

# Operational DBMS VS Data Warehouse

- **OLTP** (online transaction processing)

- Major task of traditional relational DBMS
- Day-to-day operations

- **OLAP** (online analytical processing)

- major task of data warehouse system
- Data analysis and decision making

# OLTP vs OLAP: Users

- **OLTP** (on-line transaction processing)

- Clerk, IT professionals
- Thousands of users

- **OLAP** (on-line analytical processing)

- Knowledge worker
- Hundreds

# OLTP vs OLAP: Functions

- **OLTP** (on-line transaction processing)

- Day-to-day operations
- Application-oriented

- **OLAP** (on-line analytical processing)

- Decision support
- Subject-orientated



# OLTP vs OLAP: Data

- **OLTP** (on-line transaction processing)

- Current, up-to-date, flat relational isolated
- 3NF
- Read/write, index/hash on primary key
- # records accessed: tens
- # size: GBs

- **OLAP** (on-line analytical processing)

- Historical, summarized, multidimensional, integrated, consolidated
- Lots of scans
- # records accessed: millions
- #size: TBs



# OLTP vs OLAP: Usage

- **OLTP** (on-line transaction processing)

- Repetitive
- Short, simple transaction
- Transaction throughput

- **OLAP** (on-line analytical processing)

- Ad-hoc
- Lots of scans
- Query throughput, response

# OLTP vs OLAP: Summary

	<b>OLTP</b>	<b>OLAP</b>
<b>users</b>	clerk, IT professional	knowledge worker
<b>function</b>	day to day operations	decision support
<b>DB design</b>	application-oriented	subject-oriented
<b>data</b>	current, up-to-date detailed, flat relational isolated	historical, summarized, multidimensional integrated, consolidated
<b>usage</b>	repetitive	ad-hoc
<b>access</b>	read/write index/hash on prim. key	lots of scans
<b>unit of work</b>	short, simple transaction	complex query
<b># records accessed</b>	tens	millions
<b>#users</b>	thousands	hundreds
<b>DB size</b>	100MB-GB	100GB-TB
<b>metric</b>	transaction throughput	query throughput, response

# Which One We Pick?

- Actually, we need **Both**.

