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OLAP & OLTP

Online Analytical Processing (**OLAP**) is a category of software tools that is used to analyse data stored in a database whereas Online transaction processing (**OLTP**) is used to support transaction-oriented applications in a 3-tier architecture .

Difference Between OLTP and OLAP

OLTP and OLAP both are the online processing systems. OLTP is a transactional processing while OLAP is an analytical processing system. OLTP is a system that manages transaction-oriented applications on the internet for example ATM. OLAP is an online system that reports to multidimensional analytical queries like financial reporting, forecasting etc.

The basic difference between OLTP and OLAP is that OLTP is an online database modifying system, whereas, OLAP is an online database query answering system.

There are some other differences between OLTP and OLAP which I have explained using the comparison chart shown below.

Comparison:

BASIS FOR COMPARISON	OLTP	OLAP
Basic	It is an online transactional system and manages database modification.	It is an online data retrieving and data analysis system.
Focus	Insert, Update, Delete information from the database. Its focus is on Data should be in.	Extract data for analyzing that helps in decision making. Its focus is on Data should be out.
Data	OLTP and its transactions are the original source of data. That means it works on current data	Different OLTPs database becomes the source of data for OLAP. It works on historical and summarized data.
Characteristics	Operational	Information
Users	Normal Employee	Knowledge Base Persons
Function	Day to day operation	Decision Support System
Access	Read/Write	Read Only
No. of Records	Hundreds	Millions
No. of Users	Thousands	Hundreds
Database Size	Maximum GBs	Greater than TBs
Time	The processing time of a transaction is comparatively less in OLTP.	The processing time of a transaction is comparatively more in OLAP.
Queries	Simpler queries.	Complex queries.
Normalization	Tables in OLTP database are normalized (3NF).	Tables in OLAP database are not normalized.
Integrity	OLTP database must maintain data integrity constraint.	OLAP database does not get frequently modified. Hence, data integrity is not affected.