**1. List the year and title of each book**

**Relational Algebra:**

**SQL Query:**

SELECT Title AND Year

FROM Books;

2. **List all information about students whose major is CS**

**Relational Algebra:**

**SQL Query:**

SELECT \* FROM Students

WHERE Major = “CS”;

**3. List all students with books they can borrow**

**Relational Algebra:**

**SQL Query:**

SELECT \* FROM Students, Books;

**4. List all books published by McGraw-Hill before 1990**

**Relational Algebra:**

**SQL Query:**

SELECT Title

FROM Books

WHERE Year < 1990 AND Publisher = “McGraw-Hill”;

**5. List the name of those authors who are living in Davis**

**Relational Algebra:**

**SQL Query:**

SELECT AName

FROM Authors

WHERE Address = “Davis”;

**6. List the name of students who are older than 30 and who are not studying CS**

**Relational algebra:**

**SQL Query:**

SELECT StreetName

FROM Students

WHERE Year > 30

EXCEPT SELECT StName

FROM Students

WHERE Major = “CS”;

**7. Rename the name in the relation AUTHORS to Name**

**Relational algebra:**

**SQL Query:**

ALTER TABLE Authors

RENAME COLUMN AName to Name;

**8. List the names of all students who have borrowed a book and who are CS majors**

**Relational algebra:**

**SQL Query:**

SELECT S.StName

FROM borrows B, Students S

WHERE B.Major = S.Major AND S.Major = ”CS”;

**9. List the title of books written by the author “Jones”**

**Relational algebra:**

**SQL Query:**

SELECT B.Title

FROM Books B, Has-Written H

WHERE B.AName = H.AName AND H.AName = “Jones”;

**10. As previous, but not books that have the keyword “database”**

**Relational algebra:**

**SQL Query:**

SELECT B.Title

FROM Books B, has-written H, describes D

WHERE B.AName = H.AName AND H.AName = ”Jones”;

EXCEPT

SELECT B.Title

FROM Books B, has-written H, describes D

WHERE B.AName = H.AName AND H.AName = ”Jones” AND D.Keyword = “database”;

**11. Find the name of the youngest student**

**Relational Algebra:**

**SQL Query:**

SELECT StName

FROM Students

WHERE Year = min;

**12. Find the title of the oldest book**

**Relational Algebra:**

**SQL Query:**

SELECT Title

FROM Books

WHERE Year = min;