

CS245: Databases

Introduction

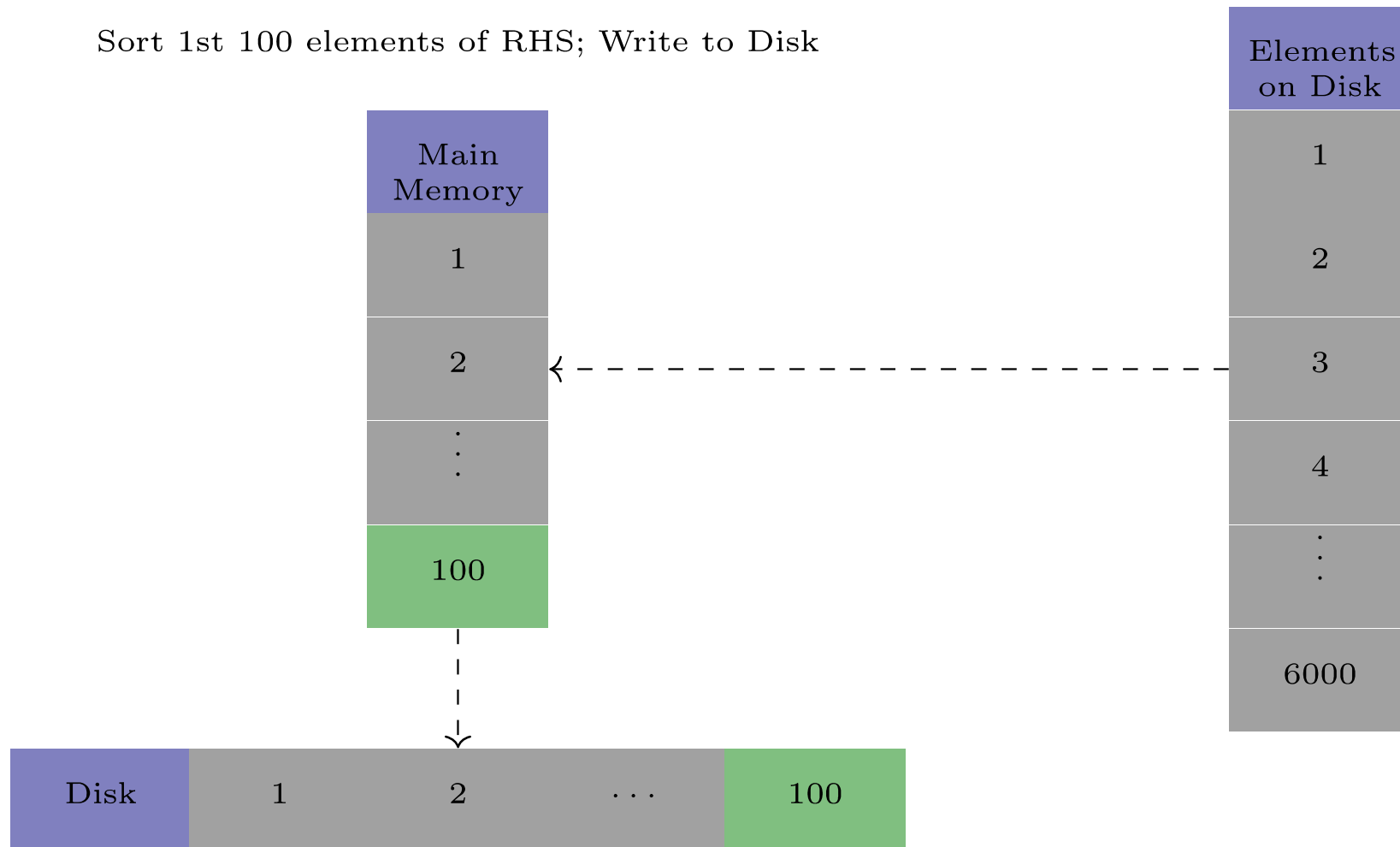
Vijaya saradhi

Department of Computer Science and Engineering
Indian Institute of Technology Guwahati

Disk based algorithms

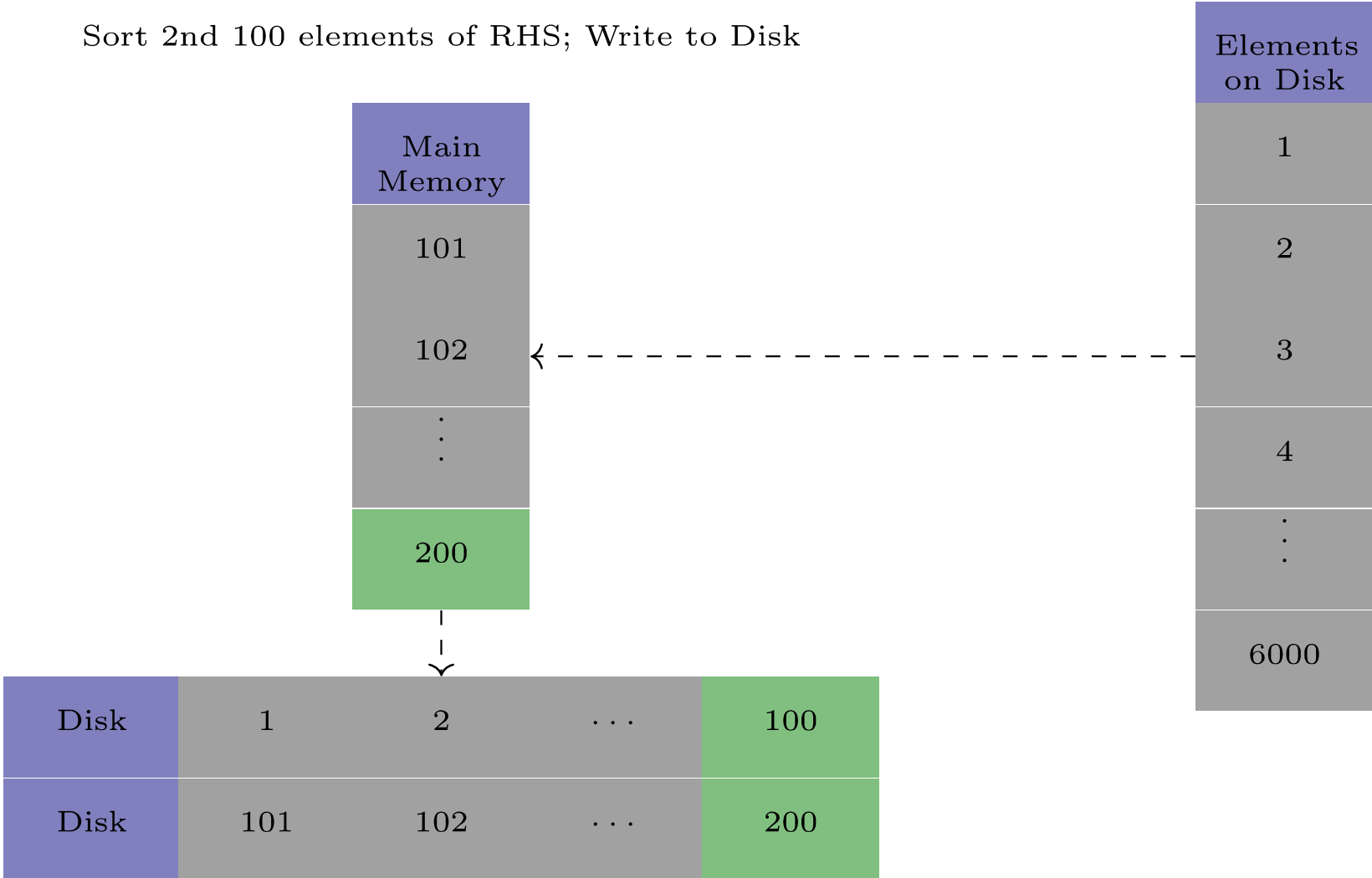
Size and Challenges 01

Sort 1st 100 elements of RHS; Write to Disk



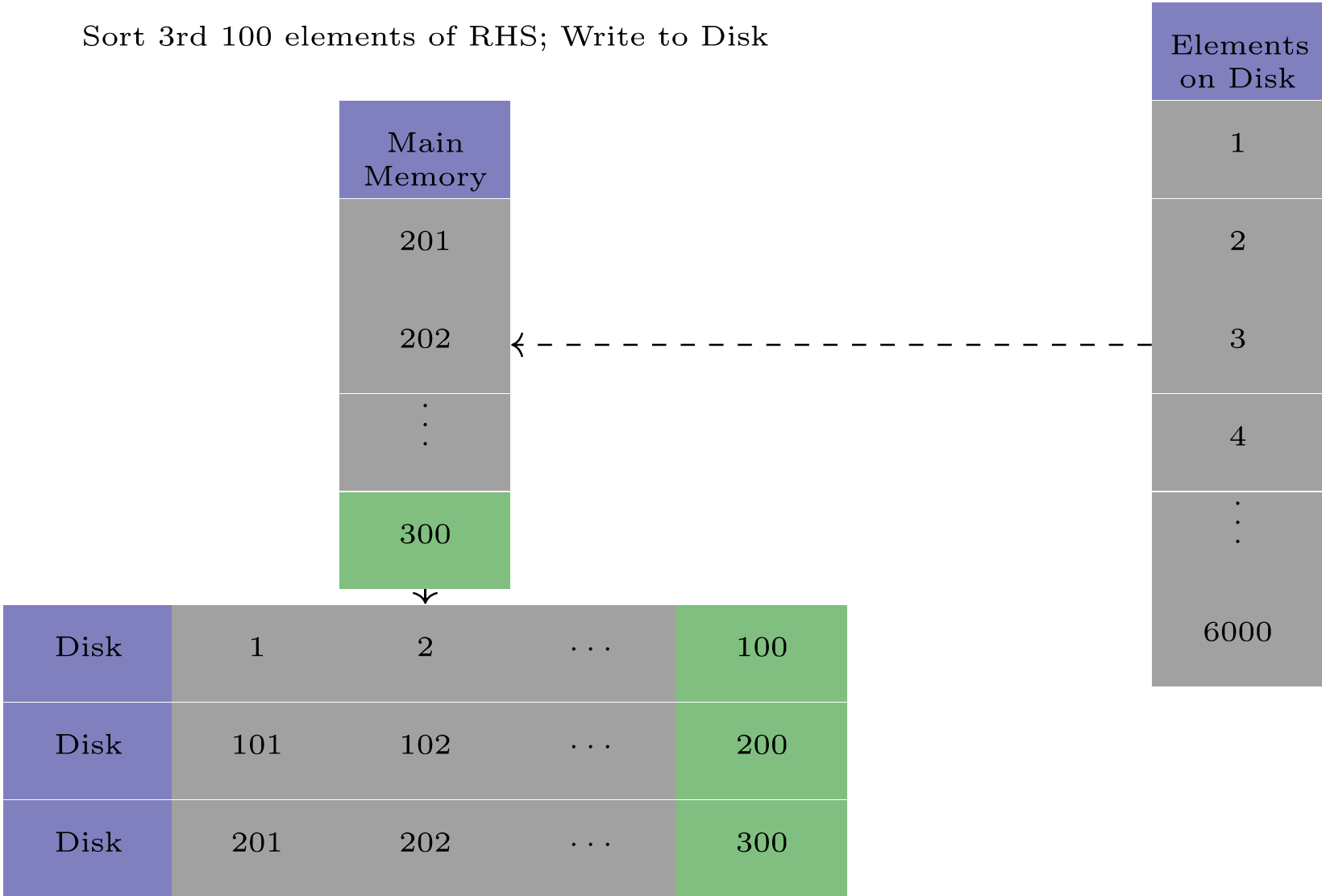
Size and Challenges 02

Sort 2nd 100 elements of RHS; Write to Disk



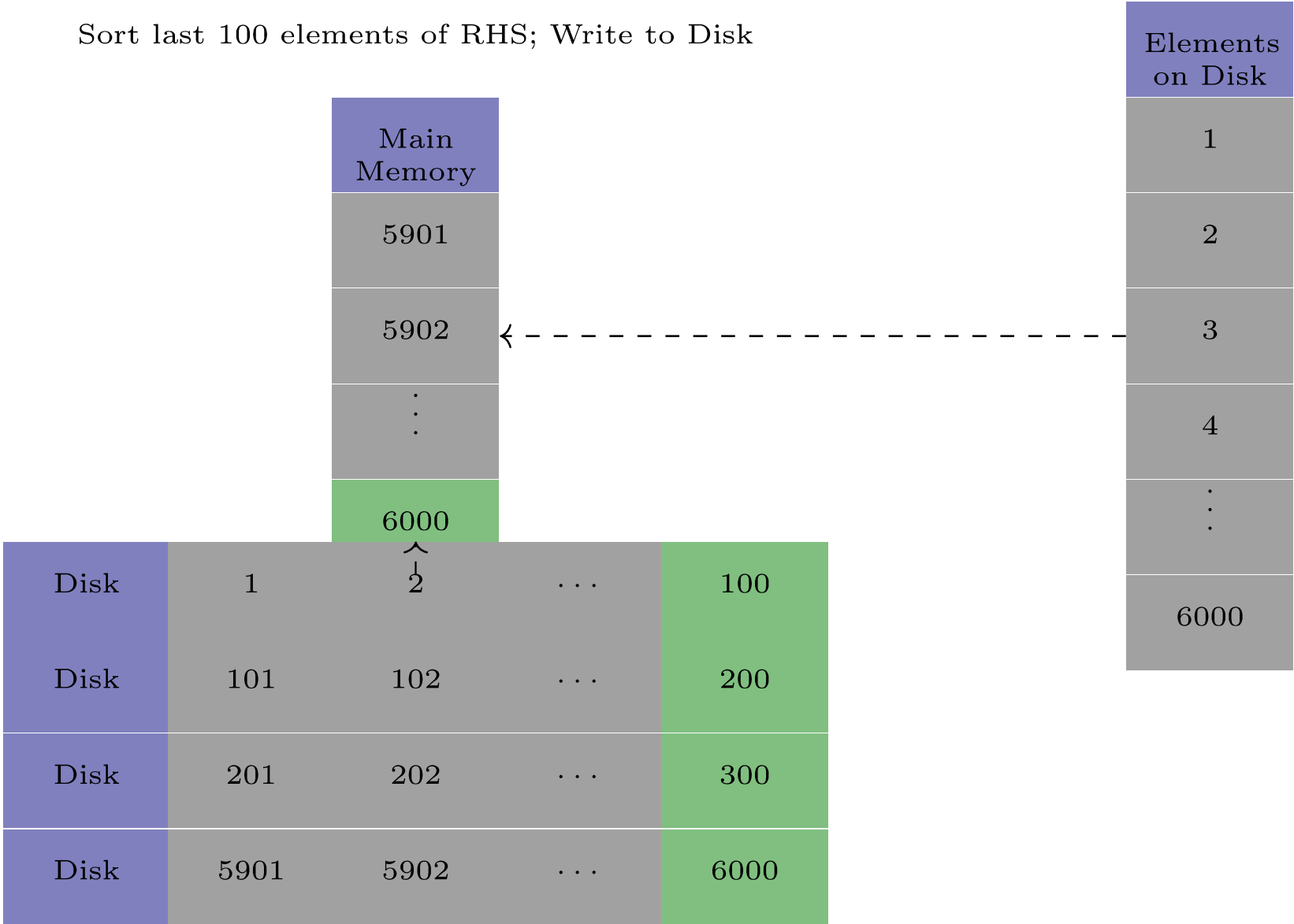
Size and Challenges 03

Sort 3rd 100 elements of RHS; Write to Disk



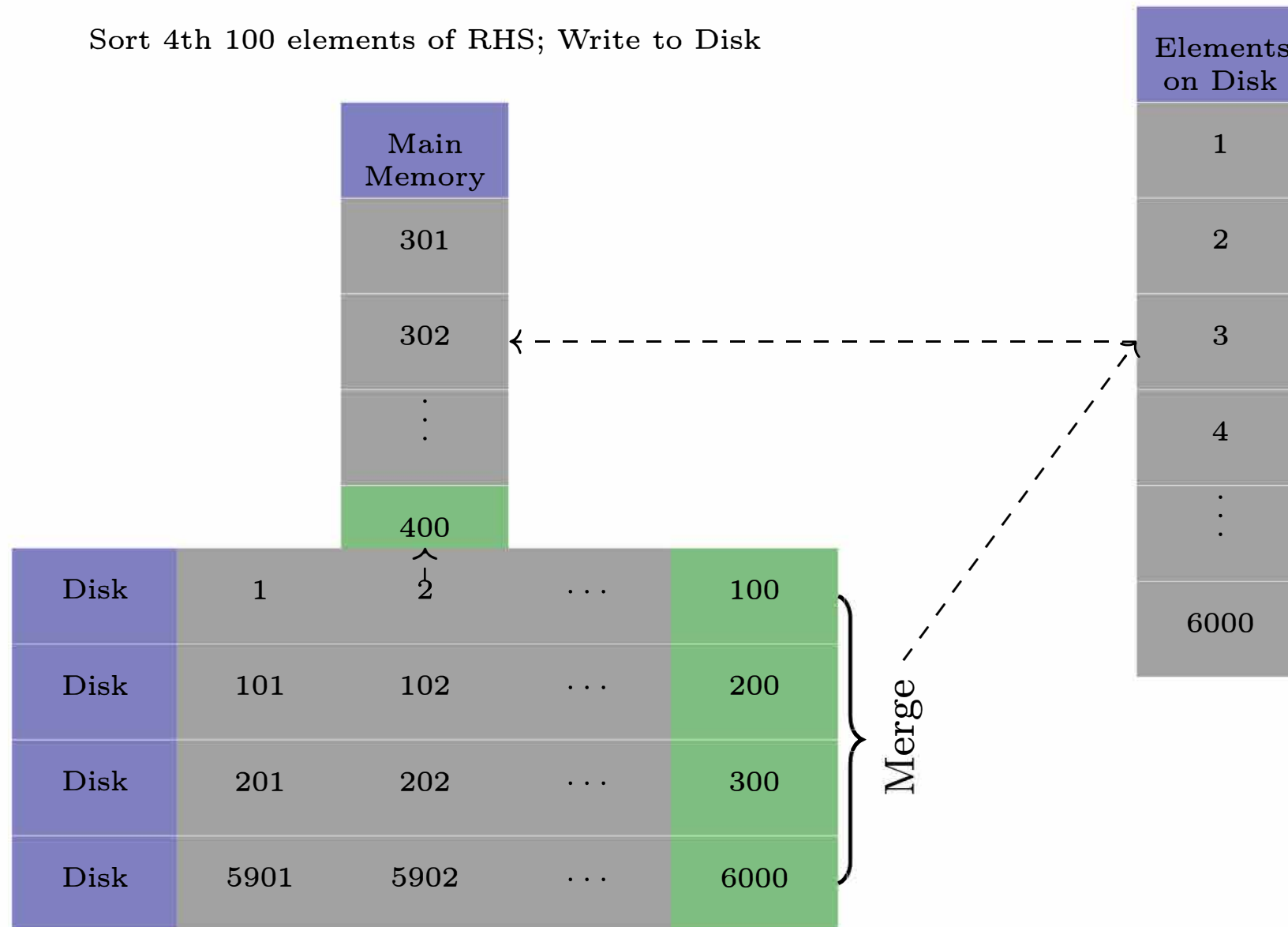
Size and Challenges 04

Sort last 100 elements of RHS; Write to Disk

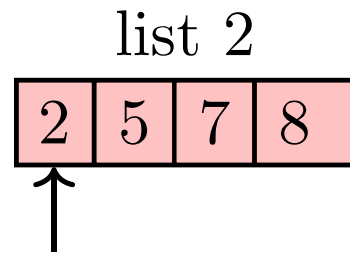
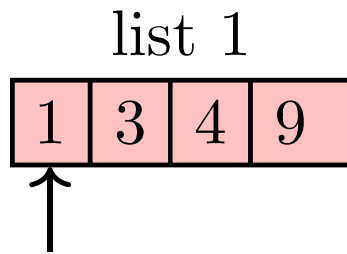


Size and Challenges 05

Sort 4th 100 elements of RHS; Write to Disk



Merging two sorted lists 01



Merging two sorted lists 01

list 1

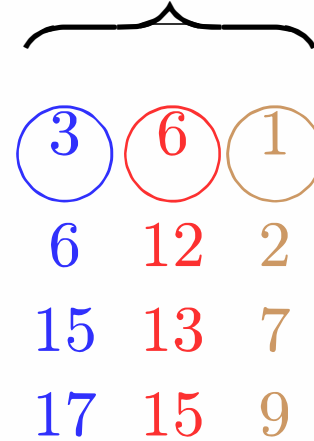
1	3	4	9
---	---	---	---

list 2

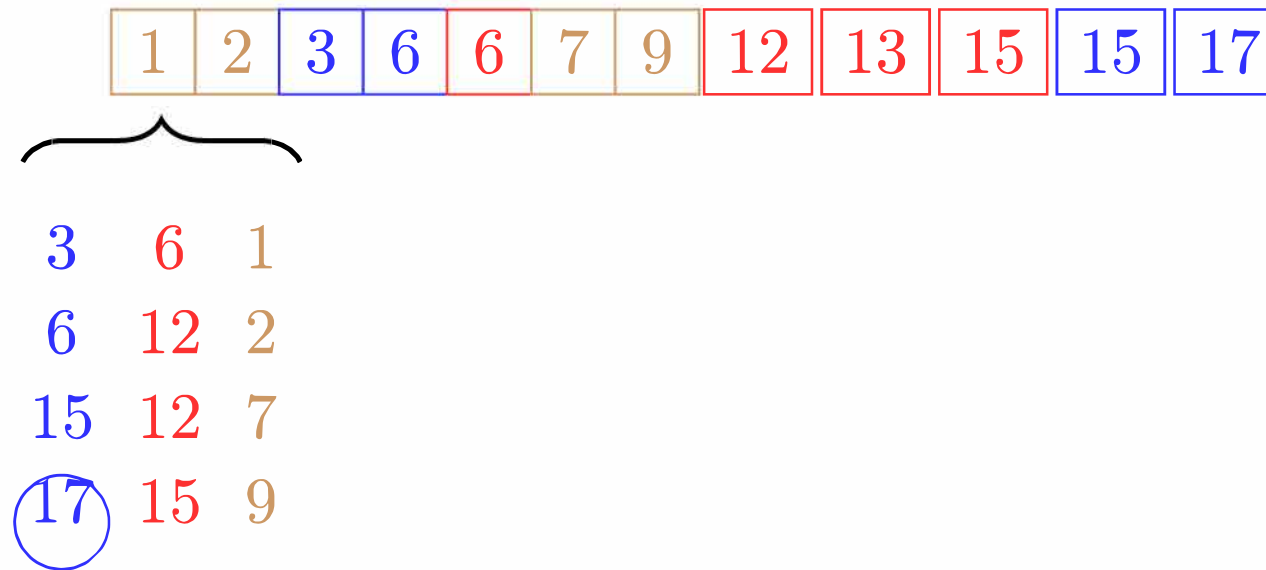
2	5	7	8
---	---	---	---

1	2	3	4	5	7	8	9
---	---	---	---	---	---	---	---

Merging multiple sorted lists

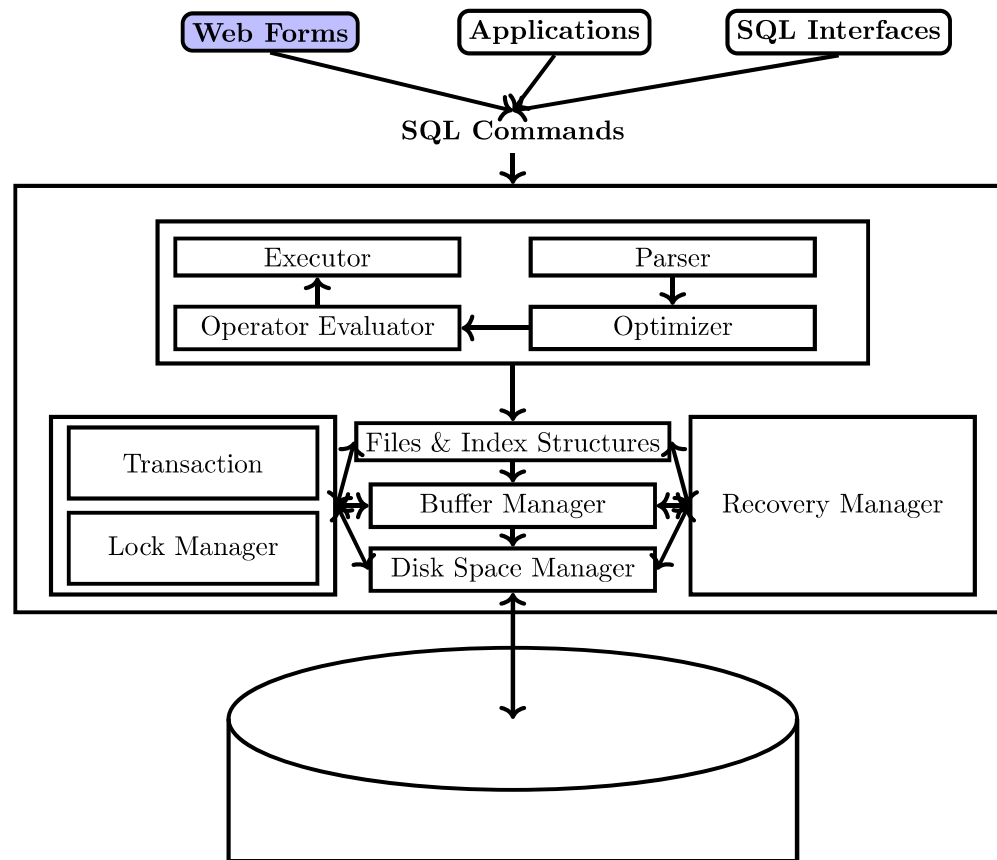


Merging multiple sorted lists

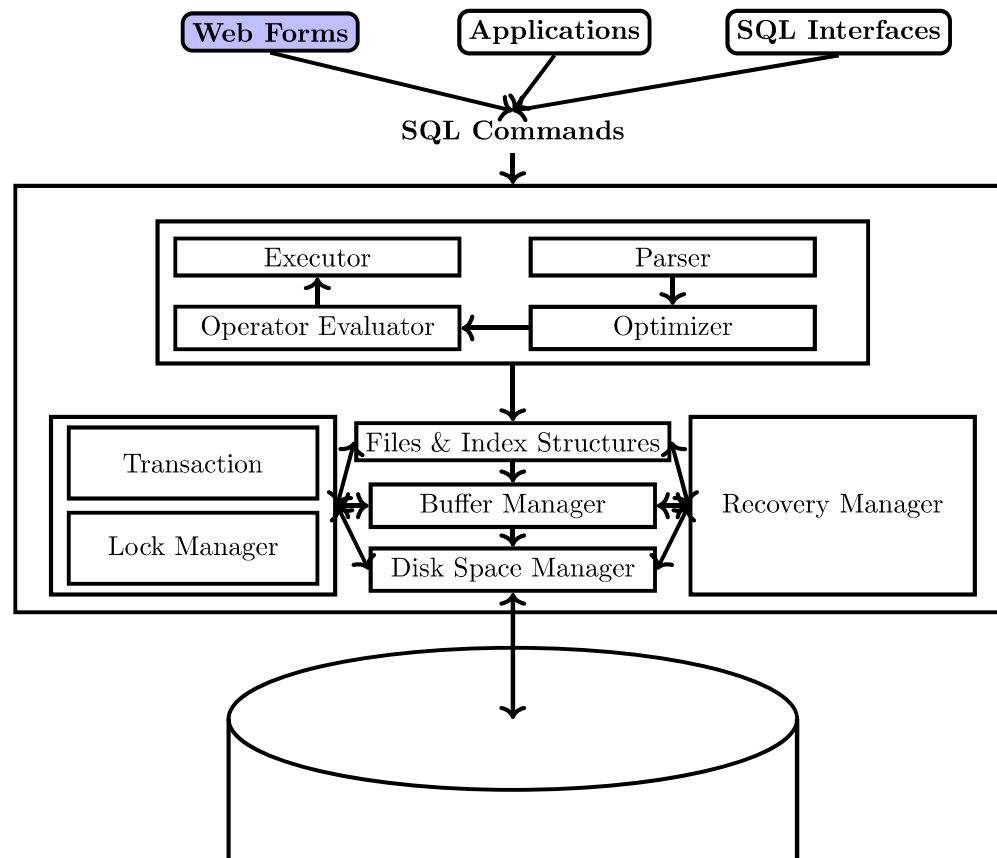


Database management system architecture

DBMS Architecture



DBMS Architecture



INR

FAQs

Contact us

Login

DEPARTING • CONNECT • 1 PAX

15 Jan 21, 06:25 - 18:55

Guwahati → Visakhapatnam

BAGGAGE

Check-in: 15kg per person

Hand: Up to 7kg

TOTAL FARE

₹8,942

Details

Cancellation Fee >

①

Travel Mandates

Check the latest regulations and safety measures for a hassle-free trip. ... [Read More](#)

1. ADD PASSENGER DETAILS

ADD PASSENGER 1

Mr.

Ms.

Mrs.

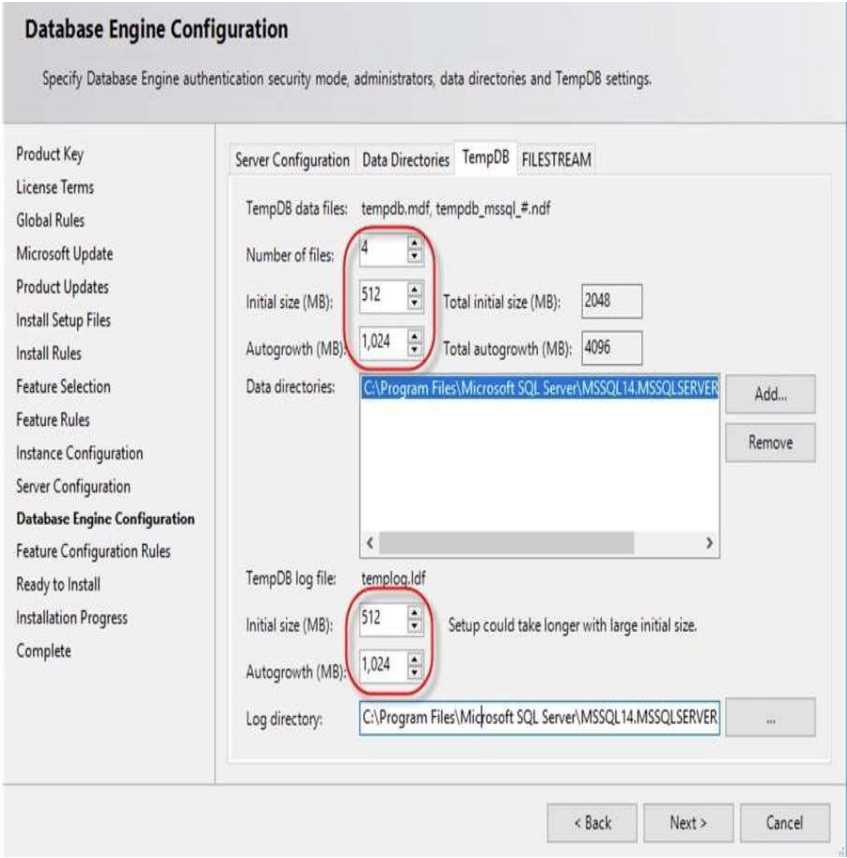
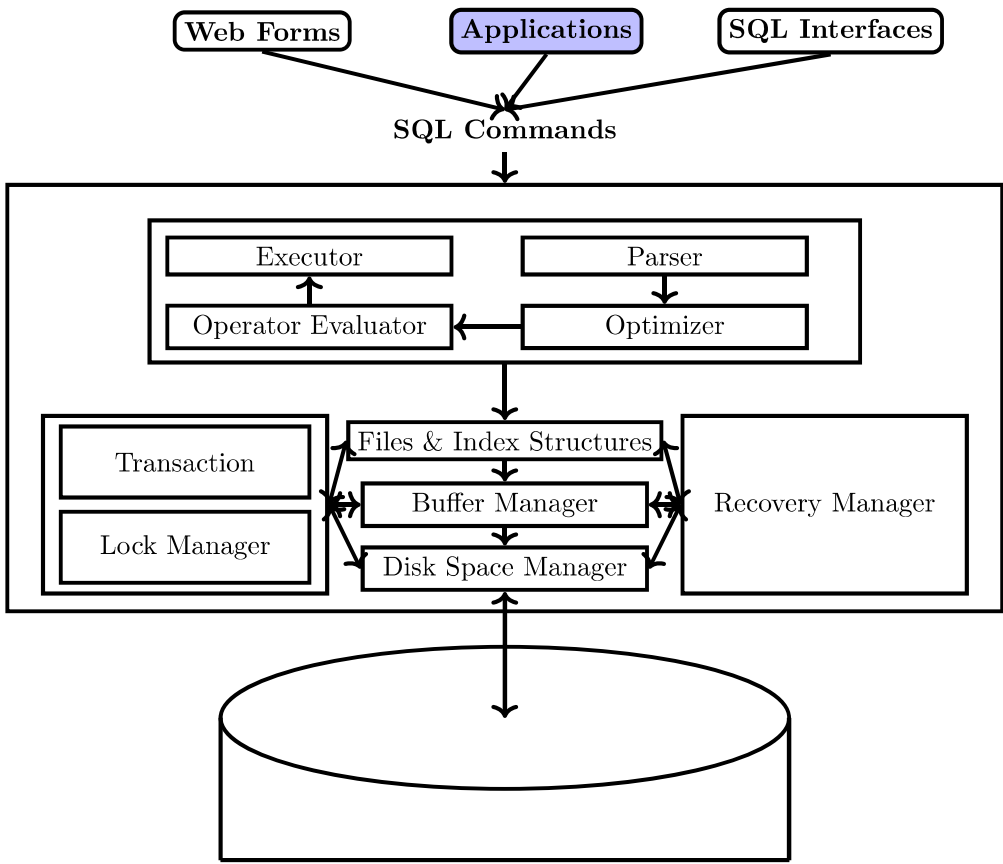
First Name (& Middle Name, if any)

Last Name

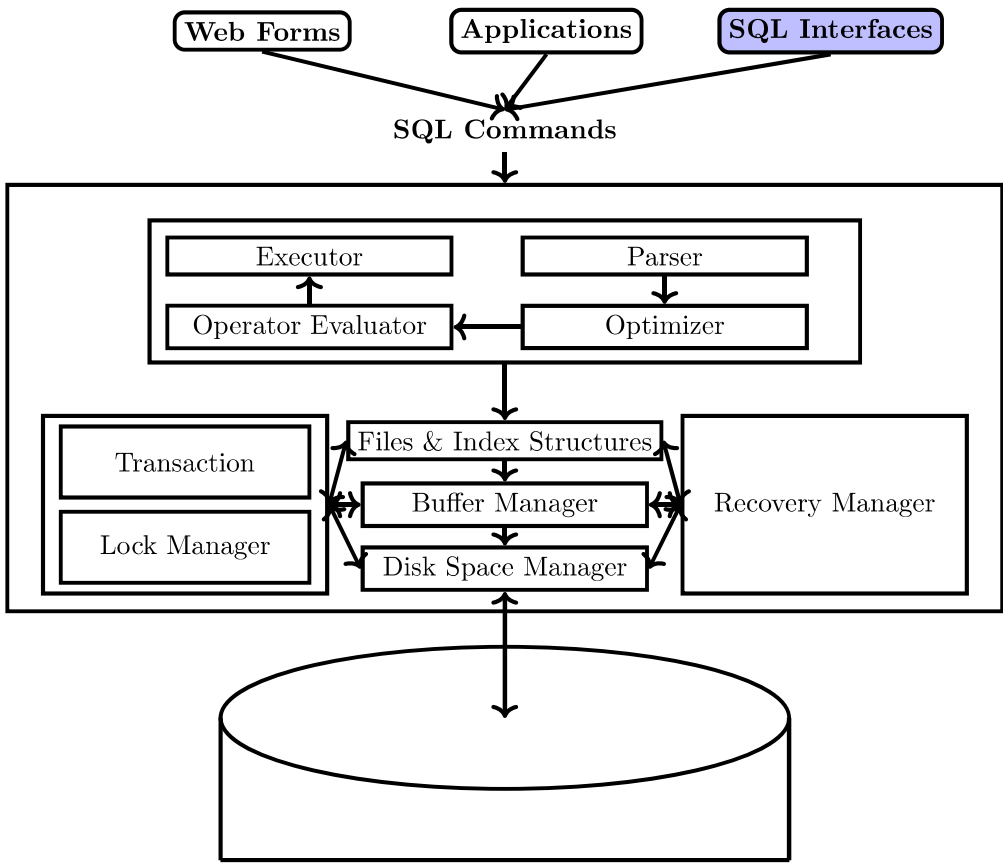
Wheelchair Assistance Required

Continue to Add-ons

DBMS Architecture



DBMS Architecture



```
[NEW] | 1 | 2 | 3 |
(3)>>> mycli -h localhost -u root -P 3306 -D employees
mariadb 10.1.36-MariaDB
mycli 1.18.0
Chat: https://gitter.im/dbcli/mycli
Mail: https://groups.google.com/forum/#!forum/mycli-users
Home: http://mycli.net
Thanks to the contributor - Darik Gamble
mariadb root@localhost:employees> SELECT * FROM employees L
-> LIMIT 10

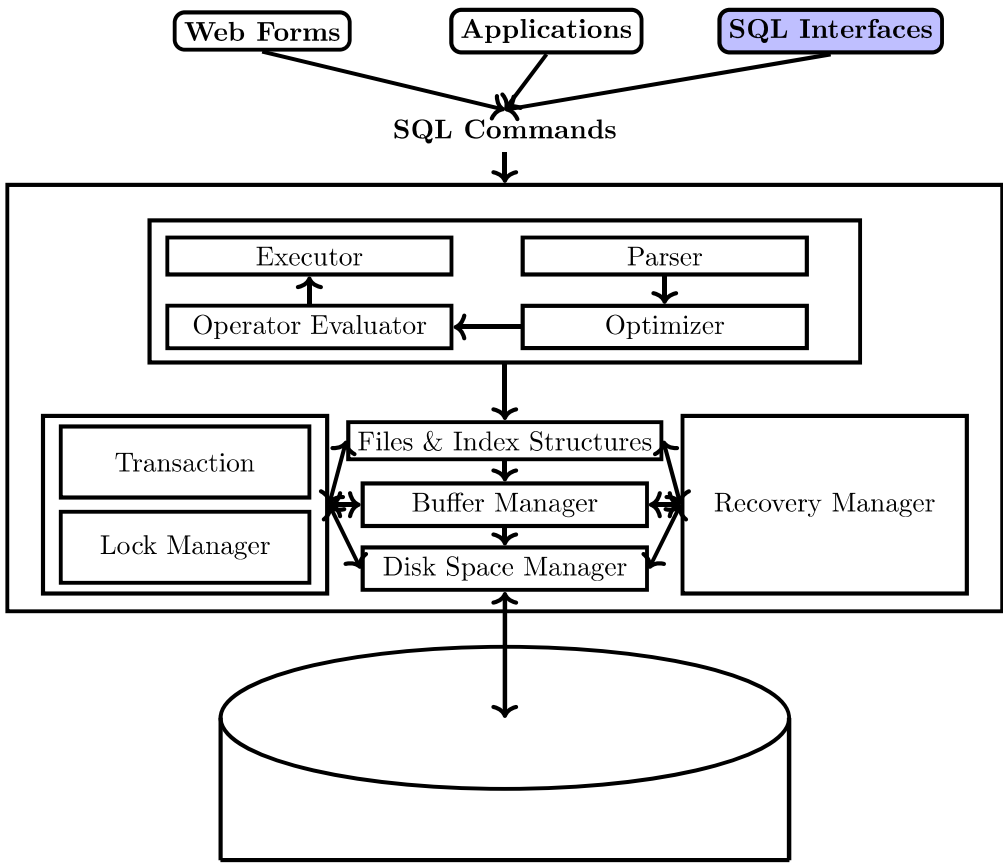
+-----+-----+-----+-----+-----+
| emp_no | birth_date | first_name | last_name | gender |
+-----+-----+-----+-----+-----+
| 10001 | 1953-09-02 | Georgi | Facello | M |
| 10002 | 1964-06-02 | Bezalel | Simmel | F |
| 10003 | 1959-12-03 | Parto | Bamford | M |
| 10004 | 1954-05-01 | Christian | Koblick | M |
| 10005 | 1955-01-21 | Kyoichi | Maliniak | M |
| 10006 | 1953-04-20 | Anneke | Preusig | F |
| 10007 | 1957-05-23 | Tzvetan | Zielinski | F |
| 10008 | 1958-02-19 | Saniya | Kalloufi | M |
| 10009 | 1952-04-19 | Sumant | Peac | F |
| 10010 | 1963-06-01 | Duangkaew | Piveteau | F |
+-----+-----+-----+-----+-----+

MariaDB [employees]> SELECT * FROM employees LIMIT 10;
+-----+-----+-----+-----+-----+
| emp_no | birth_date | first_name | last_name | gender | hire_date |
+-----+-----+-----+-----+-----+
| 10001 | 1953-09-02 | Georgi | Facello | M | 1986-06-26 |
| 10002 | 1964-06-02 | Bezalel | Simmel | F | 1985-11-21 |
| 10003 | 1959-12-03 | Parto | Bamford | M | 1986-08-28 |
| 10004 | 1954-05-01 | Christian | Koblick | M | 1986-12-01 |
| 10005 | 1955-01-21 | Kyoichi | Maliniak | M | 1989-09-12 |
| 10006 | 1953-04-20 | Anneke | Preusig | F | 1989-06-02 |
| 10007 | 1957-05-23 | Tzvetan | Zielinski | F | 1989-02-19 |
| 10008 | 1958-02-19 | Saniya | Kalloufi | M | 1994-09-15 |
| 10009 | 1952-04-19 | Sumant | Peac | F | 1985-02-18 |
| 10010 | 1963-06-01 | Duangkaew | Piveteau | F | 1989-08-24 |
+-----+-----+-----+-----+-----+

10 rows in set (0.01 sec)

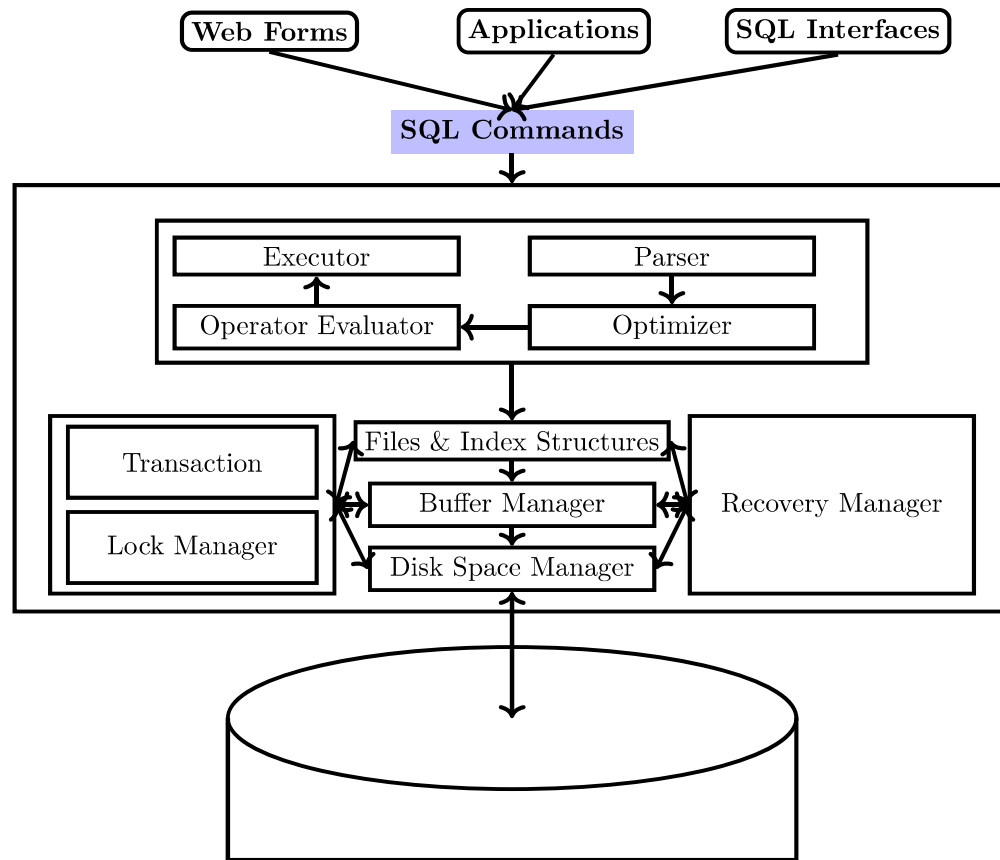
MariaDB [employees]>
```


DBMS Architecture



```
[NEW] | 1 | 2 |
Time: 0.004s
mariadb root@localhost:employees> SELECT * FROM employees AS e JOIN salaries AS s ON s.emp_no = e.emp_no LIMIT 10
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| emp_no | birth_date | first_name | last_name | gender | hire_date | emp_no | salary | from_date | to_date |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 10001 | 1953-09-02 | Georgi | Facello | M | 1986-06-26 | 10001 | 60117 | 1986-06-26 | 1987-06-26 |
| 10001 | 1953-09-02 | Georgi | Facello | M | 1986-06-26 | 10001 | 62102 | 1987-06-26 | 1988-06-25 |
| 10001 | 1953-09-02 | Georgi | Facello | M | 1986-06-26 | 10001 | 66074 | 1988-06-25 | 1989-06-25 |
| 10001 | 1953-09-02 | Georgi | Facello | M | 1986-06-26 | 10001 | 66596 | 1989-06-25 | 1990-06-25 |
| 10001 | 1953-09-02 | Georgi | Facello | M | 1986-06-26 | 10001 | 66961 | 1990-06-25 | 1991-06-25 |
| 10001 | 1953-09-02 | Georgi | Facello | M | 1986-06-26 | 10001 | 71046 | 1991-06-25 | 1992-06-24 |
| 10001 | 1953-09-02 | Georgi | Facello | M | 1986-06-26 | 10001 | 74333 | 1992-06-24 | 1993-06-24 |
| 10001 | 1953-09-02 | Georgi | Facello | M | 1986-06-26 | 10001 | 75286 | 1993-06-24 | 1994-06-24 |
| 10001 | 1953-09-02 | Georgi | Facello | M | 1986-06-26 | 10001 | 75994 | 1994-06-24 | 1995-06-24 |
| 10001 | 1953-09-02 | Georgi | Facello | M | 1986-06-26 | 10001 | 76884 | 1995-06-24 | 1996-06-23 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
10 rows in set
Time: 0.010s
mariadb root@localhost:employees> SELECT * FROM employees AS e JOIN salaries AS s ON s.emp_no = e.emp_no LIMIT 10
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| birth_date | emp_no | first_name | gender | hire_date | last_name |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1953-09-02 | 10001 | Georgi | M | 1986-06-26 | Facello |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
[F3] Multiline: OFF Vi-mode (I)
python 2:vim tartarus
```

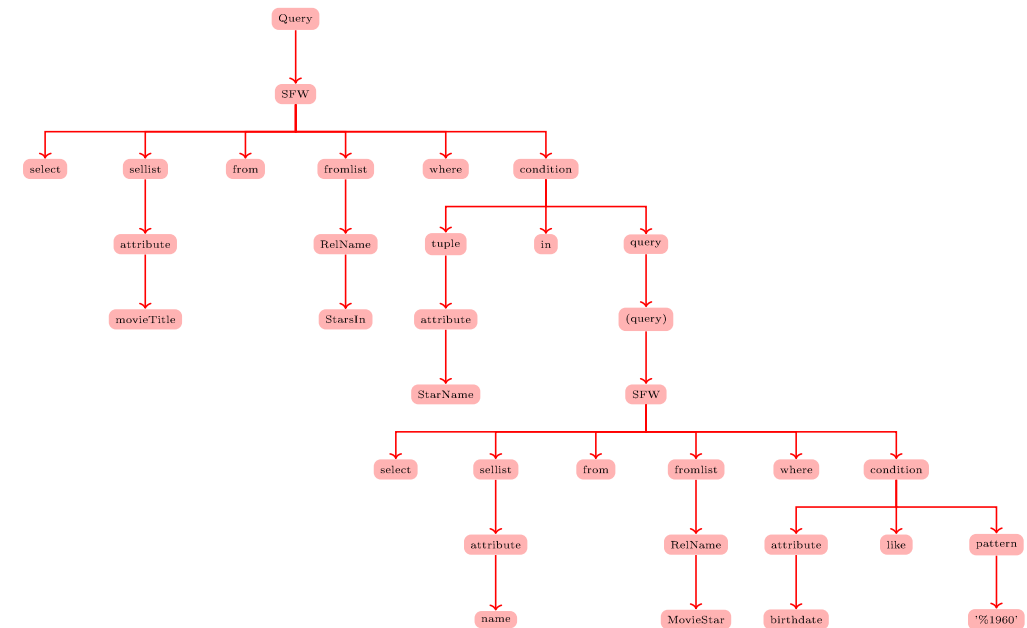
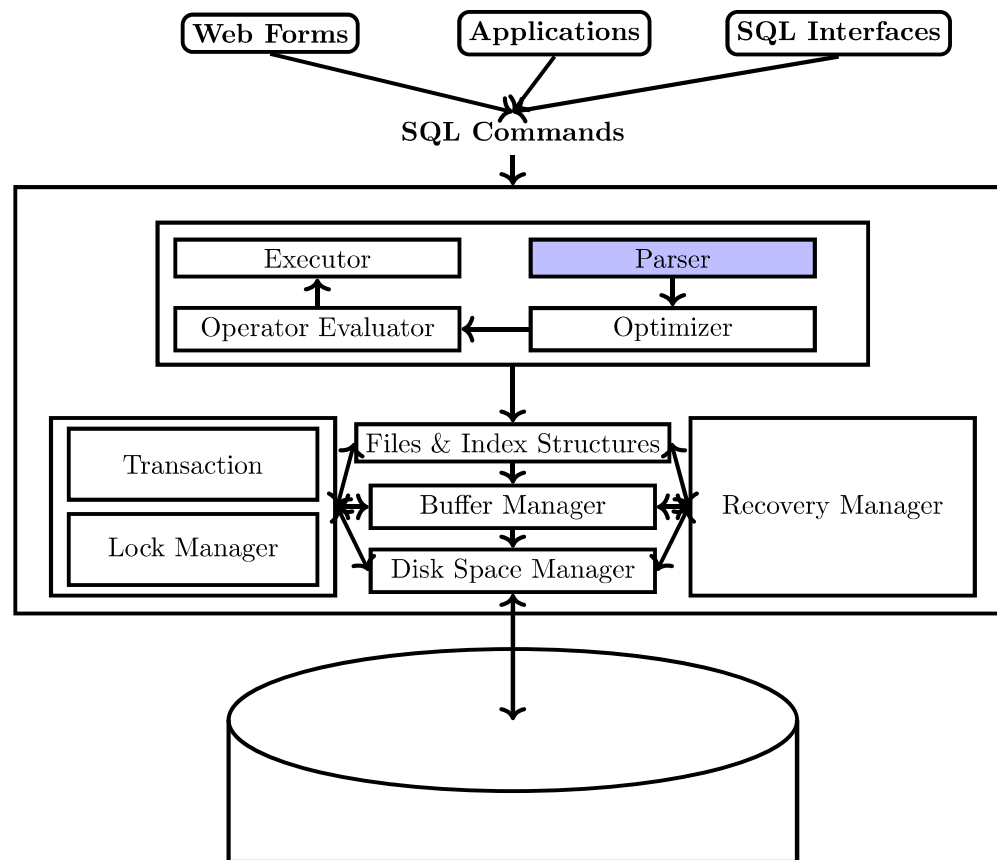
DBMS Architecture



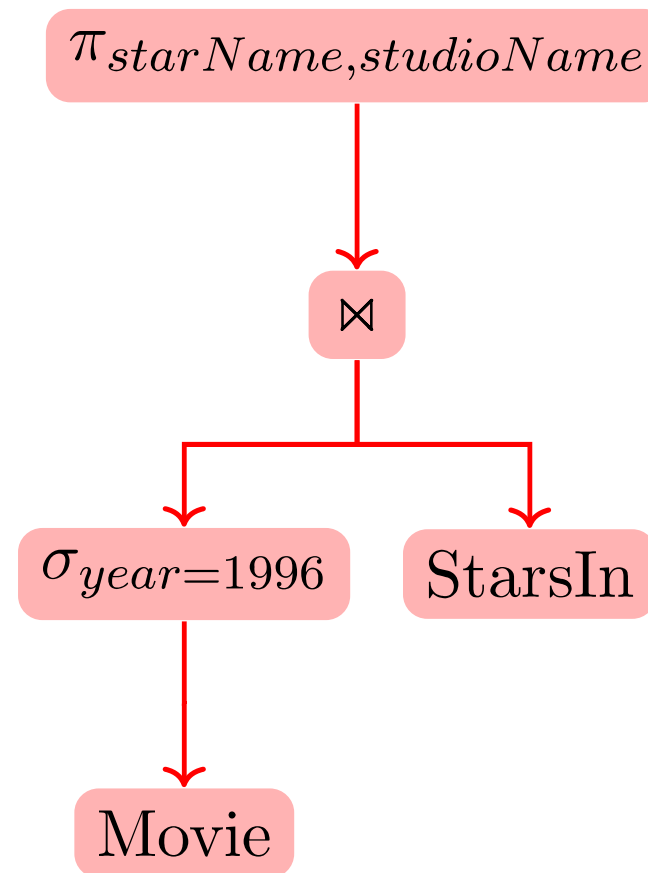
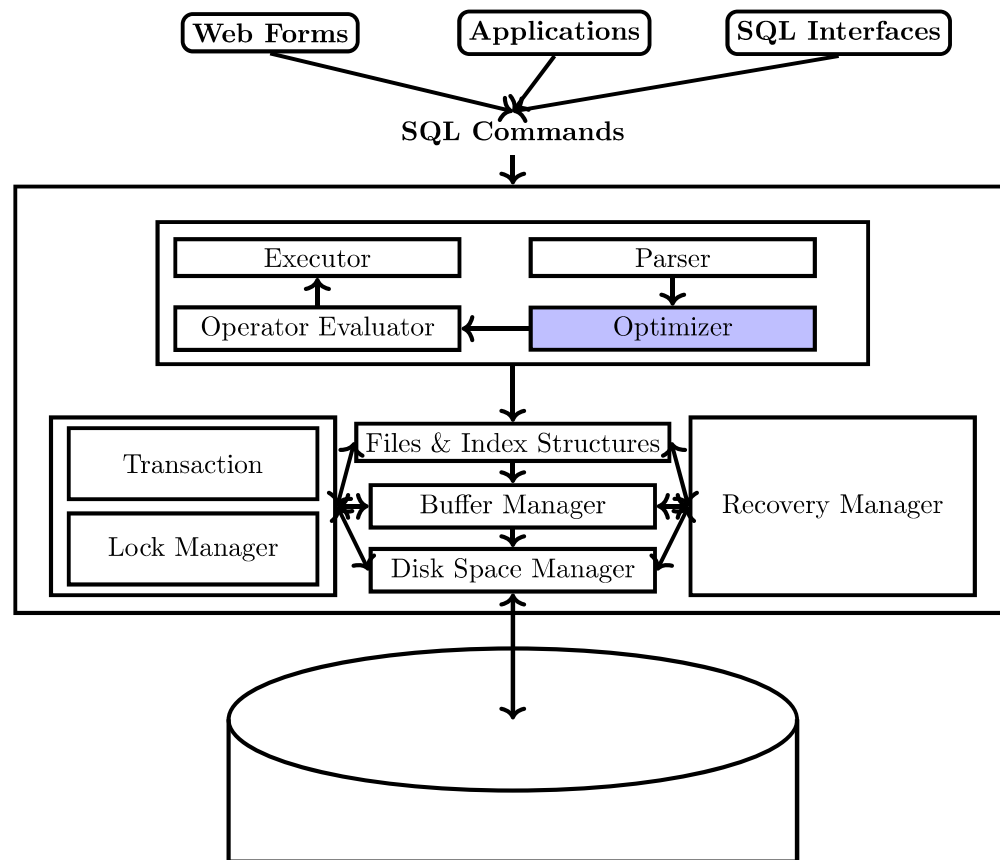
SQL Statement

```
SELECT movieTitle
FROM StarsIn, MovieStar
WHERE starName = name AND
birthdate LIKE '%1960';
```

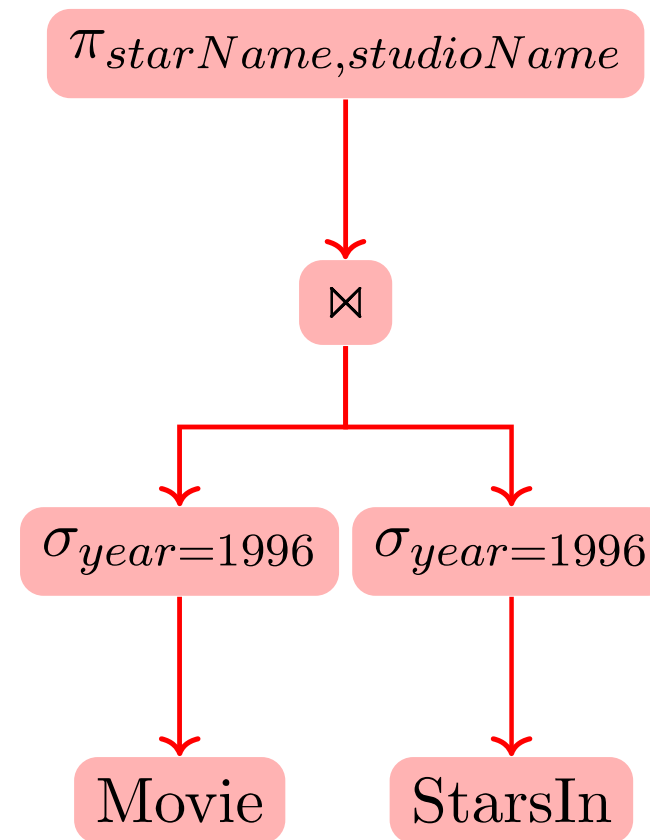
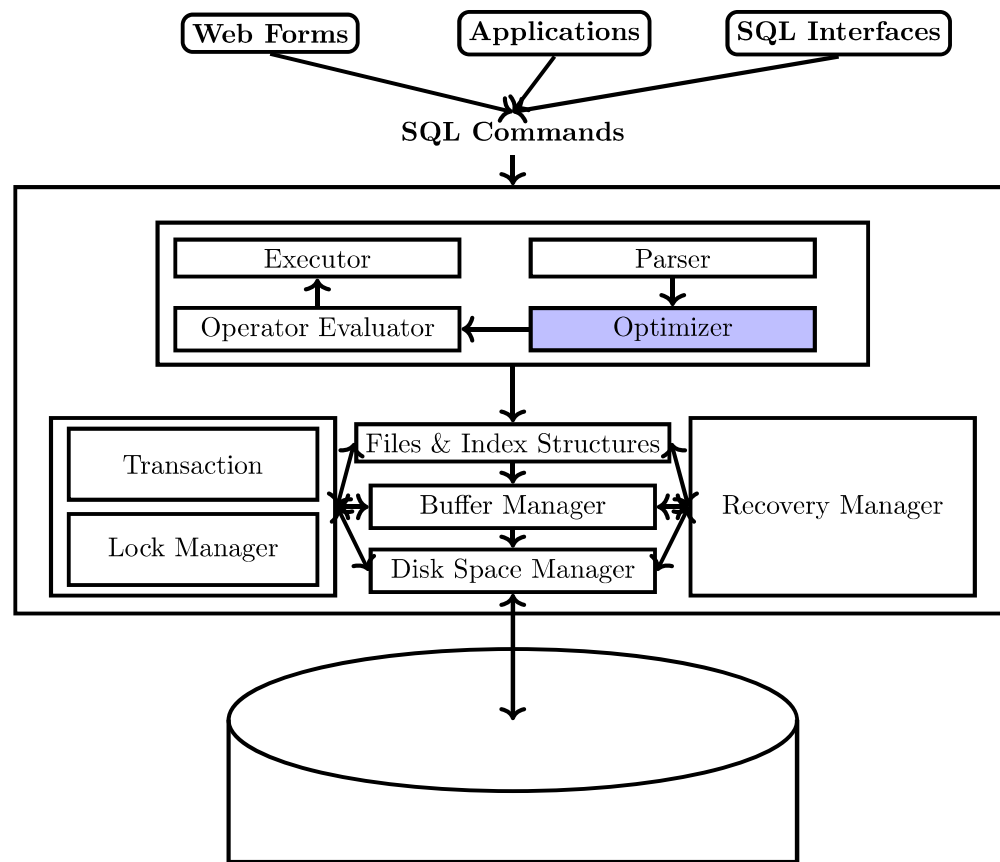
DBMS Architecture



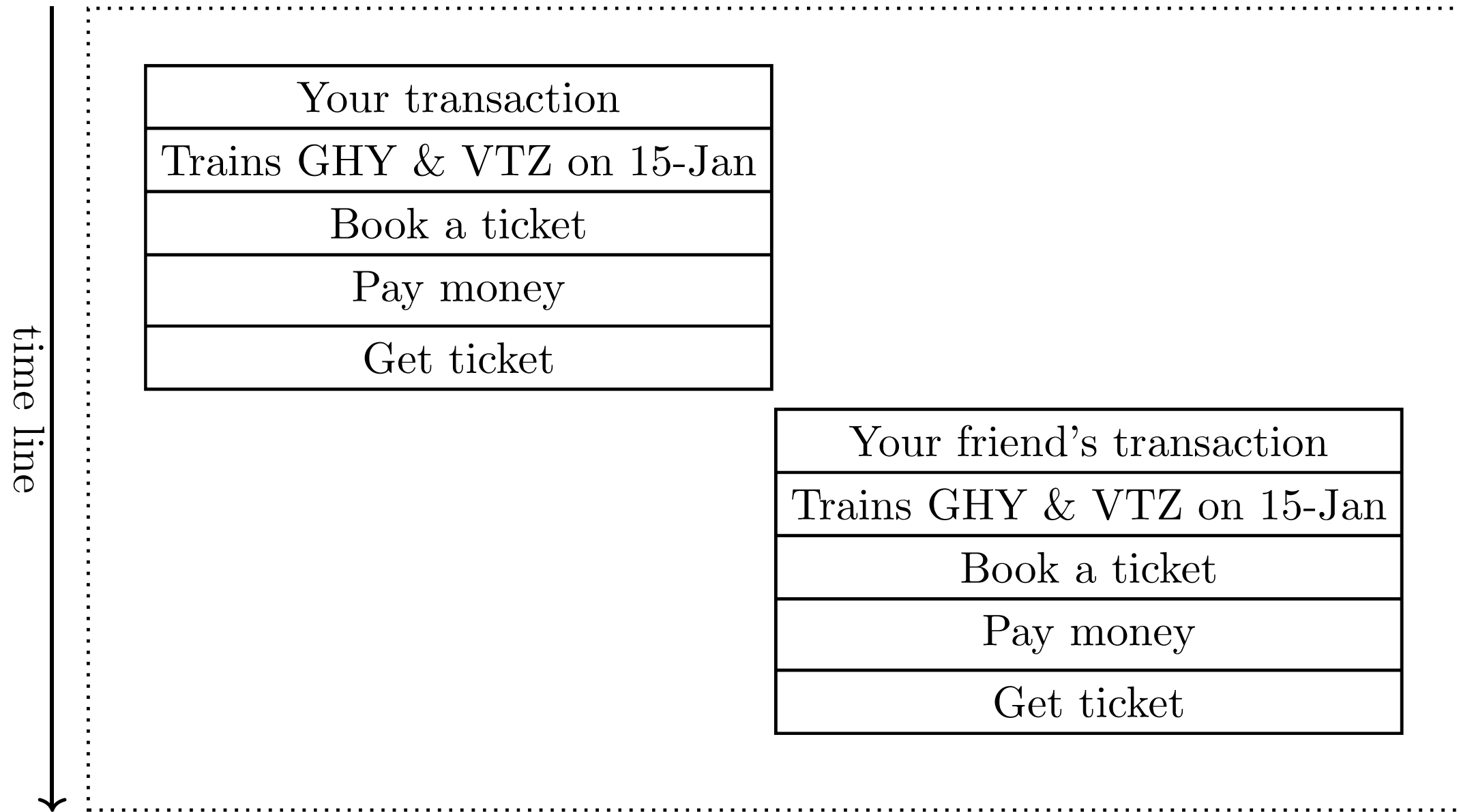
DBMS Architecture



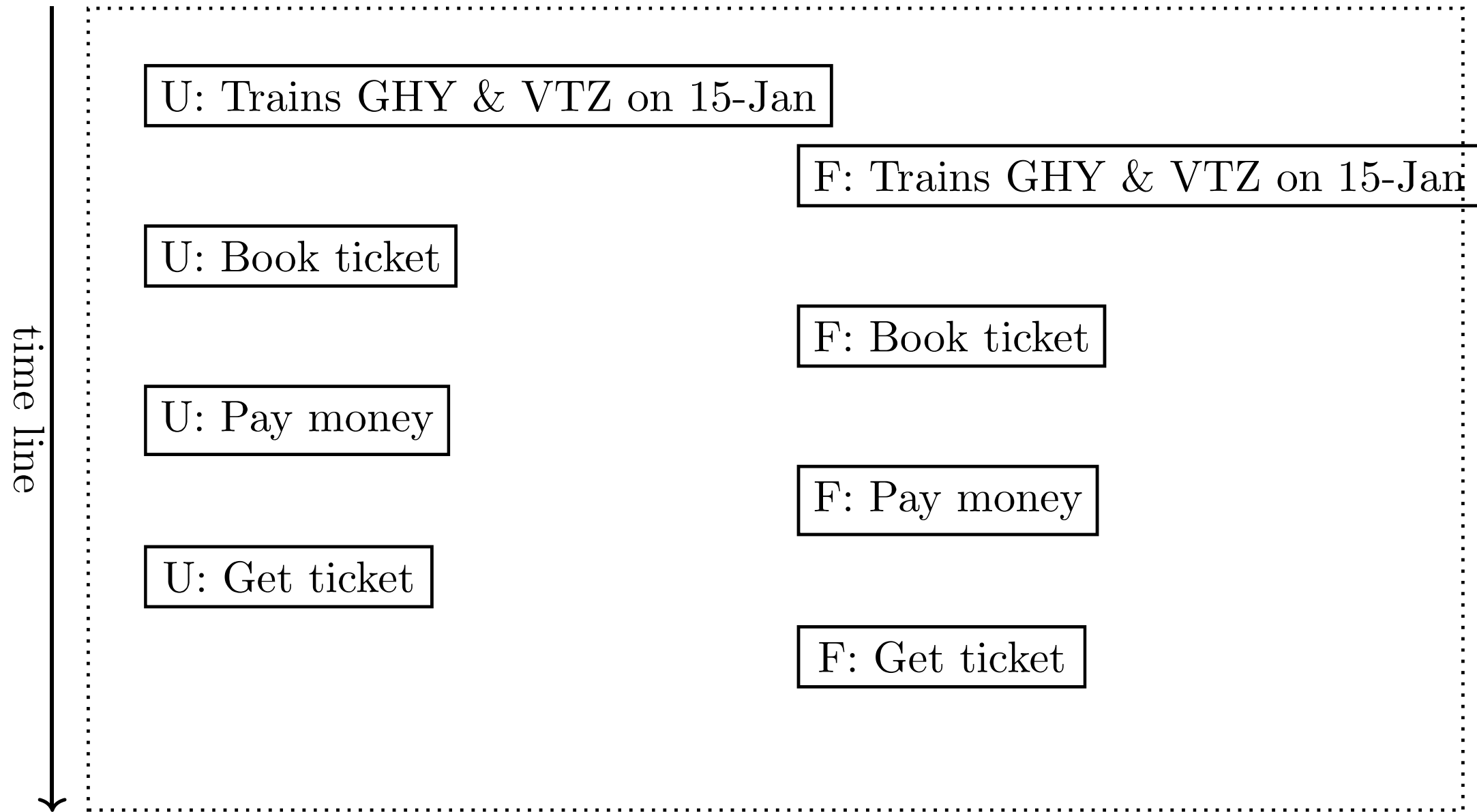
DBMS Architecture



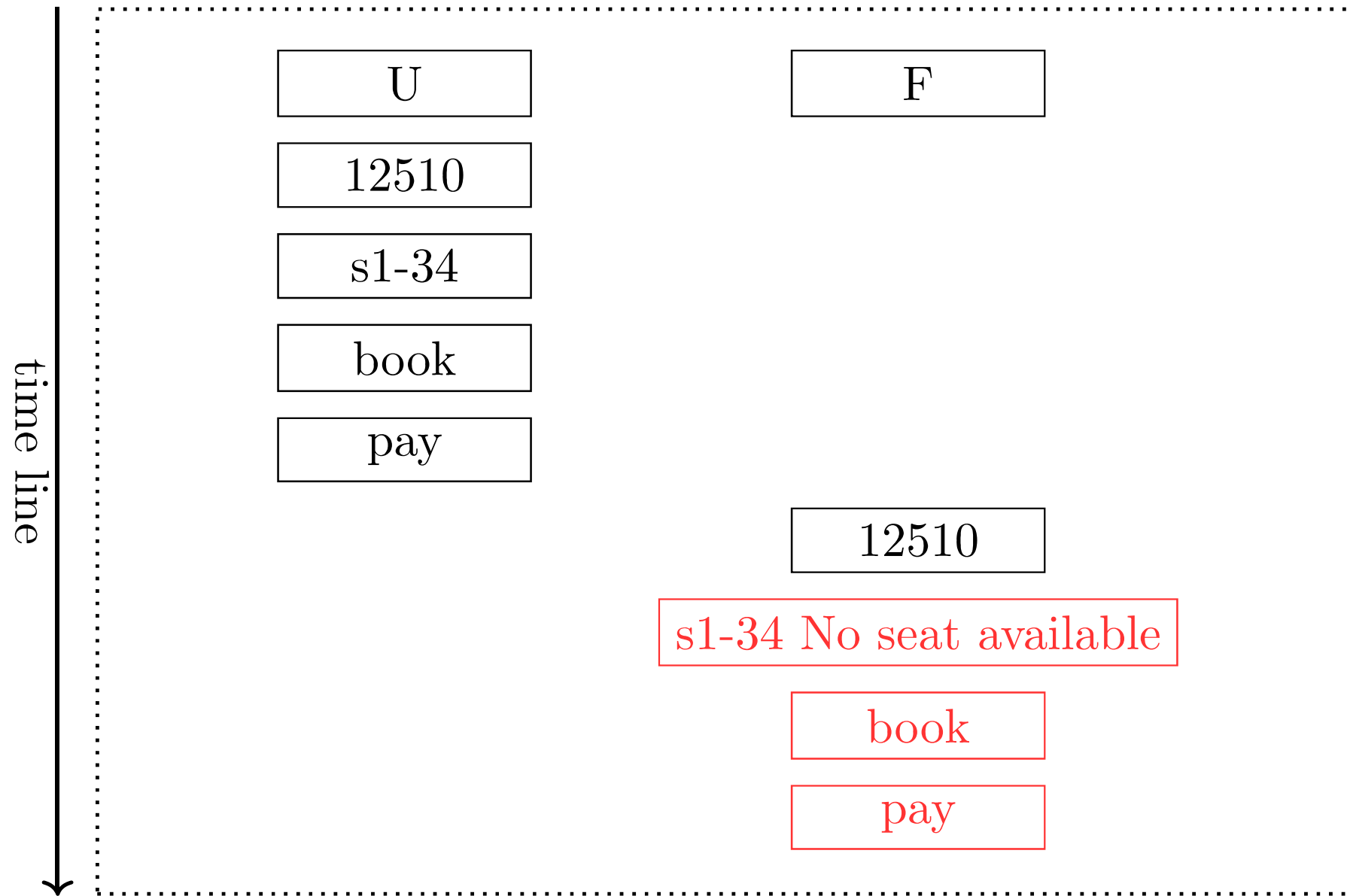
Transaction 01



Transaction 02



Transaction 03



Transaction 04

