

1       THIS IS THE TITLE OF YOUR SPECIAL PROBLEM

2                               A Special Problem Proposal  
3                               Presented to  
4       the Faculty of the Division of Physical Sciences and Mathematics  
5                               College of Arts and Sciences  
6       University of the Philippines Visayas  
7                               Miag-ao, Iloilo

8                               In Partial Fulfillment  
9                               of the Requirements for the Degree of  
10       Bachelor of Science in Computer Science by

11                               LASTNAMEA, FirstName1  
12                               LASTNAMEB, FirstName2  
13                               LASTNAMEZ, FirstName3

14                               Firstname LASTNAME  
15                               Adviser

16                               September 25, 2024

## Abstract

18 From 150 to 200 words of short, direct and complete sentences, the abstract should  
19 be informative enough to serve as a substitute for reading the entire SP document  
20 itself. It states the rationale and the objectives of the research. In the final Special  
21 Problem document (i.e., the document you'll submit for your final defense), the  
22 abstract should also contain a description of your research results, findings, and  
23 contribution(s).

24 Suggested keywords based on ACM Computing Classification system can be  
25 found at [https://dl.acm.org/ccs/ccs\\_flat.cfm](https://dl.acm.org/ccs/ccs_flat.cfm)

26 **Keywords:** Keyword 1, keyword 2, keyword 3, keyword 4, etc.

27

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# 47 List of Figures

<small>48</small>	1.1	This is the figure's caption – Disney stock chart. Captions should	
<small>49</small>		fully describe the figure in a concise manner such that there is not	
<small>50</small>		need to refer to the text when figuring out the graphic. . . . .	2

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# Chapter 1

## Introduction

### 1.1 Overview

This section gives the reader an overview of the real world problem that needs to be solved. It describes the exigency of the proposed solution. The consequences to the affected stakeholders that the problem may bring if it not addressed. Discussion must not be too technical or too detailed.

This section ends with a discussion on the problem/s faced by or that still exist in the specific technology or field (e.g., limitations of existing software or algorithms). The problem statement would lead to the research objectives.

It is easy to include a figure in JPG or PNG format as shown in the following example. Make sure that you explain what the figure is all about, and that you refer to your figure. For example, Figure 1.1 shows a graph of the performance of Disney stock from the 1980s to 2012.

Some notes on citing references. When using APA format, the author-date method of citation is followed. This means that the author's last name and the year of publication for the source should appear in the text, and a complete reference should appear in the reference list.

Here are some examples on how to do the referencing (note author's name and years are different from commented examples). For APA citation details, refer to <http://www.ctan.org/tex-archive/biblio/bibtex/contrib/apacite/>.

- Kartch (2000) compared reaction times...



Figure 1.1: This is the figure’s caption – Disney stock chart. Captions should fully describe the figure in a concise manner such that there is not need to refer to the text when figuring out the graphic.

- 75     • In a recent study of reaction times (Kartch, 2000)...
- 76     • In 2000, Kartch compared reaction times...
- 77     • Fedkiw et al. (2001) compared reaction times...
- 78     • In a recent study of reaction times (Fedkiw et al., 2001)...
- 79     • In 2001, Fedkiw et al., compared reaction times...

80     The following are references from journal articles (Park, Linsen, Kreylos,  
 81     Owens, & Hamann, 2006; Pellacini et al., 2005; Sako & Fujimura, 2000). Here’s  
 82     an MS thesis document (Yee, 2000), and this is from PhD dissertation (Kartch,  
 83     2000). For a book, reference is given as (Parke & Waters, 1996). Proceedings  
 84     from a conference samples are (Jobson, Rahman, & Woodell, 1995; Fedkiw et al.,  
 85     2001; Levoy et al., 2000). The sample bibliography file named **myreferences.bib**  
 86     is from the SIGGRAPH L<sup>A</sup>T<sub>E</sub>X template. You can use a text editor to view the  
 87     contents of the bib file. It is your task to create your own bibliography file. For  
 88     those who downloaded papers from ACM or IEEE sites, there is a BibTeX link  
 89     that you can click; thereafter, you just simply need to copy and paste the BibTeX  
 90     entry into your own bibliography file.



91 The following shows how to include a program source code (or algorithm).  
92 The verbatim environment, as the name suggests, outputs text (including white  
93 spaces) as is...

```
94         #include <stdio.h>
95         main()
96         {
97             printf("Hello world!\n");
98         }
```

99 Alternatively, you can also use the *lstlisting* environment from the **listings**  
100 package.

## 101 1.2 Problem Statement

102 DO NOT FORGET to write the statement of the research problem here, i.e.,  
103 before the Research Objectives.

104 A problem statement is your research problem written explicitly. The problem  
105 statement should do four things:

- 106 1. Specify and describe the problem (with appropriate citations)
- 107 2. Provide evidence of the problem's existence
- 108 3. Explain the consequences of NOT solving the problem
- 109 4. Identify what is not known about the problem that should be known.
- 110 5. Subdivide the main problem into several subproblems.

## 111 1.3 Research Objectives

### 112 1.3.1 General Objective

113 This subsection states the over-all goal that must be achieved to answer the  
114 problem. Address the following: Given your research challenge or opportunity,  
115 how do you intend to solve it? What is the output of your research?

### 116 1.3.2 Specific Objectives

117 This subsection is an elaboration of the general objective. It states the specific  
118 steps that must be undertaken to accomplish the general objective. These objec-  
119 tives must be **S**pecific, **M**easurable, **A**ttainable, **R**ealistic, **T**ime-bounded. Also,  
120 they are manageable and communicable.

121 A specific objective start with “to <verb>” for example: to design/survey/review/analyze.

122 Studying a particular programming language or development tool (e.g., to  
123 study Windows/Object-Oriented/Graphics/C++ programming) to accomplish the  
124 general objective is inherent in all thesis and, therefore, must not be included here.

- 125 1. To compare and contrast existing algorithms (on what problem?);
- 126 2. To develop a new algorithm (for what purpose?)
- 127 3. To analyze the algorithm (based on what criteria?)

## 128 1.4 Scope and Limitations of the Research

129 This section discusses the boundaries (with respect to the objectives) of the re-  
130 search and the constraints within which the research will be developed.

## 131 1.5 Significance of the Research

132 This section explains why research must be done in this area. It rationalizes the ob-  
133 jective of the research with that of the stated problem. Avoid including sentences  
134 such as “This research will be beneficial to the proponent/department/college”  
135 as this is already an inherent requirement of all BSCS majors. Focus on the  
136 research’s contribution to the Computer Science field.

137 The following are guide questions that may help your formulate the significance  
138 of your research.

- 139 • What is the relevance of your work to the computer science community?

- 140           – What will be your technical contributions, in terms of algorithms, or  
141           approaches, or new domain?
- 142           – What is your value-added compared to existing systems?
- 143   • What will be your contributions to society in general?
- 144           – Who will benefit from your system?
- 145           – Who are your target users and how will this system benefit them?

## Chapter 2

# Review of Related Literature

This chapter discusses the features, capabilities, and limitations of existing research, algorithms, or software that are related/similar to the Special Problem.

The reviewed works and software must be arranged either in chronological order, or by area (from general to specific). Observe a consistent format when presenting each of the reviewed works. This must be selected in consultation with the adviser.

**DO NOT FORGET to cite your references.**

A literature review must do these things:

- be organized around and related directly to the thesis or research question you are developing
- synthesize results into a summary of what is and is not known
- identify areas of controversy in the literature
- formulate questions that need further research

A literature review is a piece of discursive prose, not a list describing or summarizing one piece of literature after another. It's usually a bad sign to see every paragraph beginning with the name of a researcher. Instead, organize the literature review into sections that present themes or identify trends, including relevant theory. You are not trying to list all the materials published, but to synthesize and evaluate them according to the guiding concept of your thesis or research question. You should also state the limits or gaps of their researches wherein you will try to fill these gaps in accordance to your research problem and objectives.

## 169 **2.1 Theme 1 Title**

170 This chapter contains a review of research papers that:

- 171 • Describes work on a research area that is similar or relevant to yours
- 172 • Describes work on a domain that is similar or relevant to yours
- 173 • Uses an algorithm that may be useful to your work
- 174 • Uses a software / tool that may be useful to your work

175 It also contains a review of software systems that:

- 176 • Belongs to a research area similar to yours
- 177 • Addresses a need or domain similar to yours
- 178 • Is your predecessor

## 179 **2.2 Theme 2 Title**

## 180 **2.3 Chapter Summary**

181 Should include a table of related studies comparing them based on several criteria.

182 Highlight research gaps and the research problem.

## Chapter 3

# Research Methodology

This chapter lists and discusses the specific steps and activities that will be performed to accomplish the project. The discussion covers the activities from pre-proposal to Final SP Writing.

### 3.1 Research Activities

Research activities include inquiry, survey, research, brainstorming, canvassing, consultation, review, interview, observe, experiment, design, test, document, etc. Be sure that for each method, process, or algorithm used, there is a justification why that method was chosen. The methodology also includes the following information:

- who is responsible for the task
- the resource person to be contacted
- what will be done
- when and how long will the activity be done
- where will it be done
- why should the activity be done

**DO NOT FORGET to cite your references.**

## 201 3.2 Calendar of Activities

202 A Gantt chart showing the schedule of the activities should be included as a table.  
 203 For example:

204 Table 3.1 shows a Gantt chart of the activities. Each bullet represents approx-  
 205 imately one week worth of activity.

Table 3.1: Timetable of Activities

Activities (2009)	Jan	Feb	Mar	Apr	May	Jun	Jul
Study on Prerequisite Knowledge			••	••••			
Review of Existing Racing Strategies	••	••••	••••	••••			
Identification of Best Features				••••	••		
Development of Racing Strategies				••	••••	••	
Simulation of Racing Strategies				••	••••	•••	
Analysis and Interpretation of the Results					••••	••••	•
Documentation	••	••••	••••	••••	••••	••••	••

## 206 Chapter 4

# 207 Preliminary Results/System 208 Prototype

209 This chapter presents the preliminary results or the system prototype of your SP.  
210 Include screenshots, tables, or graphs and provide the discussion of results.



## References

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<sup>238</sup> **Appendix A**

<sup>239</sup> **Appendix Title**

## 240 **Appendix B**

### 241 **Resource Persons**

242 **Mr. Firstname1 Lastname1**

243 Role1

244 Affiliation1

245 emailaddr1@domain.com

246 **Ms. Firstname2 Lastname2**

247 Role2

248 Affiliation2

249 emailaddr2@domain.net

250 ....