Lecture-14
SSK

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Date 21/02/18
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Relational database design

Pitfalls in relational database design
1) Redundancy of information
2) Difficulty in accessing info

branch (branch_name, branch_city, assets)
loan (loan_no, customer_name, loan_amt)

lending_schema (branch_name, branch_city, assets, ~~loan_no~~, customer_name, loan_no, loan_amt)

(Rumpridge, Horseneck, 1700000, Adams, L-31, 1500)

Functional dependency

Consider a relation schema R, and let $\alpha \subseteq R$ & $\beta \subseteq R$. The functional dependency

$$\alpha \rightarrow \beta$$

holds on schema R if in any legal relation r(R), for all pairs of tuples t_1 and t_2 in r such that $t_1[\alpha] = t_2[\alpha]$, it is also the case that $t_1[\beta] = t_2[\beta]$.

A determines C $\leftarrow$ $A \rightarrow C$

But not $C \rightarrow A$

	A	B	C	D
t_1	a_1	b_1	c_1	d_1
t_2	a_1	b_2	c_1	d_2
t_3	a_2	b_2	c_2	d_2
t_4	a_2	b_2	c_2	d_3
t_5	a_3	b_3	c_2	d_4

$t_1[A] = t_2[A]$

$a_1 = a_1$

$\Rightarrow t_1[C] = t_2[C]$ which is true $\Rightarrow \therefore A \rightarrow C$

But $t_4[C] = t_5[C]$ as $c_2 = c_2$

But, $t_4[A] = t_5[A]$ $\Rightarrow \therefore$ ~~$C \rightarrow A$~~ not true