Tutorial 1
Multidimensional Database
Basic Concepts SOLUTIONS

Discuss the following questions:

1. Why is the purpose of **operational database** and **data warehouse** different?

    Operational database is used to maintain the daily operations of the business. The aim is to keep the data consistent and correct. In order to achieve data consistency, the database must be free from anomalies.

    Data warehouse on the other hand is used to help managers in their decision making, by providing data which is structured in such a way to help them to easily retrieve aggregated or summarized data. Operational database focuses on data recording and manipulation, whereas data warehousing focuses on aggregate data retrieval and no data manipulation.

2. Is the **query** "retrieve the units that Adam Smith are taking this semester?" more common to the operational database or to the data warehouse? Give an example of a query that would be more common to the data warehouse?

    This query is more common to the operational database. Queries that are common to data warehousing are aggregate data retrieval, such as "how many units have classes in the evening?"

3. What does **OLAP** retrieve? Where does OLAP retrieve the data from? What is the relationship between **OLAP** and **BI**?

    OLAP retrieves data from the data warehouse. Since the data in the data warehouse is already aggregated, OLAP normally retrieves aggregated data. The data retrieved by OLAP can then be displayed using any BI tool. So, BI tool focuses on the presentation of the data retrieved by OLAP.

4. A city council is collecting data about parking ticket infringements. In this scenario, what are the possible **fact measures** and **dimensions**?

    Possible fact measures are number of parking ticket infringements, and total amount. The dimensions could be month, infringement type, and street name.