

NED UNIVERSITY OF ENGINEERING & TECHNOLOGY, KARACHI
FINAL YEAR (COMPUTER SCIENCE AND INFORMATION TECHNOLOGY)
ANNUAL EXAMINATION 2007
BATCH 2003-04

Time: 3 Hours

Dated: 05-11-2007

Max. Marks: 80

DATA WAREHOUSE METHODS

(CT-456)

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- Instructions:**
- a) Attempt any five questions
 - b) Question #1 is compulsory
 - c) All questions carry equal marks.

Q.No.1:

Most organizations are following value chain process consisting of their key business processes in order to get more profit. Consider an Order Management System which focuses on important business metrics, such as sales volume and invoice revenue that are key performance indicators of any organization that sells products or services to others. For an initial data warehouse implementation:

- a) Design a dimensional model by defining all the steps for the given order management system. (6)
- b) Build fact table and dimension tables. (5)
- c) Design star schema to relate the fact table and dimension tables. (5)

Q.No.2:

- a) Why are operational systems not suitable for providing strategic information? Explain with specific reasons and also give appropriate examples. (6)
- b) You are a senior analyst in the IT department of a company manufacturing automobile parts. The marketing VP is complaining about the poor response by IT in providing strategic information. List the reasons for the problems and suggest why a data warehouse would be the only viable solution. (Explain with the flow of Business Intelligence) (10)

Q.No.3:

- a) Explain how metadata is critical for data warehouse development and administration. List any 5 examples of business metadata. (6)
- b) Explain types of metadata by functional areas. (5)
- c) Differentiate between Data Mart and Data Warehouse. (5)

OR

Differentiate between OLTP and OLAP.

Q.No.4:

- a) What are the advantages and disadvantages of Top- Down approach and Bottom-Up approach? Explain what practical approach is adopted by different organizations. (8)
- b) Explain the term data granularity with example. (4)
- c) What are the stages of the data warehouse? (4)

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Q.No.5:

- a) List the components or building blocks of data warehouse with diagram and explain data staging component. (8)
- b) Give some practical approaches to justify your data warehouse. (4)
- c) Examine the concept that metadata is like a nerve centre. Give a general explanation in one paragraph. (4)

Q.No.6:

- a) Imagine Insurance Company that work for \$5 billion property and casualty insurer that offers automobile, homeowners', and personal property insurance. The core processes are to issue policies, collect premium payments, and process claims. The organization is interested in better understanding the metrics spawned by each of these processes. Identify five operational applications that would feed into the data warehouse. List the possible potential users and information delivery methods for a data warehouse and how these users would interact with the data warehouse. (8)
- b) Describe the development phase of the data warehouse with neat and labeled diagram. (8)

Q.No.7:

- a) Write down the purposes of dimensional modeling. What are surrogate keys? (5)
- b) Write down the characteristics of fact table and dimension tables. (6)
- c) Write an algorithm of data mining on any one of the following features. (5)
 - i. Potential Customers (who give more profit to an organization)
 - ii. Committed Customers (who give payment on time)
 - iii. Market Basket Analysis (prospects more likely to purchase together)

Q.No.8:

- a) Explain with example "The Factless Fact Table". (5)
- b) Compare the structure of transaction fact table with the snapshot fact table by giving an example. (5)
- c) List the Microsoft Data Mining Algorithms. Describe how decision trees work. Choose an example and explain how this knowledge discovery process works. (6)

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