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CS166 Lab4

1. List the year and title of each book

$\pi_{year, title}$(BOOKS)

2. List all information about students whose major is CS

$\sigma_{major =' cs'}$ (STUDENTS)

3. List all students with books they can borrow

STUDENTS X BOOKS

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

$\sigma_{publisher = 'McGraw-Hill' \wedge year = <1990}$ (BOOKS)

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

π_{AName} ($\sigma_{address = 'Davis'}$ (AUTHORS))

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

π_{StName} ($\sigma_{age = > 30}$ (STUDENTS)) - π_{StName}($\sigma_{major = !'CS'}$ (STUDENTS)) …. ! = not

7.Rename AName in the relation AUTHORS to Name

p (Name, π_{Aname} (AUTHORS)) ….. Or ….. $p_{AUTHORS(Name, Address)}$ (AUTHORS)

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

π_{StName} ($\sigma_{STUDENTS.StId = borrows.StId}$ ($\sigma_{Major = 'CS'}$ (STUDENTS) X borrows))

9. List the title of books written by the author \Jones"

π_{title} ($\sigma_{AName = 'Jones'}$ ($\sigma_{has-written.DocID = Books.DocID}$(has-written X BOOKS)))

10. As previous, but not books that have the keyword \database"

π_{title}($\sigma_{keyword = !'database'}$ ($\sigma_{describes.DocId = Books.DocId}$ (describes X BOOKS))) … NOT = !

11. Find the name of the youngest student

π_{StName} (STUDENTS) - $\pi_{S1.StName}$($\sigma_{S1.Age > S2.Age}$(p_{s1} (STUDENTS) X p_{s2}(STUDENTS)))

12. Find the title of the oldest book

π_{titile} (BOOKS) - $\pi_{B2.title}$($\sigma_{B1.Year < B2.Year}$($p_{B1}$ (BOOKS) X p_{B2}(BOOKS)))