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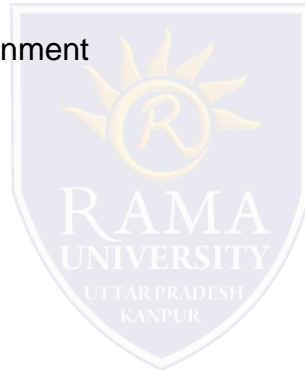
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transaction processing in mobile computing environment

The advancement in mobile technology and wireless network increase the using of mobile device in database driven application, these application require high reliability and availability due to nature inheritance of mobile environment, transaction is the center component in database systems

The transaction is program in execution in which each write-set satisfy the ACID properties

It can be described as a sequence of operation that form a single of logical unit of work, if a transaction takes place in mobile environment is called mobile transaction
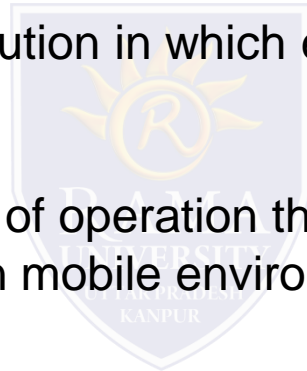
MOBILE DATABASE ENVIROMENT

The strength of radio channel is became week when the mobile user move in cell boundary –

When the mobile user move from on cell to neighbor cell, the handoff operation take place, the hand off cannot be predictive so it introduce new challenge in mobile database –

The bandwidth of the cell is limited, so limited number of mobile user can connect with mobile database, so the problem will occurs when so many user enter the cell shadow. –

The mobile device is also source of challenges; the battery life time is small, and the limitation of processing power and storage capacity

MOBILE TRANSACTION MODELS

The several proposed models of mobile transactions are:

Kangaroo Transaction Mode
Clustering transaction model
Two-Tier transaction model
Pro-motion transaction model
Twin Transaction Model
PMTM
Adaptable Mobile Transaction Model
Shadow Paging Technique
Surrogate Object Based Mobile Transaction Model
Connection Fault-Tolerant Model

Kangaroo Transaction Mode

The nature of mobile environment allow mobile host to move from base station to another, This model solve the problem of mobile host movement during the execution of the transaction, the mobile transaction start from the mobile host and finally executed at the MDBS on the wired network, the Kangaroo transaction propose to implements data access agent on the top of existing global transaction manager, the agent is placed in all base stations, the role of this agent to manage mobile transaction and mobile host movement, when the mobile move from base station to another the coordination of mobile transaction also moves

A Kangaroo transaction has a unique identification number assembled from the base station number and unique sequence number within that base station, when handoff operation is executed due to mobile host movement, the control of the Kangaroo transaction move to a new DAA (Data Access Agent) at another base station.