

DATABASE MANAGEMENT ISSUES IN MOBILE COMPUTING

Lesson 06

Query Processing

QUERY PROCESSING

- During a transaction with a database, queries sent to read and get the records from the database
- Contacts and SavedNumbers
- Contacts stores the rows of records consisting of first character (firstChar) of name, contact-name (cName), and contact telephone number (cTelNum)

QUERY PROCESSING

- Querying of Record in Contacts by firstChar, cName, or cTelNum
- DialedNumbers stores the rows of records consisting of dialling sequence number (seqNum), time of call (cTime), and dialled telephone number (dTelNum). A record in DialedNumbers can be searched by seqNum, cTime, or dTelNum

SQL QUERY

- `SELECT cName, cTelNum FROM
Contacts, DialedNumbers WHERE
Contacts.firstChar = "R" AND
Contacts.cTelNum =
DialedNumbers.dTelNum`

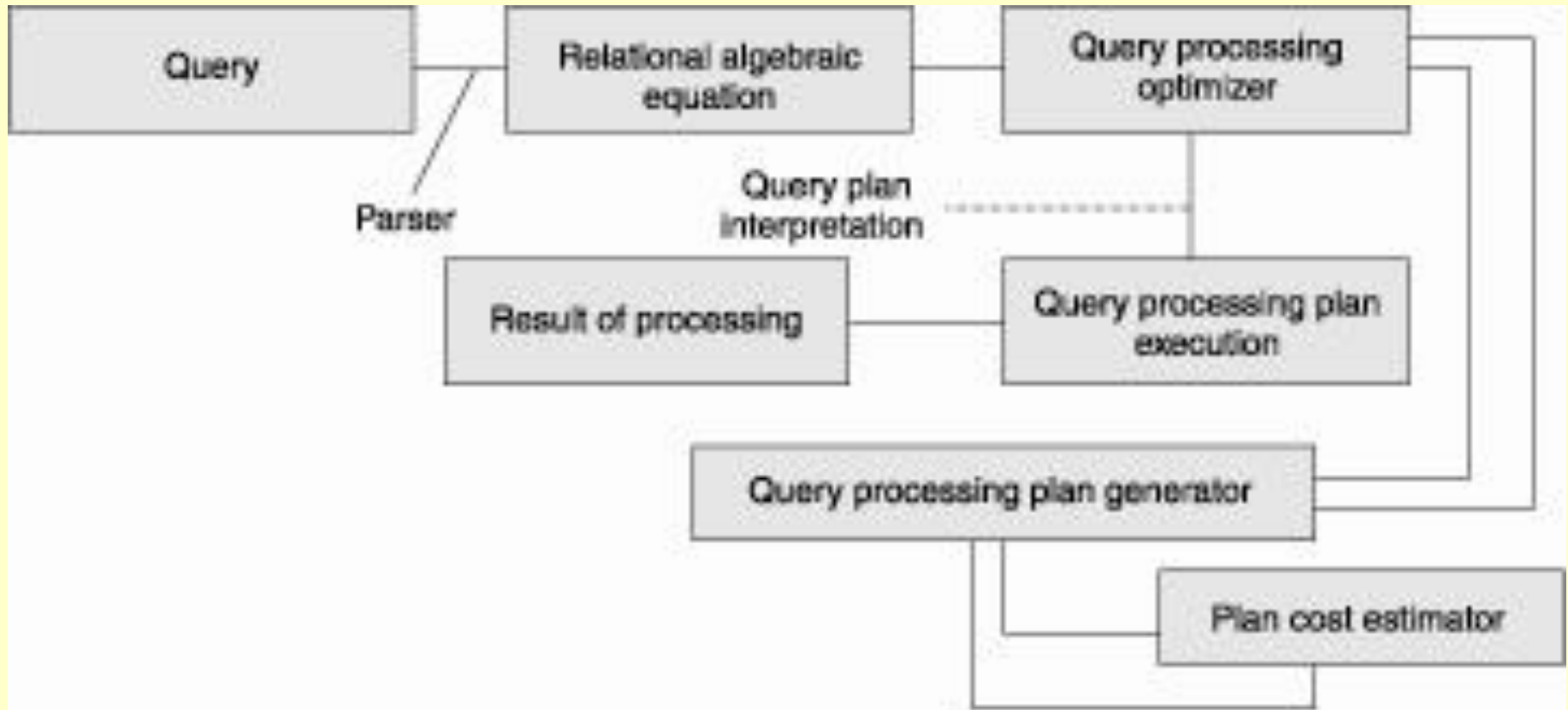
QUERY PROCESSING

- Efficient processing of queries needs optimization of steps for query processing
- Query processing means making a correct as well as efficient execution strategy by *query decomposition* and *query-optimization*. A relational-algebraic equation defines a set of operations needed during query processing

QUERIES OPTIMIZATION

- Based on cost (number of micro-operations in processing) by evaluating the costs of sets of equivalent expressions
- Based on a heuristic approach consisting of the following steps: perform the selection steps and projection steps as early as possible and eliminate duplicate operations

QUERY PROCESSING ARCHITECTURE



NUMBER OF REASONS WARRANTING DATABASE RECOVERY

- Media failure
- System failure
- Transaction abortion
- Data destruction due to intentional external attack or due to unintentional (due to careless handling) user carelessness

SUMMARY

- Query
- Query processing
- Query Optimization

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End of Lesson 06 Query Processing