LESSON

08

ONLINE ANALYTICAL PROCESSING (OLAP)

Prepared By:
WYETH A. DATUL
Instructor

LEARNING OBJECTIVES

- Define Online Analytical Processing;
- Discuss different types of OLAP; and
- Discuss the advantages of OLAP.

OLAP

- Online Analytical Processing
- A process of data analysis for information stored in a relational database.

TYPES OF OLAP

- Multidimensional Online Analytical Processing (MOLAP)
- Relational Online Analytical Processing (ROLAP)
- Hybrid Online Analytical Processing (HOLAP)

Multidimensional Online Analytical Processing (MOLAP)

- It is considered as the most standard approach to OLAP solutions.
- It directly stores the information contained in the various cubes using a multidimensional database.

Relational Online Analytical Processing (ROLAP)

- It uses the same solution as MOLAP but uses a relational database for storage of the data.
- This solution translates native OLAP queries which are written in a language called multidimensional expressions (MDX) into the appropriate SQL statements.

Hybrid Online Analytical Processing (HOLAP)

- A hybrid approach that combines MOLAP and ROLAP.
- First, the aggregated totals are stored in a multidimensional database then the detail data is stored in the relational database.

Advantages of OLAP

- ✓ Multidimensional
- ✓ Consistently Fast
- ✓ Intuitive Interface
- ✓ Complex Calculations

OLAP FUNCTIONS

Structure Query Language

SQL COUNT FUNCTION

- The COUNT() function returns the number of rows that matches a specified criteria.

  SELECT COUNT(column_name)

  FROM table_name

  WHERE condition;

SQL AVG FUNCTION

- The AVG() function returns the average value of a numeric column.

  SELECT AVG(column_name)

  FROM table_name

  WHERE condition;

SQL SUM FUNCTION

- The SUM() function returns the total sum of a numeric column.

```
SELECT SUM(column_name)
FROM table_name
WHERE condition;
```

SQL MIN & MAX FUNCTION

- The MIN() function returns the smallest value of the selected column.
- The MAX() function returns the largest value of the selected column.
- **SELECT MIN/MAX**(column_name)

  FROM table_name

  WHERE condition;

REFERENCES

- Ramez E. and Shamkant N. Fundamentals of Database Systems. 7th Edition. 2021
- C.J. Date. An Introduction to Database Systems. 8th Edition. Addison Wesley
- http://www.ebooks-for-all.com/bookmarks/detail/Database-Management-Systems/onecat/0.html
- http://www.freebookcentre.net/Database/Free-Database-Systems-Books-Download.html
- https://people.inf.elte.hu/miiqaai/elektroModulatorDva.pdf