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# **CS 346: EX Component**

# **Distributed RedBase**

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Aditya Bhandari (adityasb@stanford.edu)

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# Functionality

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- **dbcreate** <dbName> **-distributed** <numberNodes>
  - **create table** <relName> (<attrInfo>) **distribute** <attrName> (<partitionVector>)
  - **Insert** and **Load** commands populate distributed relations
  - **Print** command prints the entire relation
  - **Delete** and **Update** queries forwarded to the appropriate partitions
  - **Select** query fetches the required fragments of the distributed relations and performs the query
  - **Communication layer** for the interaction and data transfer between the nodes
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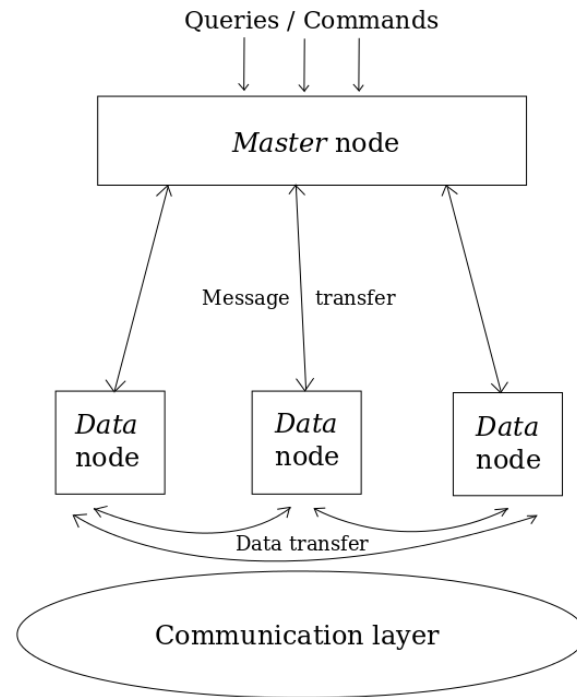
# Design

- **Master node and data nodes**
- Non-distributed relations only in the master node
- Distributed relations fragmented by partition vector into data nodes

- **Recursive design =>**

Queries on fragment of distributed relation by data node  
*equivalent to*

Queries on non-distributed relation by master node



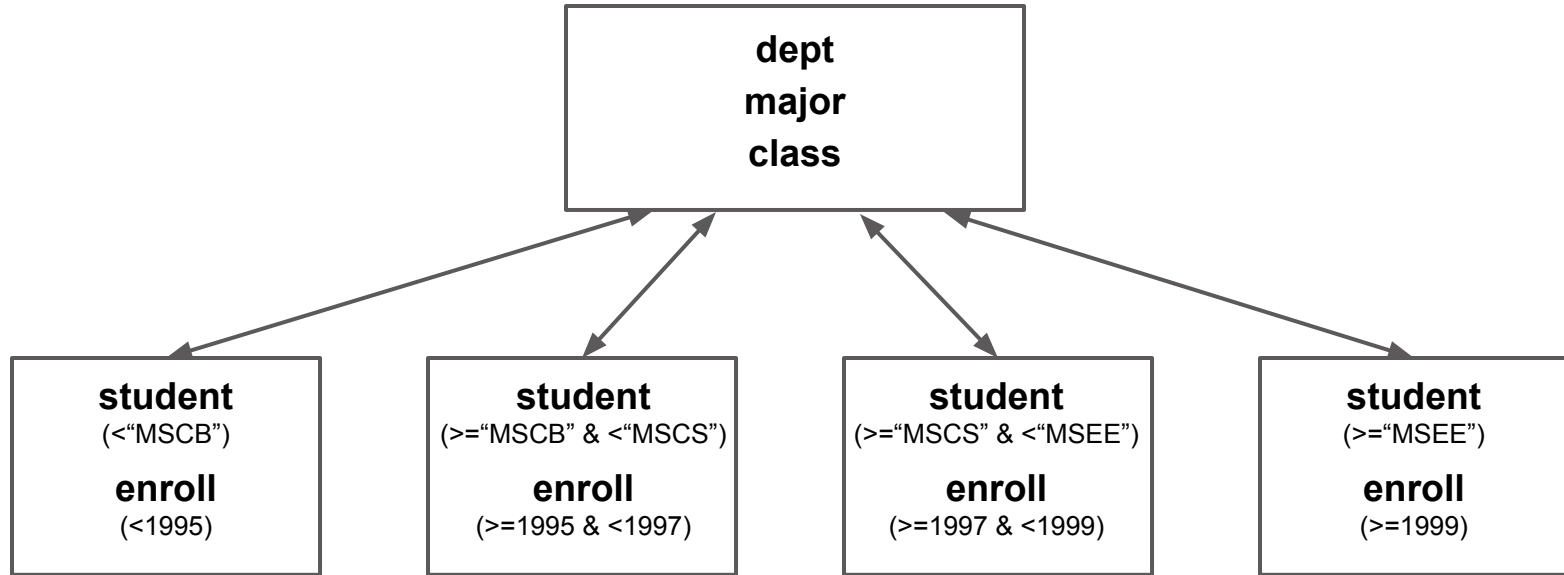
# Communication Layer

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- **Message transfer:**
    - Methods to create, drop, insert, load, delete, update relations in data nodes
    - Query forwarding to data node from master node
  - **Data transfer:**
    - Transfer records from one node to another
    - Data transfer through RM files
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# Test Example

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**student** - distributed by **majorid** ("MSCB", "MSCS", "MSEE")  
**enroll** - distributed by **year** (1995, 1997, 1999)

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