Learning Guide Unit 4

Site: University of the People
Course: CS 4403-01 Software Engineering 2 - AY2025-T1
Book: Learning Guide Unit 4

Printed by: Mejbaul Mubin
Date: Thursday, 5 September 2024, 2:42 PM

Description

Learning Guide Unit 4

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Overview

Unit 4: Data Oriented Analysis and Design

Topics:

- Business Area Analysis
- Entity Relationship Diagrams
- Process Data Flow Diagram
- CRUD Matrix
- Process Dependency Diagram
- Security, Recovery and Audit Control
- Hardware and Software Installation and Testing
- Automated support tools for Data Oriented Design

Learning Objectives:

By the end of this Unit, you will be able to:

1. Define functional decomposition for Information Engineering
2. Analyze decomposition techniques , develop diagrams and content
3. Compare centralization and distribution of data using metrics and formulas
4. Develop distribution metrics and subjective reasoning for a given problem

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Tasks:

- Peer assess Unit 3 Assignment
- Read the Learning Guide and the Reading Assignment.
- Participate in the Discussion Assignment (post, comment, and rate in the Discussion Forum).
- Make entries to the Learning Journal.
- Take the Self-Quiz.
- Take the Graded Quiz

Introduction

Chapter 9: The chapter discusses the philosophy that underlies the data-oriented approach, that data is stable and more unchanging than processes. Processes can be revised with every reorganization. Data entities, on the other hand, rarely change in the lifetime of a business. Data-oriented methodologies teach that data redundancy is to be minimized to best manage it in an organization. The chapter further discusses the Business Area Analysis (BAA) component of Information Engineering (IE) which contains the activities that are most similar to analysis in other methodologies. IE analysis is called Business Area Analysis (BAA). It is the methodology that is used to discuss data-oriented analysis. IE teaches that to know which data should be the focus, we need architectures of data, business functions, and even organizational technology to guide the process. BAAs begin with an entity-relationship diagram that is fully identified and normalized. Business functions are decomposed to create process decomposition, process dependency, and process data flow diagrams.

Chapter 10: The chapter explores data-oriented design, which uses data as the basis for clustering processes, building databases, and identifying the potential distribution of the application. In this chapter, we continue the discussion of Information Engineering as the example of data-oriented methodology. First, the design focuses on the usage of data to develop a strategy for distributing or centralizing applications. Next, processes from a process hierarchy diagram are restructured into action diagrams in design. The details of process interrelationships are identified from the PDFD and placed on the action diagram. The data-oriented design focuses on the needs for security, recovery, and audit controls, relating each topic to the data and processes in the application. Finally, installation plans for all hardware and software are developed. A list of tasks is defined, responsibilities are assigned, and due dates are allocated to the tasks.

Reading Assignment

TEXT: The New Software Engineering:

- Chapter 9: Data-Oriented Analysis
- Chapter 10: Data-Oriented Design

Additional Readings:

- Entity Relationship Diagram Basics: http://jackzheng.net/teaching/archive/cis3730-2010-fall/files/1.5-erd.pdf
- Entity Relationship Diagram: https://www.smartdraw.com/entity-relationship-diagram/
- Software Quality: http://blog.aplikacja.info/crud_matrix_as_a_software_design_and_estimation_tool.html#content

Discussion Assignment

Describe the matrices and formulae used to determine centralization or distribution of data. In the absence of subjective reasoning, would the matrices and formulae lead to a rational decision? Why or why not?

Develop all of the distribution matrices and subjective reasoning for/against distribution, for the problem chosen in Unit 3 (from Appendix). Develop recommendations and explain your reasoning for each choice.

You must post your initial response (with references) before being able to review other student's responses. Once you have made your first response, you will be able to reply to other student's posts. You are expected to make a minimum of 3 responses to your fellow student's posts.

Learning Journal

Assignment instructions

Upon completion of this assignment, you will be able to demonstrate your skills and knowledge on:

- Meaning and definition of functional decomposition for Information Engineering.
- Analyzing the decomposition techniques and develop diagrams and content.

Before you start this assignment, read Chapter 9: Data-Oriented Analysis from the Conger (2008) textbook, available on the course syllabus.

In a newly formed business company, you have been named the Head of the Human Resource Administration business function where you are responsible for conducting functional decomposition.

You are asked to create a report as the Head of HR. As part of your report, you must:

1. List the main tasks performed by the HR administration function and its activities.

a. Include two pictorial representations: One for business functions & activities and another for partial functional decomposition of HR administration function.

b. Ensure that a minimum of three activities are included in the first pictorial representation and all the assumptions you have made. The assumptions should include the tasks performed by HR administration function, how you arrive at the pictorial representation and the important concepts that you kept in mind while drawing the pictorial representation.

2. Take any one out of the three activities (from 1.b.) and think about the processes of that activity.

a. Create two more pictorial representations, one for Process Dependency Diagram and another for Process Data Flow Diagram.

b. Include all the assumptions you have made. The assumptions should include all the important concepts that you kept in mind while drawing the pictorial representation and how you arrive at the pictorial representation.

Submission instructions

- The submission must be organized. Organization is logical and appropriate to assignment; paragraphs are well-developed and appropriately divided; ideas linked with smooth and effective transitions. Introduction and conclusion are effectively related to the whole.
- Your assignment must be between 750-1000 words/ 2 pages .
- Make sure your assignment is in APA format with double-spacing, Times New Roman, 12-point font, and 1” margins.
- Include citations and a list of references in APA format. For assistance with APA formatting, view the Learning Resource Center: Academic Writing

This assignment will be assessed by your instructor using the rubric located on the assignment page on the course home page.

References

- Conger, S. (2008). Data-Oriented Analysis. In *The New Software Engineering*. (pp. 328-390). GlobalText Project

Self-Quiz

The Self-Quiz gives you an opportunity to self-assess your knowledge of what you have learned so far.

The results of the Self-Quiz do not count towards your final grade, but the quiz is an important part of the University's learning process and it is expected that you will take it to ensure understanding of the materials presented. Reviewing and analyzing your results will help you perform better on future Graded Quizzes and the Final Exam.

Please access the Self-Quiz on the main course homepage; it will be listed inside the Unit.

Graded Quiz

The Graded Quiz will test your knowledge of all the materials learned thus far. The results of the quiz will count towards your final grade. Please access the Graded Quiz on the main course homepage; it will be listed inside the Unit. After you click on it, the quiz's introduction will inform you of any time or attempt limits in place. Good luck!

Checklist

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