SELECT TITLE, YEAR FROM BOOKS;

$\Pi_{YEAR,TITLE}(BOOKS)$

SELECT * FROM STUDENTS WHERE MAJOR = 'CS';

$\sigma_{MAJOR='CS'}(STUDENTS)$

SELECT * FROM STUDENTS, BOOKS;

$(STUDENTS \times BOOKS)$

SELECT * FROM BOOKS WHERE PUBLISHER = 'MCGRAW HILL' AND YEAR < 1980;

$\sigma_{PUBLISHER = 'MCGRAWHILL' \ AND \ YEAR < 1980}(BOOKS)$

SELECT ANAME FROM AUTHORS WHERE ADDRESS = 'Davis';

$\Pi_{ANAME}(\sigma_{ADDRESS='Davis'}(AUTHORS))$

SELECT STNAME FROM STUDENTS WHERE AGE > 30 AND MAJOR != 'CS';

$\Pi_{STNAME}(\sigma_{AGE > 30 \ AND \ MAJOR != 'CS'}(STUDENTS)$

ALTER TABLE AUTHORS RENAME COLUMN ANAME TO NAME;

$P_{(ANAME, NAME)}(AUTHORS)$

SELECT S.STNAME FROM STUDENTS S, BORROWS B WHERE S.MAJOR = 'CS' AND S.STID = B.STID;

$\Pi_{S.STNAME}(\sigma_{STUDENTS.STID = BORROWS.STID}(\sigma_{STUDENTS.MAJOR='CS'}(STUDENTS \ x \ I$

SELECT B.TITLE FROM BOOKS B, HAS-WRITTEN HW WHERE B.DOCID = HW.DOCID AND HW.ANAME = 'Jones';

$\Pi_{B.TITLE}(\sigma_{B.DOCID = HW.DOCID}(\sigma_{HW.ANAME='Jones'}(HAS-WRITTEN \ x \ BOOKS)))$

SELECT B.TITLE FROM BOOKS B, DESCRIBES D, HAS-WRITTEN HW WHERE B.DOCID = D.DOCID AND B.DOCID = HW.DOCID AND HW.ANAME = 'Jones' AND D.KEYWORD != 'database';

$\Pi_{B.TITLE}($
$\sigma_{HW.ANAME='Jones'}(\sigma_{B.DOCID = D.DOCID}(\sigma_{D.KEYWORD != 'database'}(\sigma_{B.DOCID = HW.DOCID}(BO$

SELECT S.STNAME FROM STUDENTS S WHERE S.AGE = (SELECT MIN(S.Age) FROM STUDENTS);

$$P(S1, STUDENTS)$$
$$P(S2, (STUDENTS)$$
$$P(S3, \Pi_{S2.STNAME}(S1 \bowtie_{S1.AGE < S2.AGE} S2)(\Pi_{S.AGE} S1 - S3)$$

SELECT B.TITLE FROM BOOKS B WHERE B.YEAR = (SELECT MAX(B.YEAR) FROM BOOKS);

$$P(B1, BOOKS)\ P(B2, BOOKS)$$
$$P(B3, \Pi_{B2.TITLE}(B1 \bowtie_{B1.YEAR > B2.YEAR} B2)(\Pi_{B.YEAR} B1 - B3)$$

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