EMP (ssn, name, salary, dno)
Dept (dnumber, tot_salary)

Example 3 ORACLE

```
Create trigger TOTSAL3
After update of dno on EMP
for each row
BEGIN
    Update Dept
    set tot_sal = tot_sal + new.salary
    where dnum = new.dno;

    Update Dept
    set tot_sal = tot_sal - old.salary
    where dnum = old.dno;
END;
```

MYSQL

```
DELIMITER :

Create trigger TOTSAL3
After update on EMP
for each row
BEGIN
  Update Dept
```

```
set tot_sal = tot_sal + new.salary
where dnum = new.dno AND
 old.dnum <> new.dno;

 Update Dept
 set tot_sal = tot_sal - old.salary
 where dnum = old.dnum AND
  old.dnum <> new.dno;
END;
```

```
DELIMITER ;
```

Trigger chain :

```
Create trigger chain1
 After update on DEPT
 for each row
   Update DEPT_LOC
   Set Dlocation = 'maxed'
   where dnumber = new.dno AND
    new.tot_sal > 1500000;
```

```
Update EMP set dno = 1 where SSN = '1234';
```

```
SHOW TRIGGERS;
```

```
DROP TRIGGER chain1;
```

* mysql does not support multiple triggers with the same action time and event on the same table.

* Constraints have a higher priority than triggers.

Indexes

Ch 17 (new)
Ch 18 (old)

* Files (Tables) are stored on disk.
* Indexes are data structures
  - hash O(1)
  - Balanced B-trees O(log n)

* index is a file that is part of the database and it is stored with tables on disk.

* Reasons for index:
  - files are large
    * storage access time ↑
    * entire file may not fit in MM.

* Table R

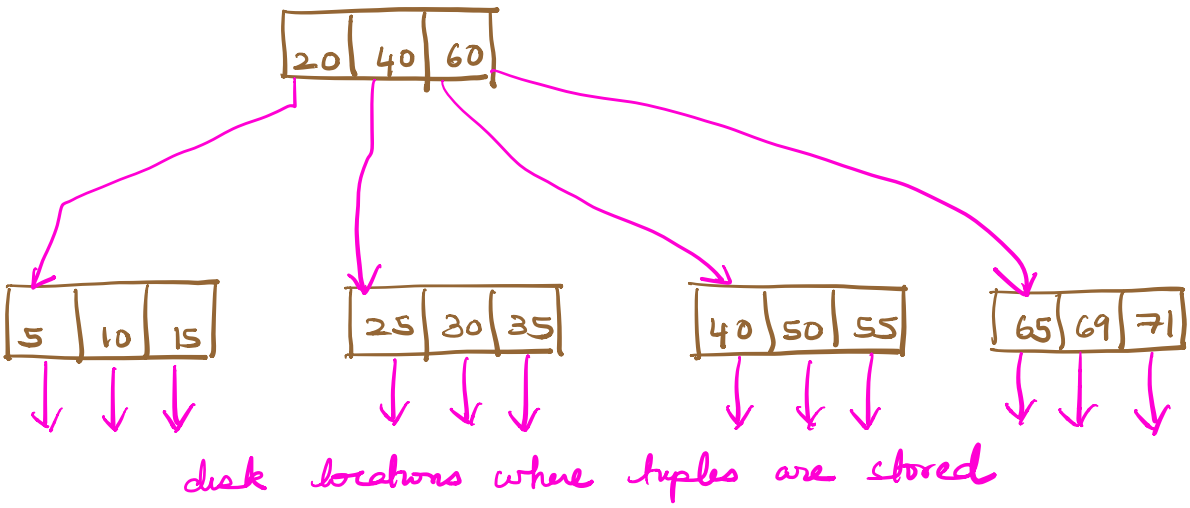
index file : <a>

→ attribute a is usually the primary key.

Size of <a> <<<<<<< size of R

hash : R.a = 'x'

'x' < R.a < 'y'



Types of indexes

1) Primary key
2) Clustering index
3) Secondary index
4) multiple attribute index

1) Primary key

- if table is stored in sorted order by primary key, then sparse index.