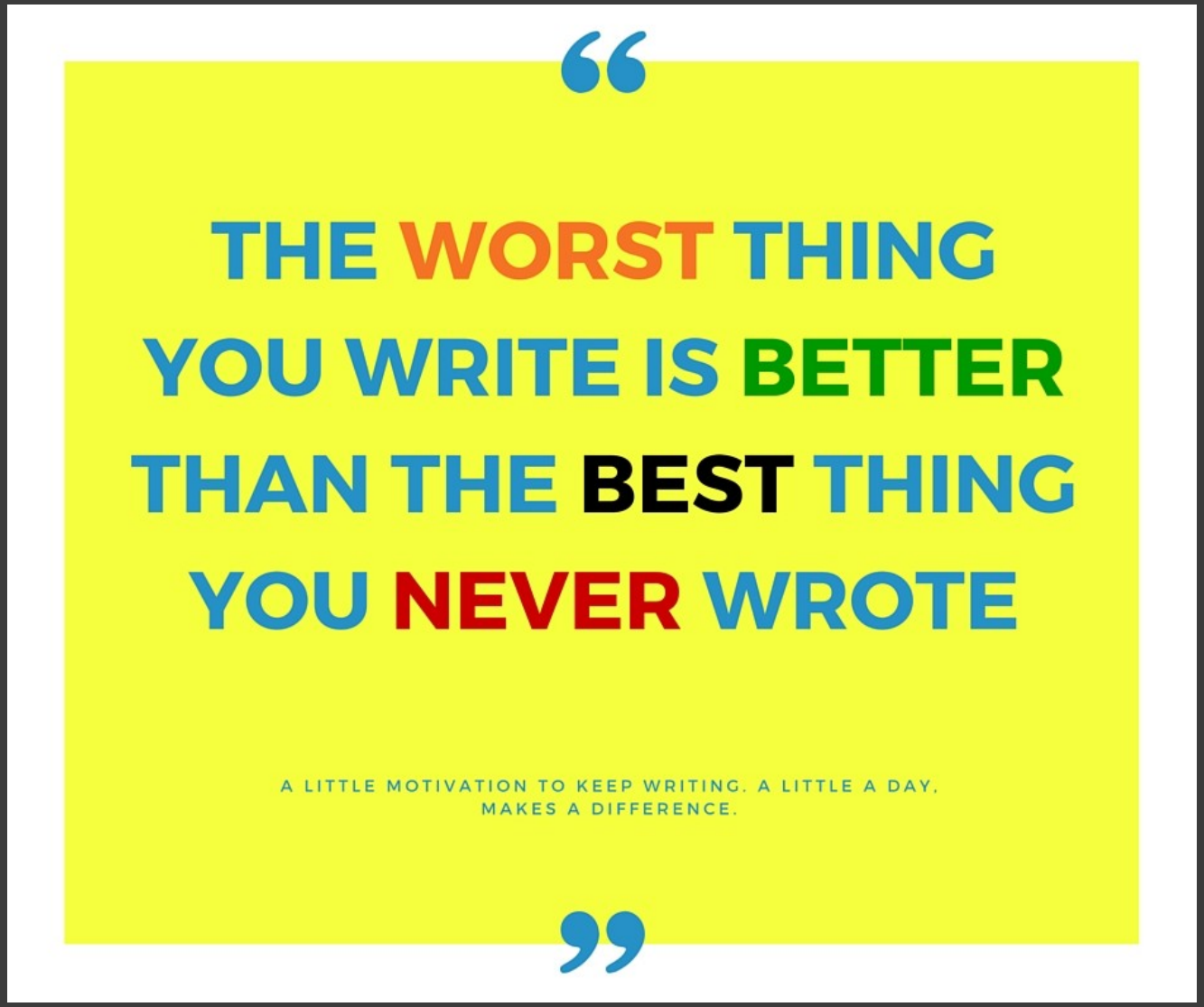

# PSM : CHAPTER 1


THE WORST THING
YOU WRITE IS BETTER
THAN THE BEST THING
YOU NEVER WROTE
A LITTLE MOTIVATION TO KEEP WRITING. A LITTLE A DAY,
MAKES A DIFFERENCE.

# CH1: OUTLINE

Table 4.1: Outline of Chapter 1 of the PSM report

| System Development Based Project | Research Based Project |
|---|---|
| **Chapter 1: Introduction** | **Chapter 1: Introduction** |
| 1.1 Introduction | 1.1 Introduction |
| 1.2 Problem Background<br>• Example:<br>Explain why current technology *T* is underperforming environment *Z*. | 1.2 Problem background<br>• Problem statement<br>• Example:<br>Algorithm *X* is inefficient in environment *Z*. |
| 1.3 Project Aim<br>• A single sentence statement.<br>• Explaining the key target of the project.<br>• Example:<br>To develop a system *X* using technology Y to be employed in environment *Z*. | 1.3 Research aim<br>• Example:<br>Comparing performance between to algorithms, *X* and *Y*, in environment *Z* |
| 1.4 Objectives<br>• A minimum of three objectives and a maximum of four.<br>• Must be measurable | 1.4 Objectives<br>• A minimum of three objectives and a maximum of four.<br>• Must be measurable |
| 1.5 Scope<br>• Describes in detail tasks to be executed.<br>• Constraints regarding any part of the project development (e.g. size of system and technology).<br>• What will and will not be done as part of the project. | 1.5 Scope<br>• Research domain<br>• Experimental setup (e.g. Tools used)<br>• Case study used<br>• Data used<br>• Constraints and limit of research (if any) |
| 1.6 Importance of the project | 1.6 Research Contribution |
| 1.7 Report organization | 1.7 Report organization |

Research Question (RQ)

Research Significance

This is the guideline for the chapter.

Read the description carefully to understand.

This chapter gives the reader a first view of your project ➔ must be written clearly and well

# 1.1 INTRODUCTION

**Project: Class attendance system using RFID (CASUR)**

1. **Introduce the generic domain (and more specific domain if needed)**
2. **Introduce the problem(s)**
3. **Propose your solution(s)-** highlight other possible/existing solution if necessary

Nearly all universities in Malaysia employ the face-to-face approach in teaching and learning, with some electronic aide. In T&L, attendance is very important in ensuring that knowledge acquisition and retention can be achieved. In UTM, 80% attendance is compulsory before one can sit for the final exam.

Currently, attendance in class is taken manually, with students signing their attendance on a piece of paper distributed by the lecturer. Unfortunately, this method is both slow and have flaws which could affect the attendance percentage. An efficient and accurate way of taking attendance is needed, and the CASUR is proposed.

CASUR is an RFID based system that will tag each students as they enter the class and keep this data as prove of attendance. While there are many different approaches available like biometrics, RFID will provide a quicker, accurate and cheaper solution.

# 1.2 PROBLEM BACKGROUND

1. In this section, you will **elaborate more on the problems** currently faced in the project/research domain.
2. Usually the problems relate to a particular organization, but it could also be a general problem faced by public.
3. You need to explain current situation that needs for an improvement/new solution.

During class the lecturer will pass an attendance sheet to the students. This attendance sheet will have the student name list, followed by space for them to sign in for that particular class.

Unfortunately, some students may forget to sign in. They are busy focusing in class that they forget to pass around and sign the sheet.

Some students may forge the signature of an absent friend. This is an unethical approach to help maintain the regulated 80% attendance.

Lost of this attendance is also an issue. When the attendance sheet goes missing, whole weeks of attendance proof is also gone.

CASUR is a system using RFID tags to quickly input student attendance. As loose tags are easily used to cheat, these tags will be implanted into the students.

# 1.3 PROJECT AIM

**Project: Class attendance system using RFID (CASUR)**

- A single sentence explaining key target or achievement of the project.
- Example:

**The aim of this project is to develop an efficient and cheap class attendance system that will accurately get and store students attendance in classes.**

For research projects, add the research questions (RQ) here.

# RESEARCH QUESTIONS (RQ)

- Within your research topic you must find a question, which **identifies what you hope to learn** ➔ the research question
  - List all of the questions that you'd like answered yourself. Choose the best question, one that is neither too broad nor too narrow.
- A research question guides and centers your research.
  - **Make RQ as specific and succinct as possible.**
  - **Stick to what will be studied, not implications or your value judgments.**

Read more here:
http://twp.duke.edu/uploads/media_items/research-questions.original.pdf

***Succinct = to the point***

# 1.3 PROJECT AIM: RESEARCH

Project: Effectiveness of RFID in checkout systems

- Example:

  **The aim of this project is to study the effectiveness of RFID in checkout systems. To support this research aim, the following research questions are asked:**

  i. **What type of RFID readers and tags needed to read items effectively?**
  ii. **How many readers are needed to effectively read a cartful of items**
  iii. **Will multiple RFID readers create multiple copies of the same item when scanned?**

# 1.4 OBJECTIVES

- Steps taken to achieve the aim of the project.
- It must be measurable.
  - Anyone can see the results/outputs of each objective in the report and in the system.
- Use point form to differentiate between one objective and another.
- Objective cannot be just one (as it might be seen as the aim of the project). ➔ min:3 ; max:4
  - If too many, it becomes too specific and may duplicate another objective.

# 1.4 OBJECTIVES :: EXAMPLE

**Project: Class attendance system using RFID (CASUR)**

**The objectives of this project include:**

1. **To review existing approaches to attendance systems and the RFID technology.**
2. **To design and develop the proposed Class attendance system using RFID .**
3. **To test and evaluate the developed CASUR for accuracy and effectiveness.**

# 1.4 OBJECTIVES :: RESEARCH EXAMPLE

Project: Effectiveness of RFID in checkout systems

**The objectives of this project include:**

1. **To study RFID technology and the characteristics of checkout systems**
2. **To design and implement an experiment using the proposed technique and characteristics.**
3. **To run the experiment and analyze the results obtained.**

# 1.5 SCOPES

- What is the limitation of your project?
- What is not covered in your system development?
- It would be a reason for you to show to the examiners why you did not implement/have particular features in your system.
- Usually, it involves the limitation in data collection strategy, the domain of investigation, assumptions that need to be made, etc.

# 1.5 SCOPES :: EXAMPLE

Project: Class attendance system using RFID (CASUR)

**The project will be run within the following scopes.**

1. **The system will focus the development on the Faculty of Computing, UTM.**
2. **The RFID QT145 tags will be used as the detector element as it is safe for use on skin.**
3. **As QT145 tags are expensive, only 5 test subjects will be used in CASUR.**

# 1.5 SCOPES :: EXAMPLE RESEARCH

Project: Effectiveness of RFID in checkout systems

**The project will be run within the following scopes.**

1. **This research will employ up to five RFID readers for the experiment.**
2. **The assessment criteria is on the readibility and accuracy in item scanning.**
3. **Information in the RFID tag within this experiment will include only the item price, name and serial number.**
4. **Due to hardware availability constraints, only RFID cards will be used.**

# 1.6 PROJECT IMPORTANCE

- Explain why you would like to develop the system.
- What motivate you to work on the project.
- Outline the benefits of the system.
- What are the parties that could get the benefits

# 1.6 PROJECT IMPORTANCE :: EXAMPLE

**The project will significantly enhance the way attendance is taken in class in FC and increase its accuracy. Consequently, students can keep up with their current attendance rate while actively inhibiting unethical behaviour inherent previously.**

# 1.7 REPORT ORGANIZATION

- Summarize what have been discussed from 1.1 to 1.6
- Also give an idea to the readers about what to expect in the following chapters.

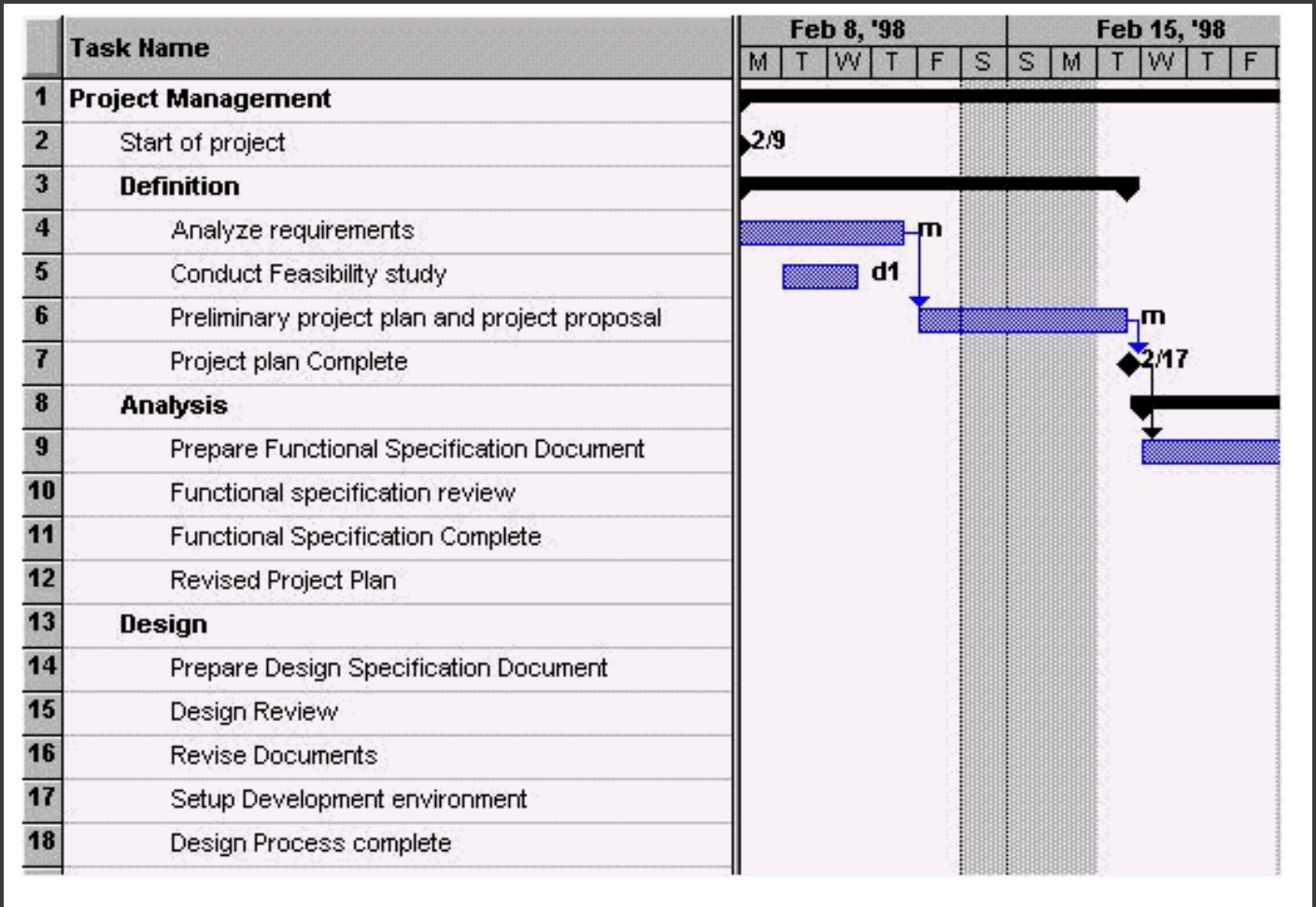
e.g.

*In the next chapter…. Chapter 3 outlines the methodology… It is then followed by … in chapter 4. Chapter 5 concludes this report …*

# GANTT CHART

- A Gantt chart is a timeline view that makes it easy to see how a project is progressing.
- You can visualize project tasks and see how they relate to each other as the project progress over time.
- To get started with your own:
  - list out all the tasks in your project
  - identify the start date for each task
  - determine the amount of time needed to complete each task

**How To Build A Gantt Chart**
**https://www.youtube.com/watch?v=om4ivw-ltQk**


Task Name
Feb 8, '98
Feb 15, '98
M T W T F S S M T W T F
1 Project Management
2 Start of project
3 Definition
4 Analyze requirements
5 Conduct Feasibility study
6 Preliminary project plan and project proposal
7 Project plan Complete
8 Analysis
9 Prepare Functional Specification Document
10 Functional specification review
11 Functional Specification Complete
12 Revised Project Plan
13 Design
14 Prepare Design Specification Document
15 Design Review
16 Revise Documents
17 Setup Development environment
18 Design Process complete
2/9
m
d1
m
2/17

# HOMEWORK : CH1 & GANTT CHART

- Enhance your CH1 and be ready to present/discuss in the next class.
- * * Refer to the PSM handbook for guidelines

Note: Both to be submitted online

- Produce your Gantt chart according to these milestones.
  - Topic proposal – week 3
  - First report on chapter 1 and 2 – by week 6
  - Second report on chapter 3 and 4 – by week 9
  - Draft to supervisor – week 10
  - Project presentation – week 13

* *Refer to the PSM calendar for dates

# END OF CLASS FOR TODAY