* DBMS is a system software which provides abstraction layer on top of <u>file system</u>

Q. What is the need of another software ?

* Let say we have student records → Name, Rollno → each record takes 4 bytes → Lets say we store this in text file and accessing it with file system.

What problems are there while storing records in file and using file processing provided by O.S ?

$\Downarrow$
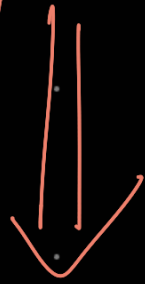
How will we access employee with Roll no. 37, consider there are 10 Lack records, and file is not sorted ?
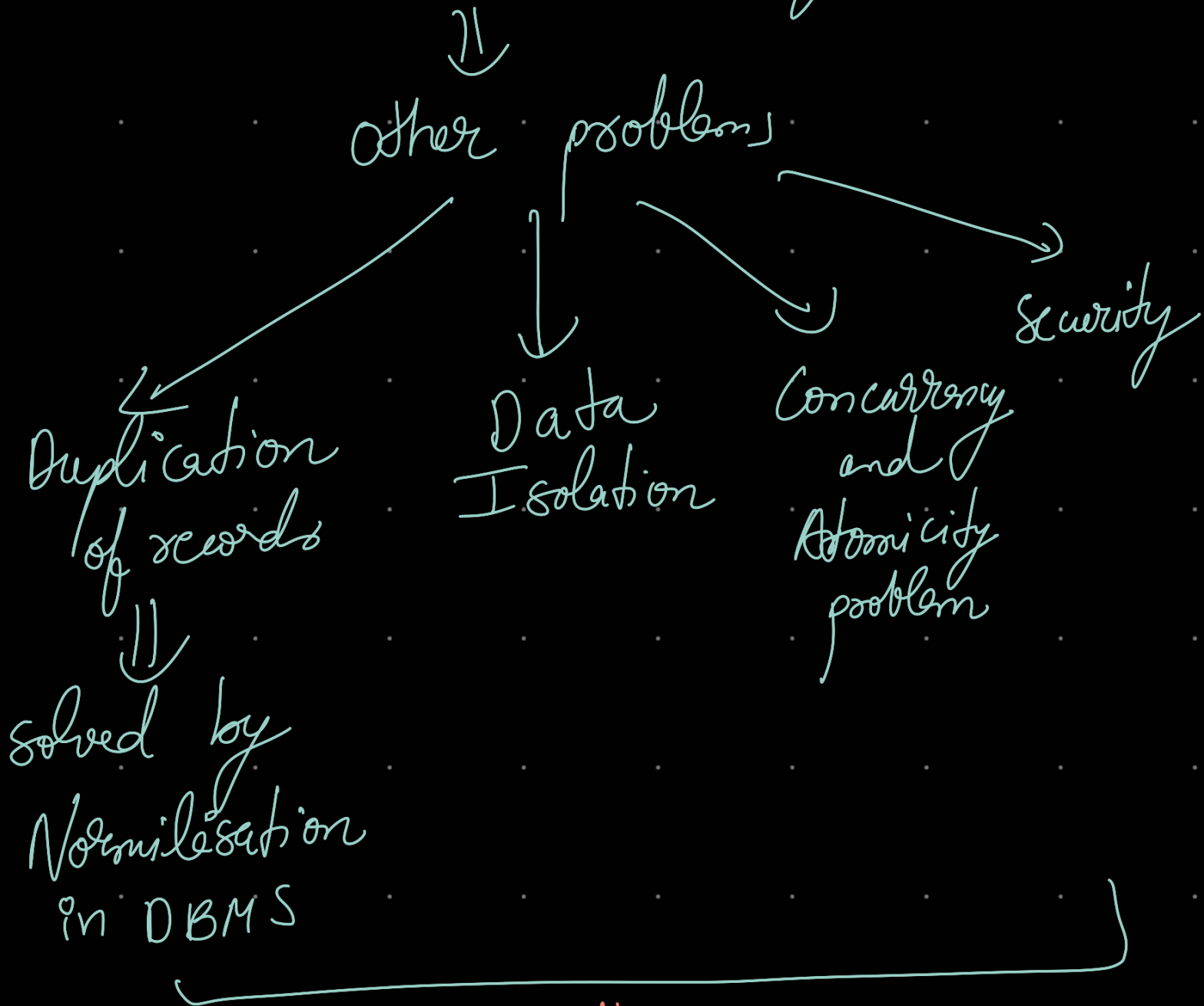
$\Downarrow$

Read every line
$\llcorner$ compare roll no.

$\Downarrow$

return the line number

(very slow)

* What if we want more complex queries? Here we can't simply store data in text file.

⇓

Other problems

- Duplication of records

  ⇓

  solved by Normilisation in DBMS

- Data Isolation

- Concurrency and Atomicity problem

- Security

⇓

* Database contains code specifically written to solve these problems.

⇓

In the end the data will be stored in HDD with the help of O.S file system.

⮑ DBMS Process calls system calls to access HDD.

⇓

How DBMS Stores the records physically? ⇒ Later sections.

*

User
↓
```
┌─────────────────────┐
│      D B M S        │
└─────────────────────┘
```
↓

```
┌─────────────────────┐
│   OS/file system    │ ⟵───────⟶  HDD
└─────────────────────┘
```

⟶ This process is also managed by O.S.