

Querying exercises from XIT database

DEPARTMENT (did, dname)
PROGRAM (pid, pname, intake, did)
Foreign Key: did REFERENCES department (dno)
STUDENT (studid, name, progid, cpi)
Foreign Key: progid REFERENCES program (pid)

(Q-01) List (prog-name, deptt-name) of program offered at XIT

$r1 \leftarrow \text{program} * \text{department}$
 $\text{result} \leftarrow \pi_{\text{pname}, \text{dname}}(r1)$

SELECT pname, dname FROM program NATURAL JOIN department;

(Q-02) List (stud-name, prog-name) of all students

$r1 \leftarrow \text{student} \bowtie_{\text{progid}=\text{pid}} \text{program}$
 $\text{result} \leftarrow \pi_{\text{name}, \text{pname}}(r1)$

SELECT name, pname FROM student JOIN program ON (progid = pid);

(Q-03) List student name, program name of students having cpi > 7.5

$r1 \leftarrow (\sigma_{\text{CPI} > 7.5}(\text{student})) \bowtie_{\text{progid}=\text{pid}} \text{program}$
 $\text{result} \leftarrow \pi_{\text{name}, \text{pname}}(r1)$

SELECT name, pname FROM student JOIN
program ON (progid = pid) WHERE cpi > 7.5

(Q-04) List students studying in depart id 'CS'

$r1 \leftarrow \text{student} \bowtie_{\text{progid}=\text{pid}} \text{program}$
 $\text{result} \leftarrow \pi_{\text{student.*}}((\sigma_{\text{DID}='CS'}(r1)))$

SELECT student.* FROM student JOIN
program ON (progid = pid) WHERE did='CS';

(Q-05) What name of department in which student id = 123 is studying

$r1 \leftarrow \sigma_{\text{studid}=123}(\text{STUDENT})$
 $r2 \leftarrow r1 \bowtie_{\text{progid}=\text{pid}} \text{PROGRAM}$
 $r3 \leftarrow r2 * \text{DEPARTMENT}$
 $\text{result} \leftarrow \pi_{\text{dname}}(r3)$

SELECT dname FROM student JOIN
program ON (progid = pid) NATURAL JOIN department;

(Q-06) List ID and Name of students of BTech(CS) and BTech(ECE)

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SP ← (STUDENT ⋈PROGID=PID PROGRAM)
S_CS ←  $\pi_{\text{STUDID, PNAME}}(\sigma_{\text{DNAME}='BTech(CS)'}(SP))$ 
S_ECE ←  $\pi_{\text{STUDID, PNAME}}(\sigma_{\text{DNAME}='BTech(ECE)'}(SP))$ 
RES ← S_CS UNION S_ECE
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SELECT StudID, Name FROM student AS s JOIN program AS p
      ON (s.progid = p.pid) WHERE pname ='BTech(CS)'
UNION
SELECT StudID, Name FROM student AS s JOIN program AS p
      ON (s.progid = p.pid) WHERE pname ='BTech(ECE)';
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OR

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SELECT StudID, Name FROM student AS s JOIN program AS p
      ON (s.progid = p.pid)
      WHERE pname ='BTech(CS)' OR pname ='BTech(ECE)';
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