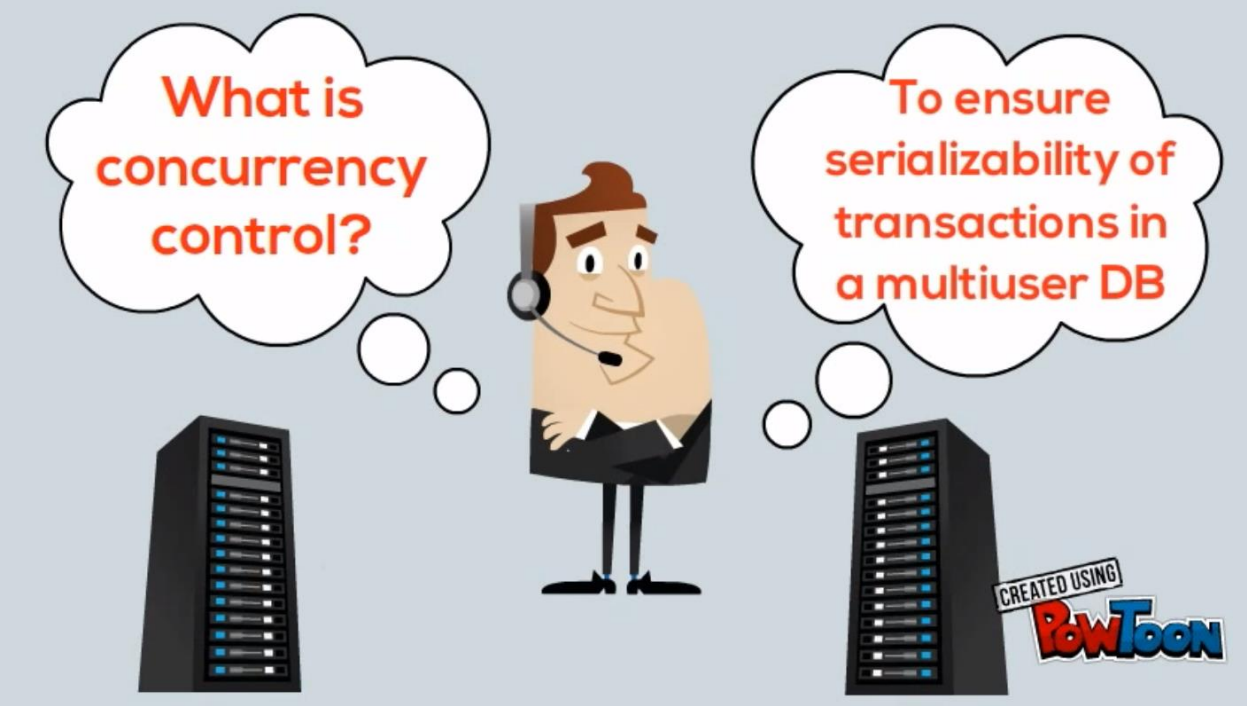
What is granular locking in Salesforce?

By default, the Force.com platform locks the entire group membership table to protect data integrity when Salesforce makes changes to roles and groups. This locking makes it impossible to process group changes in multiple threads to increase throughput on updates. When the granular locking feature is enabled, the system employs additional logic to allow multiple updates to proceed simultaneously if there is no hierarchical or other relationship between the roles or groups involved in the updates.

Granular locking can help customers who experience these locking issues. Without this feature, our code locks the entire table that keeps track of people's membership in various groups. This means that any two administrative operations that change roles, public groups, or territories will conflict if they happen simultaneously.



Concurrency Control Problems

Three Main Problems:

-Lost Update

When two transactions update the same data simultaneously and one update is lost

-Uncommitted Data

When two transactions (T1,T2) are executed concurrently, only T2 is recorded

-Inconsistent Retrieval

When one transaction accesses data before and after another transaction completes its operation (The same data)

Concurrency Control Prevention

-LOCKING

-TIMESTAMPING

Lock Granularity

Lock Granularity indicates the level of access to a database defined by a lock manager.

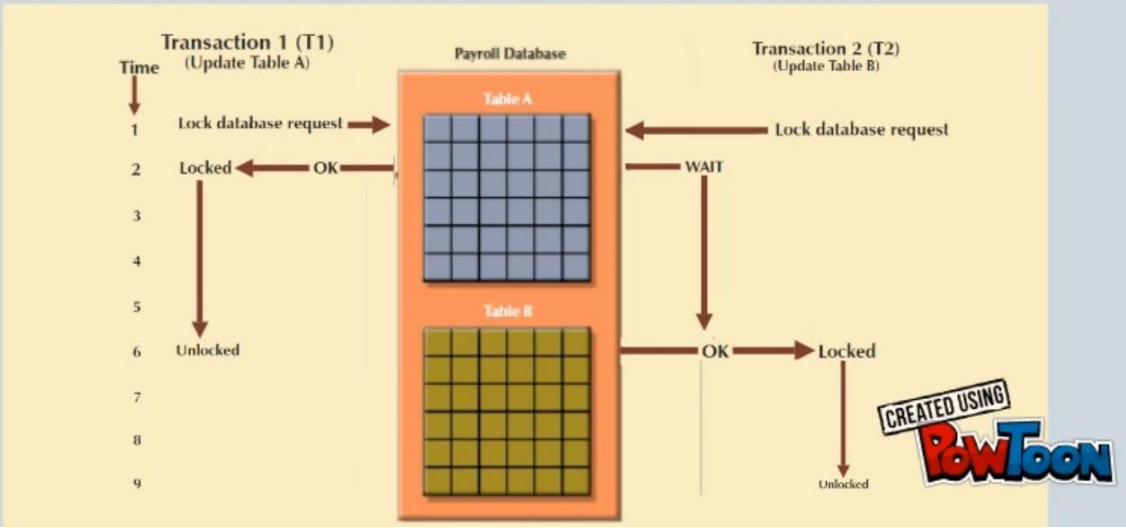
Types:

1. Database Level
2. Table Level
3. Page Level
4. Row Level
5. Field Level

Types Continued...

1. Database Level

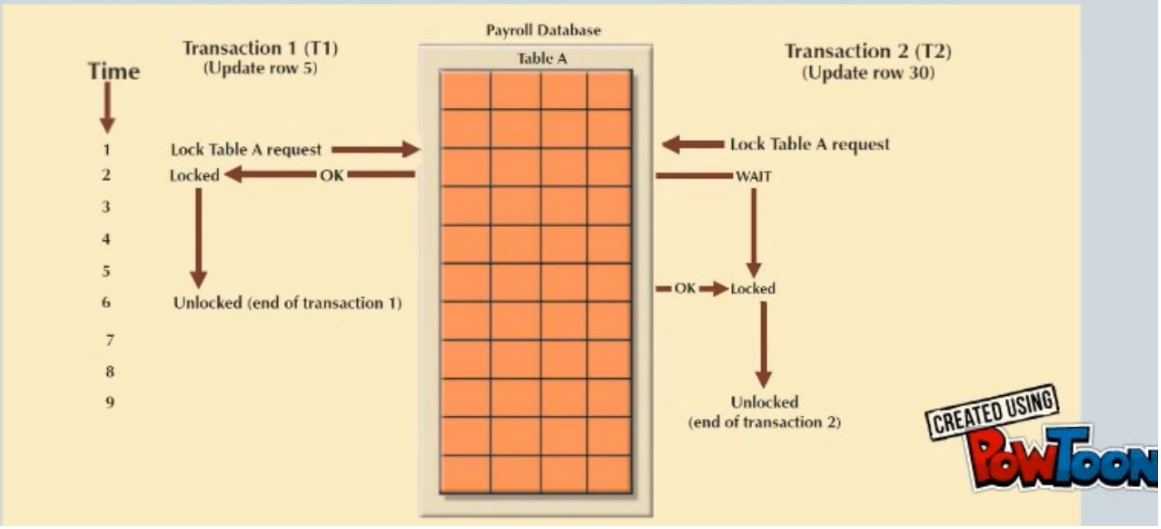
Only one transaction has access to the database at a time



Types Continued...

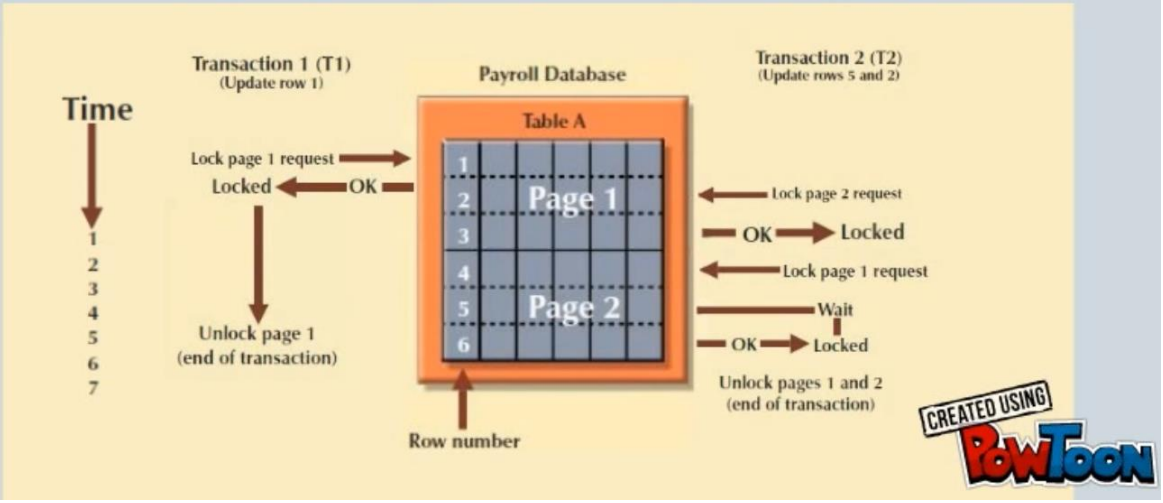
2. Table Level

Each table allows only one transaction to interact at a time



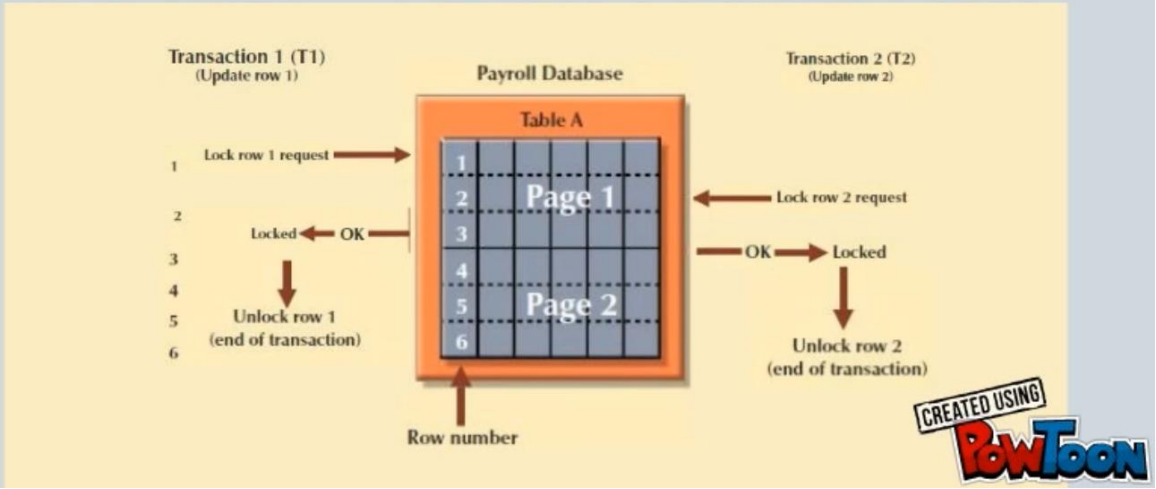
Types Continued...

3. Page Level
Stipulated number of rows locked across one/multiple tables



Types Continued...

4. Row Level
Each locked row allows one transaction to interact with it at a time



Types Continued...

5. Field Level

Each locked attribute allows only one transaction to interact with it at a time

SUMMARY

In this lecture we have covered :

- What is concurrency control
- What is locking granularity
- 5 types of locking

NOTE THAT THE HIGHER THE LEVEL OF LOCKING, THE LOWER THE OVERHEADS ARE