

Design/Methodology/Implementation

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Year 3 COMP321 – ISI Report

- ✓ **Chapter 1. Introduction**
Section 1.1 Overview
Section 1.2 Objectives
- ✓ **Chapter 2. Background and Related Work**
Section 2.1 Background
Section 2.2 Related work
- Chapter 3. System Design**
Section 3.1 Data modeling
Section 3.2 Dynamic modeling
- Chapter 4. System Implementation**
Section 4.1 Architecture
Section 4.2 Module design
- ✓ **Chapter 5. Results and Discussion**
Section 5.1 Project Outcome
Section 5.2 Testing
- ✓ **Chapter 6. Conclusion and Further Work**
- Appendix.**
 References
 Project plans (Gantt Chart, Work-Breakdown Structure, etc.)
 Peer assessment form

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Design Approach/Methodology

- ▶ Provides a brief overview of the tools and methods that you will use to solve the problem
 - Software toolkits
 - Libraries
 - Network technologies (TCP/UDP, RFID, Zigbee protocol, etc)
- ▶ Details may be put in the Appendix
- ▶ Cite references to more detailed sources about these tools

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Design Approach/Methodology

- ▶ Elaborate your idea for solving the problem, with all the details of software design or mathematical model derivation
- ▶ Provide arguments why you believe your approach should work
 - Why do you design your project using this method?
- ▶ Describe the alternatives that you considered at every step
 - Is there any other approach you can use to continue the project?
- ▶ Explain why you decided not to pursue the alternatives
 - Alternative approach is not a good approach? Why not?

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Design Approach/Methodology

- ▶ For implementation-oriented software projects, you may explain the design of the software in terms of:
 - Context and operational modes of the software
 - Architectural design
 - Objects and Classes design
 - Design models (static view and dynamic view)
 - Objects interfaces (data semantics)

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For ISI report: special consideration

Since the methodology follows that of the web-based information system (by-default), the design focus is on the low level unit/component modeling (this is where the students should put up the design effort)

Section 3.1 Data modelling

Describe considerations in data modelling. Use ER diagram / UML model to illustrate your database schema. Also describe the format of files imported or exported by your solution.

Section 3.2 Dynamic modelling

Explain the interaction or dynamics of your system (e.g. state change of a purchase order, transfer of data in different state of a purchase order.) You may use sequence diagram, state diagram, activity diagram, etc.

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Implementation/Experiment

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Implementation/Experiment

- ▶ Describe in details how you implemented your idea, with emphasis on the key problems you have solved
 - A detailed description of the whole implementation should be provided here
 - Explain how key problems are solved by the implementation you designed here
 - Explain how the experiments can verify you data and the process of obtaining such data

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Implementation/Experiment

- ▶ For implementation-oriented software projects, you may also explain your program code by focusing on important modules which carry out important functionalities.

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For ISI report:

Section 4.1 Architecture

Describe the high-level structural model of your system; e.g. three layers, relationship between browser, server, and database, any JavaScript running on browser-side, any stored processes running in database system.

Describe the development tools and environment of your system. Examples: What programming languages are used in the server side? What libraries (if any) are used to handle file upload? Do you use any Web UI frameworks (e.g. Bootstrap)? Which database system do you use? Give reasons for your technical choice.

Section 4.2 Module design

Describe the low-level structural model of your system. E.g. major components in your system, communication and control flow among modules, which module implements each of the functional requirements.

Let's look at the report template and some past report examples.

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