Read Chapters 12 and 15.

Exercise 12.3 For each of the following SQL queries, for each relation involved, list the attributes that must be examined to compute the answer. All queries refer to the following relations:

Emp(*eid*: integer, *did*: integer, *sal*: integer, *hobby*: char(20))

Dept(*did*: integer, *dname*: char(20), *floor*: integer, *budget*: real)

1) SELECT * FROM Emp E
   - SELECT ALL ATTRIBUTES FROM TABLE EMP
   - e.eid, e.did, e.sal, e.hobby
2) SELECT * FROM Emp E, Dept D
   - SELECT ALL ATTRIBUTES FROM TABLE EMP AND TABLE DEPT
   - e.eid, e.did, e.sal, e.hobby, d.did, d.dname, d.floor, d.budget
3) SELECT * FROM Emp E, Dept D WHERE E.did = D.did
   - SELECT ALL ATTRIBUTES FROM TABLE EMP AND TABLE DEPT
   - e.eid, e.did, e.sal, e.hobby, d.did, d.dname, d.floor, d.budget
4) SELECT E.eid, D.dname FROM Emp E, Dept D WHERE E.did = D.did
   - SELECT EID AND DNAME FROM TABLE EMP AND TABLE DEPT
   - e.eid, d.dname, e.did, d.did,

Exercise 12.4 Consider the following schema with the Sailors relation:

Sailors(*sid*: integer, *sname*: string, *rating*: integer, *age*: real)

For each of the following indexes, list whether the index matches the given selection conditions. If there is a match, list the primary conjuncts.

1) A B+-tree index on the search key < Sailors.sid >.
   - σSailors.sid<50,000(Sailors)
     - Primary conjuncts : Sailors.sid < 50,000
   - σSailors.sid=50,000(Sailors)
     - Primary conjuncts : Sailors.sid = 50,000
2) A hash index on the search key < Sailors.sid >.
   - σSailors.sid<50,000(Sailors)
     - HASH INDEXING NOT APPROPRIATE FOR RANGE QUERIES

- σSailors.sid=50,000(Sailors)
    - Primary conjuncts : Sailors.sid = 50,000

3) A B+-tree index on the search key < Sailors.sid, Sailors.age >.
    - σSailors.sid<50,000∧Sailors.age=21(Sailors)
        - Primary conjuncts : Sailors.sid < 50,000 , Sailors.sid<50,000∧Sailors.age=21
    - σSailors.sid=50,000∧Sailors.age>21(Sailors)
        - Primary conjuncts : Sailors.sid = 50,000 , Sailors.sid=50,000∧Sailors.age>21
    - σSailors.sid=50,000(Sailors)
        - Primary conjuncts : Sailors.sid = 50,000
    - σSailors.age=21(Sailors)
        - THE INDEX GETS SORTED ON THE SAILORS.SID SO YOU WOULD HAVE TO SEARCH EVERYTHING WITH THAT SPECIFIC AGE

4) A hash index on the search key < Sailors.sid, Sailors.age >.
    - σSailors.sid=50,000∧Sailors.age=21(Sailors)
        - Primary conjuncts : Sailors.sid = 50,000 , Sailors.sid=50,000∧Sailors.age=21
    - σSailors.sid=50,000∧Sailors.age>21(Sailors)
        - Primary conjuncts : Sailors.sid = 50,000
    - σSailors.sid=50,000(Sailors)
        - Primary conjuncts : Sailors.sid = 50,000
    - σSailors.age=21(Sailors)
        - THE INDEX WON'T RETRIEVE THE SETS OF SAILORS = 21