

TIS3351 Advance Database

ASSIGNMENT 2014/15

Objective: The objective of the assignment is for students to be able to design and implement a data warehouse; and to formulate effective SQL queries to support decision making.

Important Milestones:-

Week 12 (16/1/15 before 12 noon) – Full report (Hard-copy & soft-copy)

Week 13 - Presentation

You are required to form a group which consists of 3 students (minimum 2 students) from the same tutorial section. Each group shall choose any topic from the below titles. Each group should submit the report (hardcopy) as well as softcopy of the system to your respective tutors.

Each group is given the task of developing a data warehouse using DB2. Design and implement the data warehouse, and provide a simple front end application to your database.

Design your queries to fetch data that can be used to support decision making. Explain how your queries can achieve this.

Title 1: Warehouse for Eco Used Cars

Eco Used Cars is one of the leading car dealers in Malaysia. They have several branches across the states. The data warehouse for Eco Used Cars is used to track the price of used cars over the years. This data warehouse is intended to keep track of the following:

- Sales of used cars by model, manufacturer, year and region
- Demographics of people who buy used cars (age, income, location)

This data warehouse will be used to predict the resale value of used cars, as well as the market group that should be targeted. Design and implement this data warehouse.

Title 2: House of Pizza Delivery (HOP)

House of Pizza Delivery (HOP) is a pizza delivery company in Malaysia. The company has many franchises across the states in Malaysia. HOP offers large 12", regular 9", and small 6" inches pizza at different prices RM35.80, RM25.80, and RM15.80 respectively. HOP aims to fulfill wide range of customers' preferences by providing various selections of individual pizzas, selections of combos, and promotions.

Each franchise is managed by a restaurant manager. Customers either call-in to speak to customer service officers; place order online; or walk-in and place orders with the crews. For call-in and online orders, riders will dispatch the orders to customers' locations. Personal details of the customers are recorded at HOP when they make their first order. Design a Data Warehouse that helps HOP making decisions at tactical or strategic level.

Title 3: Toy4All Store

Design a data warehouse for Toy4All Store. You need to create an inventory data warehouse to keep track of all the toys in the store, and who is the supplier. When stocks get low, it needs to be able to alert the purchaser department to order more. Also, it needs to keep track of the sales, from that be able to deduce the items that are not selling well, and which times are selling well. The data warehouse should also keep track of the supplier's contact information, and the name of the salesperson from the supplier she needs to contact, etc. It would need an invoicing system that takes care of both the purchase and sale prices. The prices of course may change as well. Yet sales in the past must not reflect that change, but record the price at the time it was sold.

Requirements:

1. Draw the database schema either by using star schema or snowflake schema (20m).
2. Show calculation for the fact table size and storage in the database schema (10m).
3. Implement the database on DB2. Write the SQL commands for Data Definition Language (DDL) (10m).
4. Assume you are of different role such as CEO, COO, Sales/Marketing manager, or Customer relationship manager, each student design three useful queries that assist decision making by these roles. Write these SQL commands using Aggregate Functions, Views, and PL/SQL Functions (45m).
5. Design front-end application on Excel (or other options) to display pivot tables and graphs based on Views you generated above (15m).
6. Group presentation with individual assessment (20m).
7. Bonus marks will be given for those who can show and explain data differentiation of Operational Database design and Data Warehouse.