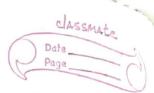


8.1 Explain various relational algebra operators

-) · tundamental operations of Relational

Algebra: 1) Unany Relational Operations a) Project Operation (T)
b) select operation (T)
c) Rename operation (P) 2) SET Theory Operations 9) Union Operation (U)
b) Difference Operation (.)
c) Intersection Operation (n)

Binary Operation a) Join Operation (M)
b) Cartesian product Operation (X)
c) Division operation (X) · Unany Relational Operation ) Select Operation nows from table which satisfy particular selection condition given in the selection · Selection operator selects a set of tuples that satisfy a particular condition selection andition



The symbol of (sigma) is used to denote the select operator.

· Its syntax is -

a < attribute name > < comparison toperator > constant. wolks

· For e.g.,

SELECT the Employer Aples whose solony 1s greater than \$.75,000/-

Jealony > 75,000 (Employee)

- 2) PROJECT Operation (TI)
- of many columns in table to displayed in result set.
  - · It is denoted by The symbol.
  - · Ita syntax -

To ecolumn-list> (Input-table-name)

· For eig. /

To list each employee's first, and last name and salary

TI LNAME, FAMME, SALARY (EMPLOYEE)



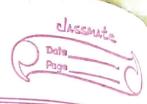
-	
-	3) RENAME Operation
	The transfer of a second
	· We can give alternative name to any
	column or any table of query expressions
	using operator called RENAME operator.
	· It is denoted by p (rho)
	· It's syntax is-
-	in all the members of the
	P < New-names (Input -table-name)
	(JUBSHOS) A (IES) &
	· For e.g.,
	Find solary and age of all Employees
	The two shorts leading with the
-	Teage, e. salary (Pe (Empolyee))
	The decoded by (C).
	= = i xolato : e +T
	· SET Operation
	(Colon Chareston 1) - (Gulley Entertain
	1) Union Operator
	in dable I and table?
_	in dable I and table?.
	Duplicates are tuples are eliminated.
_	
_	It's syntax is - ( )
	(Query Expression 2) U (Query Expression 2)
_	
_	For e.g.)

(COMPS\_STUDENT) U (IT\_STUDENT)

& IT dept.

all students in comps

Find



e) Intersection Operator =) This operator ands out all moves that are common in table I and table. It is idenoted by A. It's syntax is -( Guery Expression 1) n ( Query Expression 2) For eig, Find all members of who are in both csI & codecelle Comittee. > (CSI) N (CODECELL) Différence Operator This operator finds out all nows that are present in table 1 and not in tables It is denoted by (-). It's syntax is -(Query Expression 2) - (Query Expression 2) For leg, to the while who is Find all members of CSI comittees (CSI\_member) - (Other\_committe\_member)



	· Binary Operation
	· Binary Operation
	Adolac es estable stability with with
	) Cartesian Product
	-) This operation is used to combine
	typies from two relations in a combinational
	fashion. 23/dute paint
	Denoted by -
	R(A, A2,, An) X 5 (B, B2, Bm)
	For e.g., MITOT PO 29ANT "
	Find at combinations all Employee and
	departments nine and nine landale (
	(Employee) x (Department)
	(Employee) x (Department)
	6M I NIST HEATPY NIST MANTE (8)
	· A cartesian product is formed when-
	i) A Join andition is omitted
	i) A join condition is invalid
	iii) To avoid a Cartesian product, always
	include a valid join condition in a
	WHERE clause.
1	

						, , ,	
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$\parallel$	Solution		74:			8.1	
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#	7 .L 1						
#	Output =		Y				
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	1   E	A A	ldress	Dept	no Name	1	
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	4	D	2	D <sub>2</sub>		14	
-			_	$^{\prime}$ D <sub>3</sub>	-		and the same of th



- Self John sample VEDE TOO SQL SELF JOIN is used to join a table to itself as if the table were two tables.

For eig;

S-id	1 Card	Since	Jana J
SI	C1 1	2016	54 1.
S 2	C <sub>2</sub>	2017	- study
SI	C2	2017	3

guery

=) Find student id who is enrolled in at least two courses

Solution

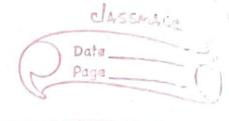
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Not equal to

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					unz	y 2	Pyne	-

	on Outer Joins
1	2
	a) last Outer Join
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	table, even it there are no match
1	in the right dable.
1	abjusting
-	Fordergin in the all man all manifest
_	a minimum to the first the same
-	Emp Dept
+	Eid Ename Did Did Dname
+	1 A D1 TT
1	2 B D2 D2 HR
1	2 B D <sub>2</sub> D <sub>2</sub> HR 3 C D <sub>3</sub> D <sub>4</sub> TIS
1	
1	Que and
1	=) Find all departments with emp data.
1	THING ALL STORMS
1	Solution
	-) . CEPE
	Emp = Mempidid = Deptidid Dept.
	$\alpha + 1 + 1$
	Output
	Eid EName Did Did Dame
1	Eid EName Did Did Phame
	2 B De D2 HR
	3 C D3 NULL NULL
-	3
4	



b) Right outer join =) Returns all the nows from the right table, even if there are no matches in the aright table.

c) Full outer join =) Combines the result of both left and right outer join.