

## Let's Try: FDs

Α	В	С
1	aa	х
1	aa	х
2	bb	У
2	сс	У
3	bb	Z

Which of the following is functional dependency?

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(e) $C \rightarrow B$	
(d) $A \rightarrow C$	
(c) AB $\rightarrow$ C	
(b) $B \rightarrow C$	
(a) A → B	

	Name	xPhone	Position
E1001	Mickey	6543	Clerk
E2353	Minnie	1234	Helpdesk
E4567	Daisy	9876	Salesrep
E1234	Donald	9876	Salesrep
E9372	Humpty	1234	Lawyer

## **Example: Attribute Closure**

Given R(A,B,C)

 $\mathsf{FDs} = \{\mathsf{A} \rightarrow \mathsf{B}, \mathsf{B} \rightarrow \mathsf{C} \}$ 

Compute the attribute closures for all attribute and combination of attributes. Then, think about what can inferred.

	А	В	С	AB	AC	BC	ABC
Α	$\checkmark$						
В							
С							
AB							
AC							
BC							
ABC							

Summary: attribute closure
A+ = ABC
B+ =
C+ =
AB+ =
AC+ =
BC+ =
ABC+ =

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## Example1: Computing F+

Given R(A,B,C,D,E)

 $FDs = \{ A \rightarrow C, B \rightarrow B, C \rightarrow BD, D \rightarrow E \}$ 

Compute F+

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## **Example3: F+ to Candidate Key**

Consider a relation Stocks(B, O, I, S, Q, D), whose attributes may be thought of informally as broker, office (of the broker), investor, stock, quantity (of the stock owned by the investor), and dividend (of the stock). Let the set of FDs for Stocks be

 $FDs = \{ S \rightarrow D, I \rightarrow B, IS \rightarrow Q, B \rightarrow O \}$ 

List all candidate keys for the Stocks relation

Examp	le2:	Com	puting	F+

Given R(A,B,C,D,E) FDs = {A  $\rightarrow$  BC, B  $\rightarrow$  D, CD  $\rightarrow$  E }



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