

we have $(1,2), (2,3), (1,2) \Rightarrow (1,3) \in R$

$(2,3) \mid (3,1) \in R \Rightarrow (2,1) \in R$

$(3,1) \mid (1,2) \in R \Rightarrow (3,2) \in R$



matrix of relation

let element of set A and B labeled as $A = \{a_1, a_2, \dots, a_n\}$
 $B = \{b_1, b_2, \dots, b_m\}$

Suppose R the relation from A to B. R can be represented by
 $M_{12} = [M_{ij}]_{m \times n}$ Let $X = \{1, 2, 3\}$

$Y = \{1, 2, 3\}$ and $R = \{(2,1), (3,1), (3,2)\}$

Then find MR

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Consider a set $A = \{a, b, c, d, e, f\}$ and a Relation R
 define on A is given by $(A,A) (A,B) (B,B) (C,C) (d,d)$
 $(d,e), (d,f), (e,d), (e,e), (e,f), (f,d), (f,e),$
 (f,f)

	A	B	C	D	E	F
A	1	1	0	0	0	0
B	0	1	0	0	0	0
C	0	0	1	0	0	0
D	0	0	0	1	0	0
E	0	0	0	0	1	0
F	0	0	0	0	0	1

Property

The diagonal element of the matrix M_R are non 0. Then relation is reflexive

Property →

The matrix M_R and its Transpose are identical hence the relation is symmetric

Teacher's Signature