CPSC 304: Introduction to Relational Databases
Normalization 1 In-Class Exercise Solution

Consider a relation R(A,B,C,D,E, F). The following FDs are given:

AB→C
BD→E
C→B
E→D

Using the method that we covered in class, find the (minimal) key(s). Show your work. Write your answer here:

Left	Middle	Right
AF	BCDE	

If an attribute does not appear in any of the FDs, we need to put it in the left column because it is something that we need to be told – there's no way for us to derive it.

$AF^+ = \{A, F\}$
$AFB^+ = \{A, F, B, C\}$
$AFC^+ = \{A, F, C, B\}$
$AFD^+ = \{A, F, D\}$
$AFE^+ = \{A, F, E, D\}$
$AFBE^+ = \{A, F, B, E, C, D\}$
$AFEC^+ = \{A, F, E, D, C, B\}$
$AFBD^+ = \{A, F, B, D, E, C\}$
$AFCD^+ = \{A, F, C, D, B, E\}$

Keys: AFBE, AFEC, AFBD, AFCD