Name 1: **Date:**
Name 2:

Remember the Babies? We a relation R(BNDM), with FDs:

B->M
BND->M
BM->D

1. Is this relation BCNF?

B → M B is not a SK!!

Table is not BCNF.

2. Is this relation 3NF?

(1) Find minimal set of FDs.

a) can B → M be generated from {BND → M, BM → D}?

compute {B}+ using

{B}+ = {B} does not contain M.

so we can't generate B → M.

b) can BND → M be generated from {B → M, BM → D}?

{BND}+ using

{BND}+ = {BNDM} it contains M.

so BND → M can be generated.

BND is redundant!!

Name 1: **Date:**
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Remember the Babies? We a relation R(BNDM), with FDs:

B->M
BND->M
BM->D

continuation...

1. ~~Is this relation BCNF?~~

so we now have $\{B \to M, BM \to D\}$ is this minimal? yes. We can't generate $B \to M$ from $BM \to D$ nor $BM \to D$ from $B \to M$.

2. ~~Is this relation 3NF?~~

Our minimal set is: $\{B \to M, BM \to D\}$

(2) Decompose. using these FDs.

$R_1 = BM$ with FD $B \to M$

$R_2 = BMD$ with FD $BM \to D$

(3.) is R_1 a Superkey of R? No. $\{BMD\}^+ = \{BMD\}$

is R_2 a Superkey of R? No. $\{BM\}^+ = \{BMD\}$

Name 1: **Date:**
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Remember the Babies? We a relation R(BNDM), with FDs:

B->M
BND->M
BM->D

1. ~~Is this relation BCNF~~?

Then Add $R_3 = BN$ where BN is the only candidate key of the relation.

2. ~~Is this relation 3NF~~?

Decomposition

$R_1 = BM$ $R_2 = BMD$ $R_3 = BN$

$B \to M$ $BM \to D$

Optionally:

R_2 contains R_1 so unify into 1 relation

$R_{12} = BMD$ $R_3 = BN$

with FDs $\{ B \to M, BM \to D \}$

This is the decomposition.