FRAMEWORK FOR DATABASE DESIGN

(for Assignment 1)

Prof. Ananthanarayana V.S.

Dept. of Information Technology

N.I.T.K., Surathkal

Framework

- Topic Selection
  - I/O Bound Jobs
- Problem Description
  - [Data flow and Control flow]
  - Focus the problem
  - Queries (Relevant)
  - Constraints (Realistic)
  - Number of sites/location
- Logical Design
  - Construction of relations through EER Diagram
- Advanced Logical Design
  - Using Normalization technique (Go up to 3NF)
  - Fragmentation, Data allocation

Framework – Physical Design

- Assumptions
  - About maximum number of tuples per relation
  - Disk parameters – av. Seek time, av. Latency time, IBG, Block transfer time, Block pointer size …etc
- Storage Requirements
  - Spanned / Un-spanned records
- Access Methods
  - Ordered blocks
  - Primary/Cluster/Secondary/Multilevel/B tree/B+ trees
  - Comparison in terms of # of blocks, additional space/record, number of disk accesses
  - Justification about access method chosen.

Framework – Physical Design

- Timings
  - Time required to access a record/table
  - Buffering
  - Time required to execute each query
- Work Area Space (WAS)
  - Max. buffer space required for any computation
- System Specification
  - Total disk space required
  - Total memory space required (for work area + buffers to facilitate disk access)
  - Response time to process each query (it includes time to access disk + time to do computation)
- Implementation (Optional)
  - Using front end and back end of your choice.
- Submission by the end of semester for evaluation