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CS6083: Database Systems

**Some Query Optimization and
Query Processing Examples**

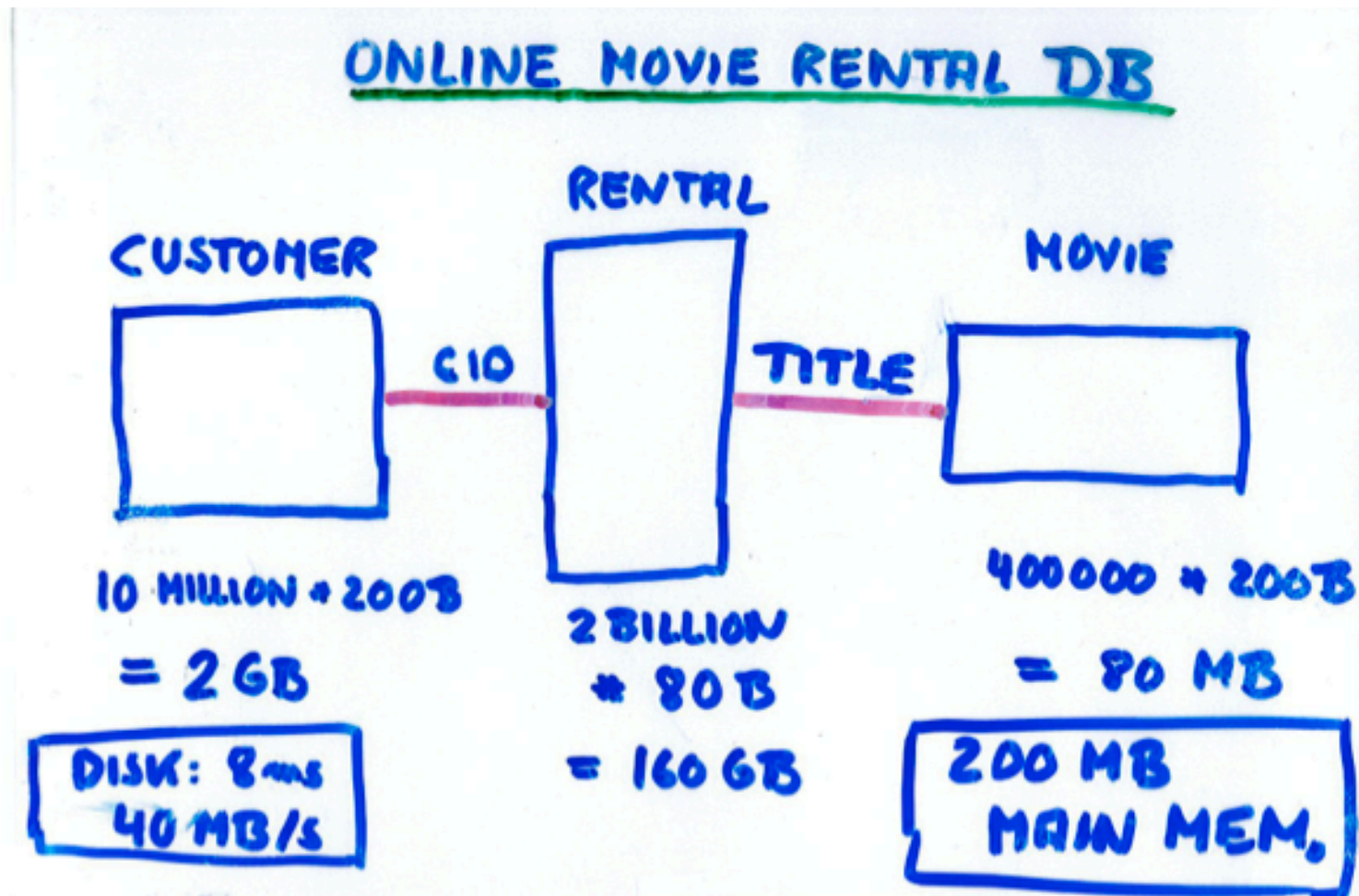
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Example Database



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Query 1:

```
SELECT C.cname  
FROM Customer C JOIN Rental R  
WHERE R.title = "Rush Hour 3" AND  
       R.date_rented = "Nov 22, 2007"
```



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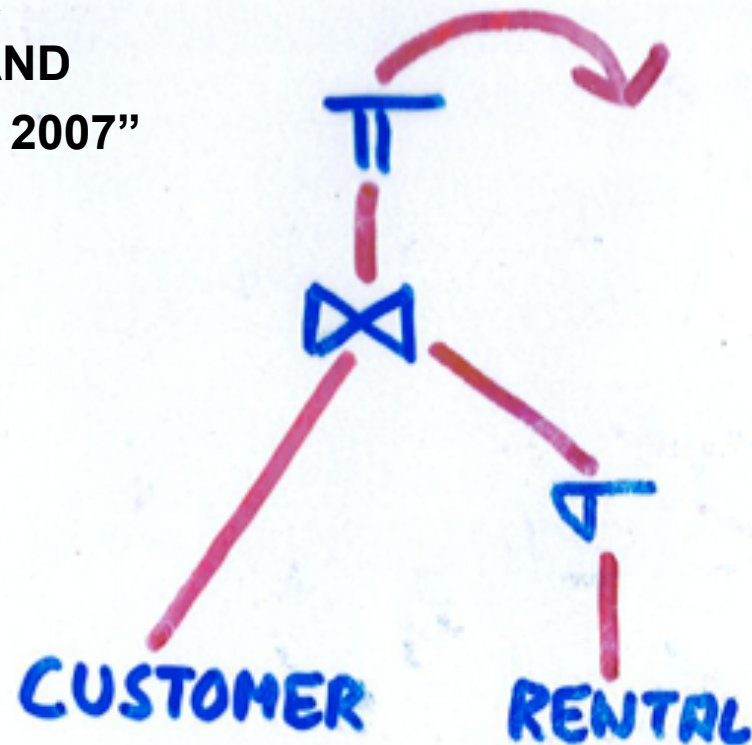


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Query 1:

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SELECT C.cname  
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WHERE R.title = "Rush Hour 3" AND  
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```



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■ Query 2:

```
SELECT cname, title  
FROM Customer C, Movie M, Rental R  
WHERE C.cid = R.cid and R.title = M.title and M.genre = "Action"  
and M.date_release = 2007
```



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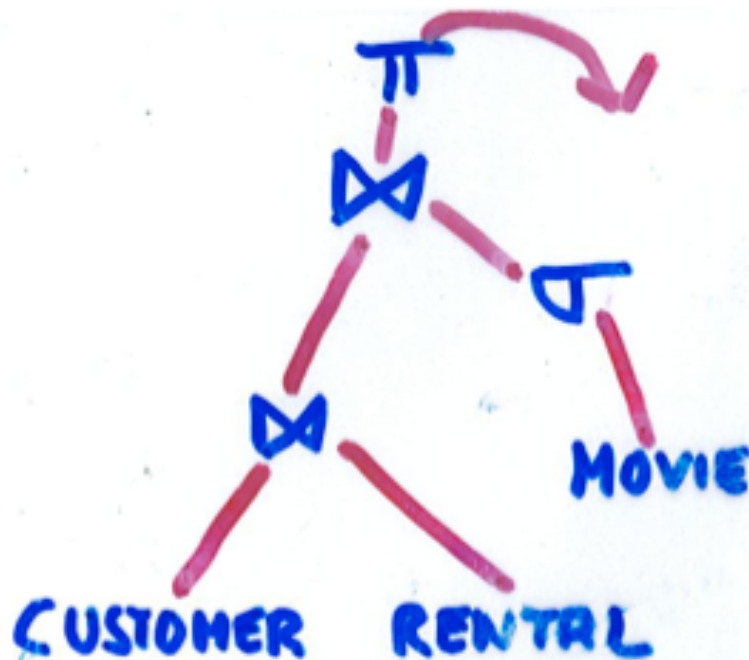


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Query 2:

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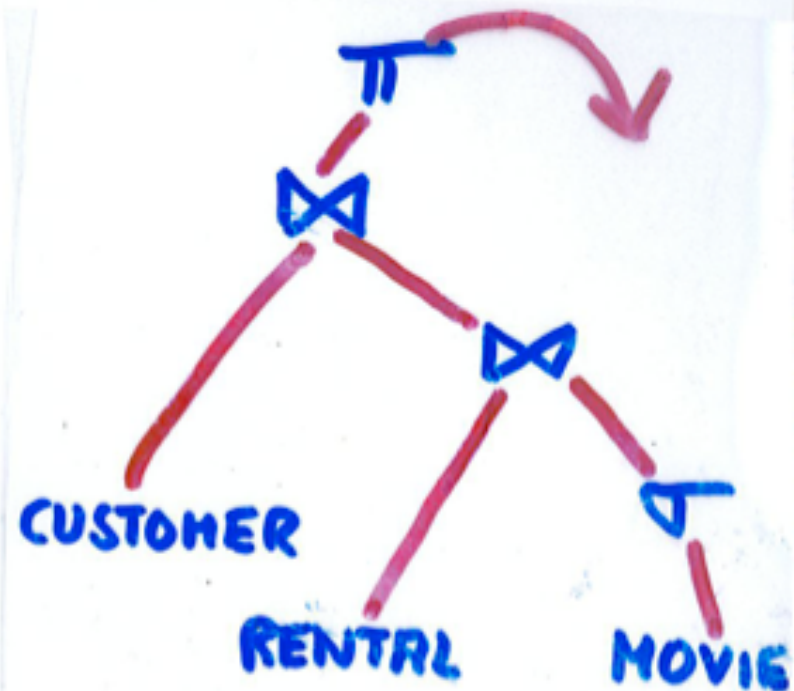


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Query 2:

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FROM Customer C, Movie M, Rental R  
WHERE C.cid = R.cid and R.title = M.title and M.genre = "Action"  
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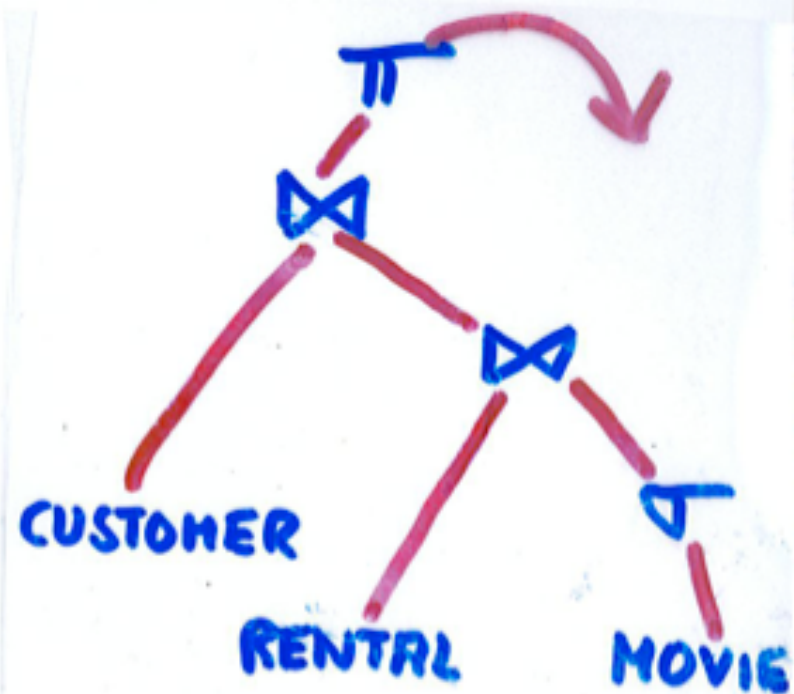
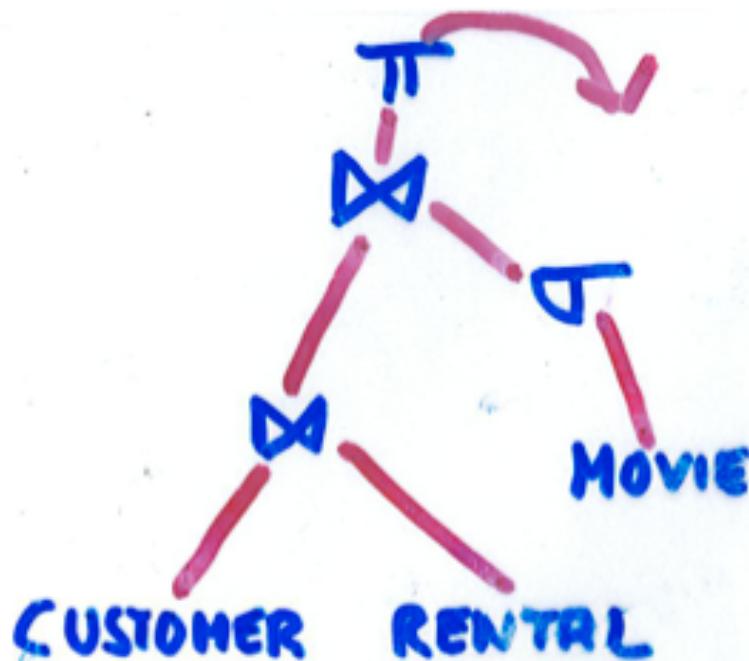


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Query 2:

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FROM Customer C, Movie M, Rental R  
WHERE C.cid = R.cid and R.title = M.title and M.genre = "Action"  
and M.date_release = 2007
```



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■ Query 3:

```
SELECT title  
FROM Movie M, Rental R  
WHERE M.title = R.title and R.date_rented - M.date_released < 180 days
```



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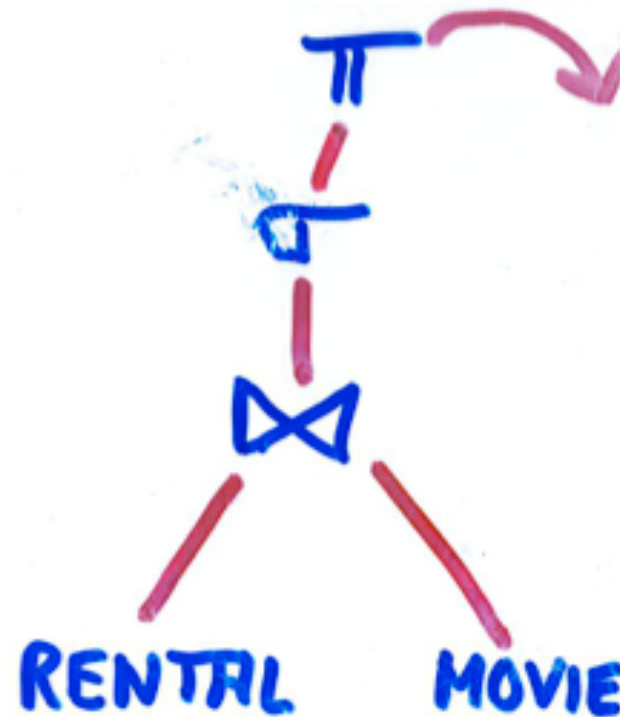


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Query 3:

```
SELECT title  
FROM Movie M, Rental R  
WHERE M.title = R.title and R.date_rented - M.date_released < 180 days
```



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Query 4:

```
SELECT C.cname  
FROM Customer C JOIN Rental R  
WHERE C.joined_date = R.rented_date
```



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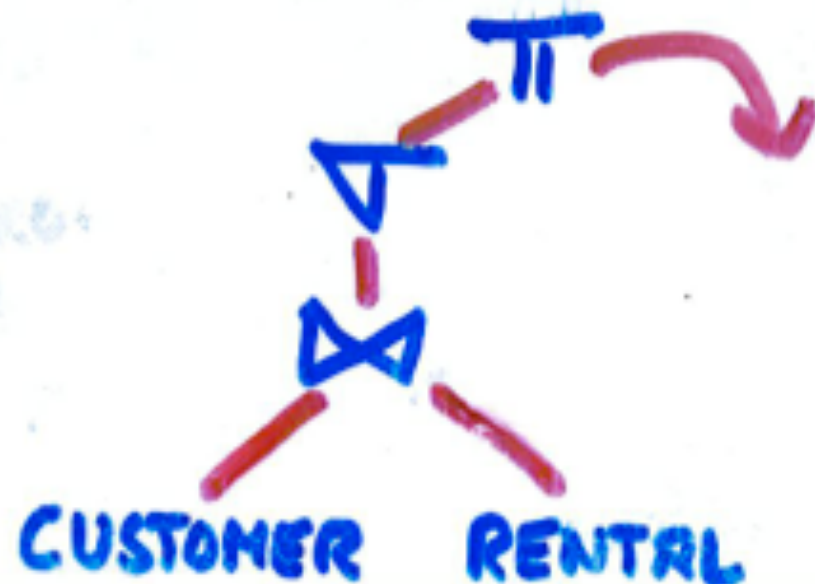


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Query 4:

```
SELECT C.cname  
FROM Customer C JOIN Rental R  
WHERE C.joined_date = R.rented_date
```



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■ Conclusions:

- **Query execution times can differ by orders of magnitude depending on the execution plan**
- **Best plan and running time depend heavily on the amount of memory available**
- **Indexes can help a lot, but do not always help**
- **Queries with restrictive (high selective) conditions in WHERE clause are often very fast**
- **Most queries in practice have such clauses**
- **Look for the most selective condition**
- **Index joins are the most common joins**



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