

Whiteboard Notes

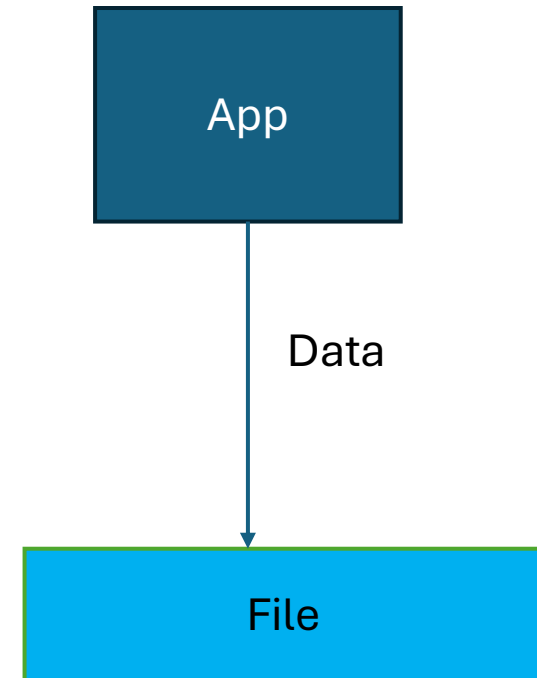
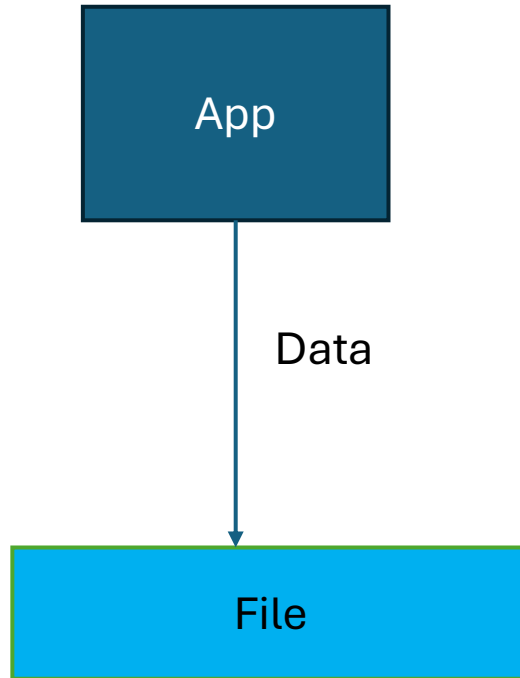
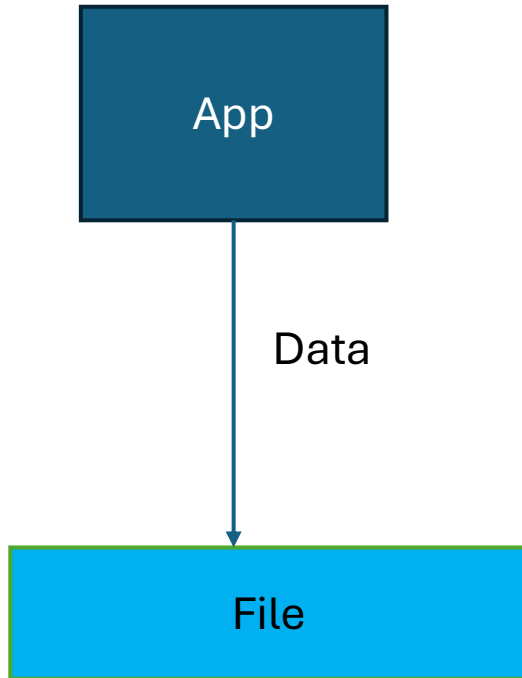
Materials

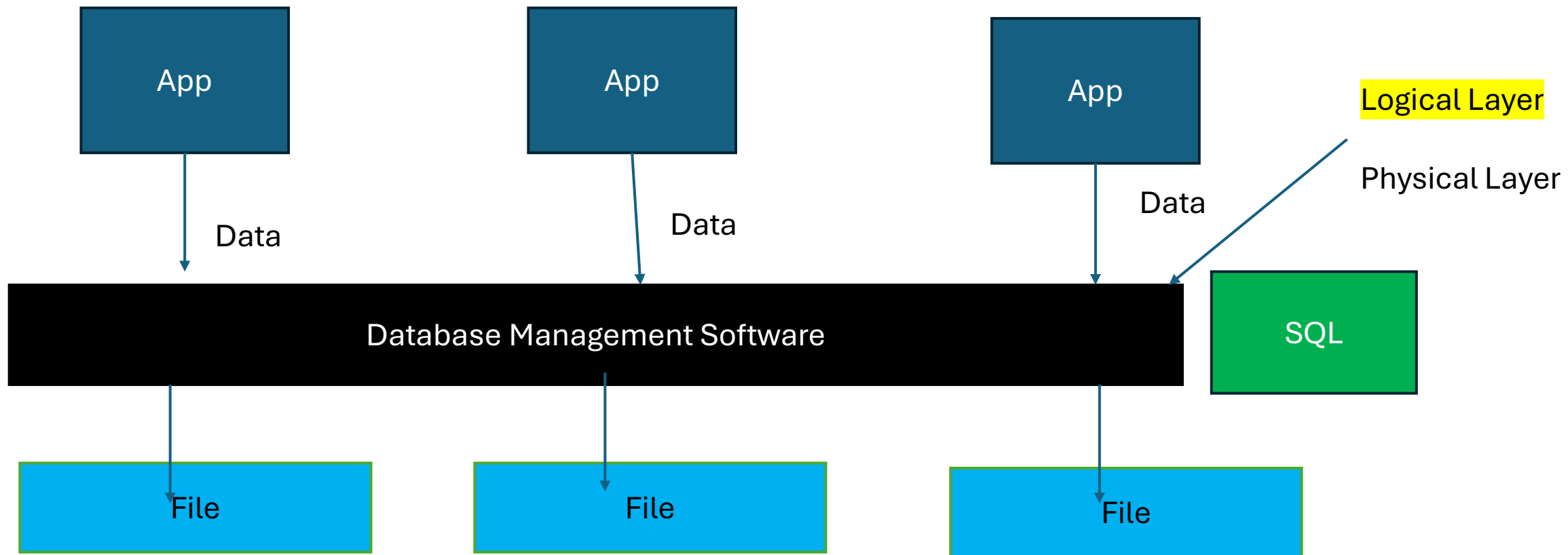
- <https://github.com/nagabhushan1/eb>
- <https://codeshare.io/amLyeW>

Data

- Data is the most important part of the application.
- Database is the common denominator for any application – No matter which language that was built with
- What is centric to any application is data.
- All data needs to be stored - from day 1
- Developer needs to honor 2 principles
 - Data Independence – Data needs to be independent of the application which created it
 - Data Persistence – Data should outlive the process / application which generated it

Good old days





Oracle / MySQL / DB2 / Postgres / MSSQL / SQL Lite / Cloud SQL / RDS

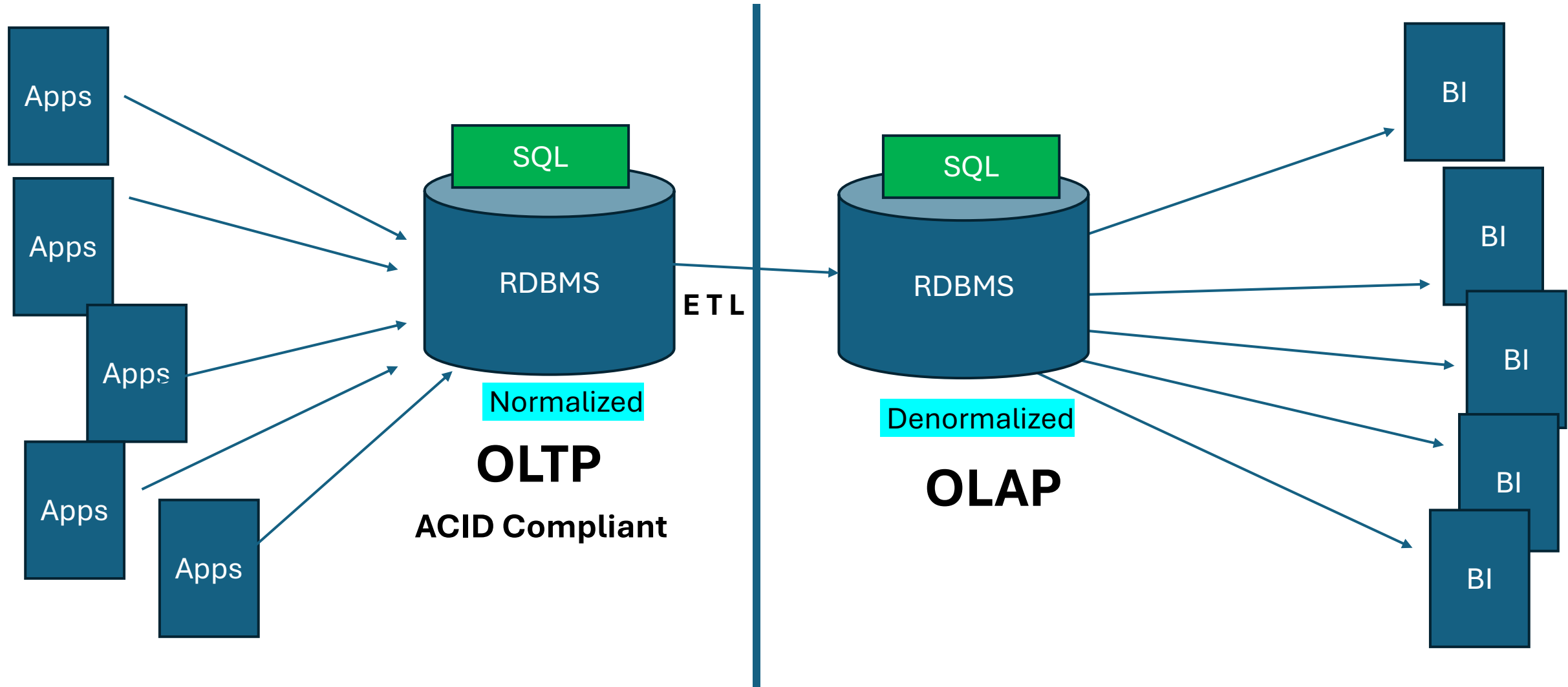
3 main components in a Relational Data Model

- Collection of database objects (Tables, Views, Index, Procedures)
- Set of operators
- Set of integrity rules

Data Engineering World (Traditional)

Transactional Platform

Analytical Platform



Operators

- Operators are keywords / special symbols that will help us in performing operations on data. We can compare, combine and manipulate data using these operators
 - Arithmetic Operators
 - Relational Operators (Comparison Operators)
 - Logical Operators
 - Special Operators

Datatypes – Important points

- Infinity – Special constant for floating point numbers (binary float, binary double), represents values that are mathematically infinite (divide by zero)
- Nan – Not a Number → Not equal to anything → represents undefined or invalid mathematical operation
- Null → Absence of value (Unknown value) → Anything which is NULL is unknown
- Zero → A definite numerical value (It means nothing in arithmetic, however it is still a real number stored in a database)

```
SQL> select 5 + 0 as with_zero, 5 + NULL as with_null from dual;
```

WITH_ZERO	WITH_NULL
5	

```
SQL> select cast(0 as binary_double) / cast(0 as binary_double) from dual ;
```

CAST(0ASBINARY_DOUBLE)/CAST(0ASBINARY_DOUBLE)
Nan

```
SQL> select cast(1 as binary_double) / cast(0 as binary_double) from dual ;
```

CAST(1ASBINARY_DOUBLE)/CAST(0ASBINARY_DOUBLE)
Inf

Default date format in Oracle

DD-MON-YY

```
SQL> select sysdate from dual;
```

```
SYSDATE
```

```
-----
```

```
15-SEP-25
```

```
SQL> |
```

Data Integrity

- Clean, correct and consistent data !
- Enforced using Constraints
- Constraints are used to prevent invalid data from being entered into your tables. Constraints are enforced on table columns!
 - Not Null
 - Unique
 - Primary Key
 - Foreign Key
 - Check

SQL Sub Languages (Sections)

- If a user has to perform operations on data, they use SQL.
 - SQL has sub sections
 - DDL – Data Definition Language
 - CREATE, ALTER, DROP, TRUNCATE, RENAME (> ORACLE 9i)
 - DML – Data Manipulation Language
 - INSERT, UPDATE, DELETE, MERGE (ORACLE)
 - DQL – Data Query Language / DRL – Data Retrieval Language
 - **SELECT**
 - DCL – Data Control Language
 - GRANT, REVOKE
 - TCL – Transaction Control Language
 - COMMIT, ROLLBACK, SAVEPOINT
- } All DDLs are auto committed