1. Transform dependencies to canonical forms and drop extraneous attributes:

B->E ~~AB->E~~

B->D ~~ABE->ED:~~ ~~AB->D~~

C->D

C->E

C->F

~~DC->A~~: C->A

~~DF->A: C->A~~

E->D

Get the minimum canonical cover

B->E, E->D implies B->D, thus B->D is redundant

C->E, E->D, implies C->D, thus C->D is redundant

Thus, the minimum canonical cover is:

**B->E**

**C->F**

**C->E**

**C->A**

**E->D**

Since B and C do not appear on the right-hand side, B and C are the primary keys.

Group some dependencies with the same determinant: C->AEF

Construct relation for each group: R1: (B,E), R2: (C,A,E,F), R3: (E,D)

All of these relations are in BCNF (also 3NF).

Construct the table

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | E | F |
| R1: (B,E) | U | K | U | U | K | U |
| R2: (C,A,E,F) | K | U | K | U | K | K |
| R3: (E,D) | U | U | U | K | K | U |

Enforce FDs, we get

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | E | F |
| R1: (B,E) | U | K | U | K | K | U |
| R2: (C,A,E,F) | K | U | K | K | K | K |
| R3: (E,D) | U | U | U | K | K | U |

So that this join is lossy.