**Detailed and Elaboratory Thesis chapter breakdown – MIS / CS / SE/ DS - UGC**

Chapter – 01 [ Introduction]

1.1 Chapter Overview.

1.2 Problem Background 🡪 What has actually happened ?

1.3 Problem Statement More focused and support with recent citations, Justify the relevancy via latest statistics or applicable info.

1.3.1 General Problem  Implication caused by the problem at a high level.

1.3.2 Specific Problem  Discipline / domain specific shortcomings  Better to terminate by highlighting the research gap to be addressed

1.4 Research Question  ‘Wh’ form of the problem statement  Limit to one, but can have sub-optimal regions

1.5 Research Motivation  What paved you to do this research ?

1.6 Research Aim What do you expect after doing this research ?

1.7 Research Objectives  Must not be learning objectives common to all students who follow the module. Research objectives must be research specific. At undergrad level, we can use following phrases to standardize the writing of the research objectives

1.7.1 To Identify ……….

1.7.2 To analyze ……….

1.7.3 To design / implement / develop …………

1.7.4 To evaluate ……….

1.8 Rich picture of the proposed solution  Emphasizing on the suggested workflows

1.9 Resource Requirements.

1.9.1 Hardware

1.9.2 Software.

1.10 Project scope 🡪 Can be inclusive of a small table with “In scope” and “out scope” supported with appropriate elaborations.

1.11 Chapter Summary

1. Chapter – 02 [ Literature Review ]  **Personnel reviewing is a must, you own opinions has to be discussed against with the existing literatures assessed** 
   1. Chapter overview
   2. Conceptual Map of the literature This will be helpful for the reader to get a quick overview about how the literatures are organized within the chapter.
   3. Domain Overview  Surface level but significant info 10 % coverage
   4. Existing Systems / Frameworks / Designs Comparative assessment, supported via personnel reflections.  30 % coverage

|  |
| --- |
| If they are suitable to the current problem  investigated justify , also if they are not suitable, still need to justify. **For all decisions you make , there need to be a justifiable resolution.** |

* 1. Technological Analysis 60% coverage
     1. Algorithmic analysis
     2. Design analysis
     3. Workflow analysis
  2. Reflection  Justify the research gap, by linking with the findings gather from the latest literatures (usually not less than 5 years older from the current year, unless associated with a theorem) assessed.

1. Chapter – 03 [Methodology] 🡪 Discuss with your supervisor and use an appropriate plan for your research work
   1. Research Paradigm  Justification of the philosophy is important **to get a clear perspective of the angle you are going to analyze the problem**. Along with that, fact collection facets and other aspects also can be varied. 3.2 Research Approach Inductive, Deductive Pragmatism
   2. Research Strategy  what would you use within your research
   3. Fact collection mechanisms
   4. Research Methodology Execution workflow  Can use a tabular structure and explain, how each of the following aspects have been addressed in your research.
      1. Problem Identification.
      2. Relevance Justification
      3. Comparative Analysis and gap justification.
      4. Define and finalize Objectives
      5. Design / Development / Data Management and handling.
      6. Evaluation and Communication

3.6 Project Management Methodology  Justify the selection adhering to the type of the problem being investigated. SCRUM, KANBAN, PRINCE 2 or etc.…

* + 1. Project Timeline
    2. Ethical Considerations
  1. Chapter Summary

1. System Requirement Specification.
   1. Chapter Overview
   2. Stakeholder Analysis
   3. Operationalization Process  Mapping of questions in the questionnaire / Dataset / Interview or employment of data gathering technique to the research objectives. Reviewing on the results from data gathering and justifying the validity of the selected requirement
   4. System/Model Analysis
      1. Use Case Diagrams with specifications. (only include the most important specs and push others to the appendix to save the page count)
      2. Class Diagram
      3. Activity Diagram
      4. Sequence diagrams mapped with use cases (max 03 is enough)
      5. State chart or Deployment diagrams as per the nature of the project (optional)
   5. Proposed system architecture diagram of framework design as necessary
   6. Functional and Non-functional requirements.

4.12 Chapter Summary.

1. Implementation / Designing
   1. Elaborate in detail about the steps followed in creating the framework / or designing the algorithms.
      1. Provide pseudocode / flow charts / algorithms /models as necessary to elaborate the logic.
      2. If it`s framework, elaborate the workflow via a block diagram series, as necessary.
      3. Justify the selection of technologies (tabular refection would be adequate)
         1. Programming Language
         2. Libraries use
         3. Backend and front-end frameworks used.
   2. Selected significantly important implementation attempts needs to be explained with the UI designs / code snipes synching with executional evidence  Contribution associated features only, not basic like login / sign up, if they don`t contain special logics introduced by you.
   3. Chapter Summary
2. Testing and Evaluation  Student needs to justify the eligibility of the selected testing evaluation strategies, than blindly putting something. Always encourage to represent testing outcomes with numeric and graphs as necessary
   1. Chapter Overview
   2. Test plan and Test Cases (max 10, push rest to appendix)
      1. Nonfunctional testing
      2. Functional testing
   3. Testing / Evaluation workflow
   4. Review on test strategies used as applicable to the research. All mentioned below might not be suited for your research.
3. Concluding Remarks
   1. Accomplishment of the research objectives  Encouraged to use triangulation strategy and outcomes derived from the testing chapter.
   2. Problems encountered.
   3. Self-reflection
      1. Your ideology about the research carried out
      2. Benefits gained
      3. Learning curves
   4. Business insight of your idea
      1. Real world application possibilities of your concept / idea.
   5. Future Recommendations

Edited By : Dulanjali Wijesekara – Lecturer

Date : 23rd June 2025