

closure set of functional dependency

<https://www.datacamp.com/>

1. Introduction to SQL for data science

2. Joining data in PostgreSQL

Modification anomaly

(empid, empname, projectid, projectname)

update - project name want to change all the remaining attr

insert - nulls are not really preferred

deletion - particular project to be deleted projectid, proj name become null, may be try to read of empid, empname

Decomposition Lossless decomposition / Lossy decomposition

id name job

1 A 81

2 A 83

id name name job

1 A A 81

2 A A 83

join

id name job

1 A 81

1 A 83

2 A 81

2 A 83

superfluous tuples are generated

Closure set of Functional dependency

R(ABC)

A -> B

B -> C

closure set of functional dependencies

$A \rightarrow BC$

$A^+ = A, B, C$

$B^+ = B, C$

$C^+ = C$

using inference rules

1. $R(ABCDEFG)$

$A \rightarrow B$

$BC \rightarrow DE$

$AEG \rightarrow G$

$(AC)^+ = AC$
 ABC
 $ABCDE$

2. $R(ABCDE)$

$A \rightarrow BC$

$CD \rightarrow E$

$B \rightarrow D$

$E \rightarrow A$

$B^+ = B$
 BD

$AB \rightarrow C$

$A \rightarrow C$

$B \rightarrow C$ not possible

$A \rightarrow BC$

$A \rightarrow B$

$A \rightarrow C$ possible

3. $R(ABCDEF)$

$AB \rightarrow C$

$BC \rightarrow AD$

$D \rightarrow E$

$CF \rightarrow B$

$(AB)^+ = AB$
 ABC
 $ABCD$
 $ABCDE$

4. $R(ABCDEFGH)$

$A \rightarrow BC$

$CD \rightarrow E$

$E \rightarrow C$

$D \rightarrow AEH$

closure set of functional dependencies

$ABH \rightarrow BD$

$DH \rightarrow BC$

$BCD \rightarrow H$? valid dependency or not how to check?

$BCD^+ = BCD$

$BCDE$

$ABCDEH$